

RAWALPINDI MEDICAL UNIVERSITY



Integrated Modular Curriculum Seond Year MBBS 2023

Dated: 18-10-2023

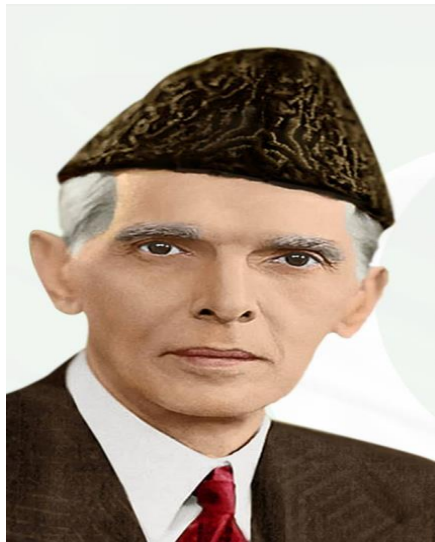
بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Dedicated to Hazrat Muhammad (S.A.W)



Universities are Deemed for Creation and Dissemination of Knowledge. RMU has started this service for medical Academia

SECTION-I



Quaid-e-Azam

Muhammad Ali Jinnah

25th December 1876

“Without education it is complete darkness and with education it is light. Education is a matter of life,”

FOREWORD

Rawalpindi Medical University seeks excellence in providing qualitative programs through modern tools in Medical Education, Scientific Research and Health Professional Services to achieve excellence in health care delivery. The Integrated Curriculum is becoming an increasingly popular concept internationally. The goal of integration is to break down barriers between the Basic and Clinical Sciences currently in place as a result of traditional curricular structure. Integration promotes retention of knowledge and acquisition of skills through repetitive and progressive development of concepts and their applications. In addition to these curricular reforms the important aspect is successfully running the implementation of the new curriculum & monitoring its each aspect without affecting the quality of Medical Education being delivered to the students. Quality Assurance is important to evaluate whether the goals have been met or not to ensure sustained success and growth of Integrated Modular System



Prof. Muhammad Umar
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Vice Chancellor
Rawalpindi Medical University
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PREFACE

This is a great prospect for RMU and curriculum committee to formulate the modular curriculum of basic medical sciences. It is a task, well meant for its contribution in medical education. Hopefully it will go a long way in training the medical graduates, as per required national and international standards of medical education. The Modular teaching is likely to give a fresh and varied approach to learning process and at the end optimizing maximum learning outcomes. This entails coordination, patience, commitment and diligence from all those who are on board, either the faculty or the students. All this seems to be encouraging, yet limited resources, inadequate man power, and difficulty in breaking traditional shackles are tangible obstacles.

The preparation and implementation of modular curriculum provides the faculty an opportunity to design and reorientate and reconceptualize health –illness process. Transforming academic stakeholders’ learning perspectives and then to translate it in students’ development as an effective force of society, well versed with modern day problems, is an uphill task. This is a humble effort in this regard. Still there is lot to distill, crystallize and narrate. Hopefully from this marathon, the curiosity will emerge like a fresh breeze, from here the character will arise in the horizon, as all this at the end is meant to serve the ailing humanity and to accomplish the dream of a healthy society.

At the end, it will be great injustice not to acknowledge the unwavering and untiring support of Prof Dr Muhammad Umar, Vice Chancellor RMU, who is an ardent supporter and promoter of anything which gives a fresh impetus to medical education and practice. It’s all because of his continuous input and persuasion, that the modular curriculum achieved fruition.

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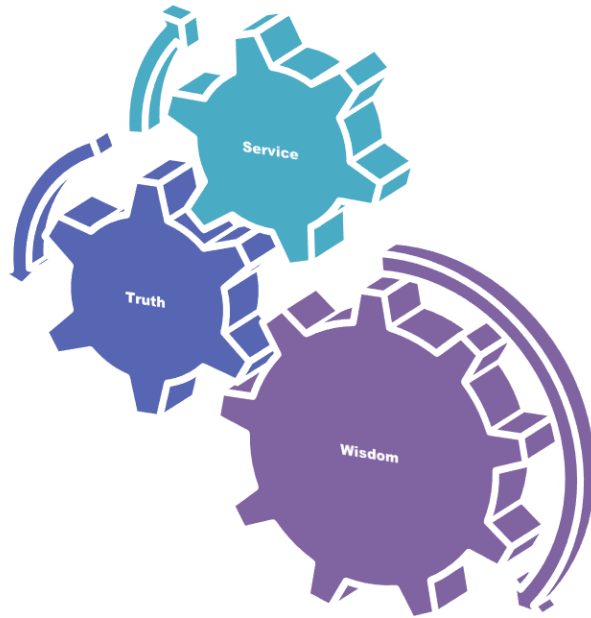


Muhammad Arslan Aslam
Computer Operator



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Introduction to Rawalpindi Medical University

History

Rawalpindi Medical College was established in Faisalabad on 18th March 1974 and later shifted to Rawalpindi on 5th November 1974 in an incomplete building at Tipu Road. The founder principal of RMC, Prof. Abdul Latif, worked hard to establish the institution. The student hostels, staff colony and auditorium were built. Apart from his own specialty of anatomy he completed the entire faculty. He also managed to acquire the Holy family hospital from missionary church and central Government Hospital from central Government that later became Rawalpindi General Hospital and now Benazir Bhutto Hospital. The District headquarter Hospital was also affiliated to the college as 1st teaching hospital. Prof. Mohammad Nawaz the 2nd Principal and Prof.

Mohammad Iqbal as Professor of surgery and later on Principal played pivotal as pioneer team to establish all components of RMC. Prof. Iqbal, Prof. Saad Rana worked hard to establish New Teaching Block in Holy Family Hospital with help of Islamic Development Bank.

The Legacy was taken forward by respective forthcoming Principals, worth mentioning is Prof. Mubashir Hussain Malik who established department of Psychiatry and worked hard to develop its international collaborations. The Department of Medical Education and the institute of Allied health sciences established in 2007 was the vision of Prof. Muhammad Musadiq Khan, he also started the new teaching block holy family hospital Rawalpindi as well as ICU and CCU.

First Rawalian Principal, Prof. Mohammad Umar after taking over the office in 2013, started working on multi- dimensional approach to further develop the institution. He restructured the undergraduate training program by establishing purpose built Department of Medical Education (DME), upgraded student libraries, Cafeteria, student section and hostels. Arranging historical meeting to develop consensus on national guidelines for the undergraduate training headed by chairman HEC, President PMDC, Vice chancellor UHS and all the principals of medical colleges is another credit to RMC in his tenure.

Regarding patient care projects ,worth mentioning are ,State of the art centre for Liver and Digestive diseases(CLD),Multi Organ Failure Centre(MOF), Medical ICU, Department of Infectious diseases (DID),Department of Emergency and Critical care(DEC) and up gradation of the affiliated hospitals.

To establish recognized postgraduate training in super specialties international conferences, Mentorship program are other important achievements.

Since 1947 more than 7900 students have graduated and are serving nationally and internationally.RMC is privileged to claim top positions in university examination several times. Best of the best graduate in UHS is also a Rawalian.

Academic programs of the college are accredited by UHS, CPSP and PMDC. The College got full recognition by General Medical Council UK, American specialty boards and internship programs with different universities abroad and WHO.

Rawalpindi Medical College has always occupied a unique position in the public sector, being one of the leading medical colleges in South Asia. It serves as an extraordinary interface between health care provision and medical education; with the three allied hospitals bearing the brunt of the city's health care needs, medical and paramedical undergraduate courses that train the sharpest minds of the country, and diverse post-graduate training programs.

Now Old Campus mainly serves administrative purposes and the first two i.e. non-clinical years of the students of MBBS degree are taught there and next three in New Teaching Block Holy Family hospital.

The institute has strived to be upgraded to the level of an independent University after which the annual system of MBBS degree has been changed to the internationally preferred modular system. Now after the successful launching of MD/MS program by VC RMU we are struggling hard to get the M.Phil and PhD program approve.

History of Integrated Modular Curriculum

Abraham Flexner, while evaluating medical schools in the United States and Canada, found three different ways in which a student could receive training to become a physician:

- 1) Apprenticeship with a practicing physician,
- 2) Through a proprietary medical school, or 3) by a university-based medical school and associated hospital.¹

The publication of Medical Education in the United States and Canada , referred to as the Flexner Report in 1910 criticized the lack of science content and application of the scientific method in teaching diagnosis and treatment.² This resulted in the reform of medical education in the United States through the adoption by the Council on Medical Education in 1905 of the standard adopted that medical students would have two years of education in the sciences of human anatomy and physiology and two years of clinical training in a teaching hospital.³ The implementation of this reform was completed in the 1930's.

Principles of developing Integrated Modular Curriculum

Since the time that scientifically-based medical education became the standard for training physicians, there has been an exponential increase in the scientific knowledge that a physician must understand and apply to diagnose and treat patients competently. In addition to training in human anatomy and physiology during the first two years in medical school, a present-day medical student also receives instruction in biochemistry, cell biology, embryology, epidemiology, genetics, histology, immunology, microbiology, molecular biology, neurobiology, nutrition, pathology, pharmacology and virology. These foundational or basic sciences enable the future physician to understand what constitutes the homeostasis of the healthy individual, the mechanisms by which that homeostasis is disrupted by disease, and how particular disease states may best be treated. A competent physician will be able to apply concepts from these foundational sciences and integrate new scientific knowledge and technology to rationally solve clinical problems presented by patients.

With new discoveries and advances in the foundational sciences increasing every year, the challenge for medical educators is to discern which of these advances together with current knowledge will help the medical student relate the foundational sciences to medicine and clinical practice. A recent study by the Association of American Medical Colleges and the Howard Hughes Medical Institute described the competencies in the foundational sciences that a physician entering residency should possess in order to be able to practice medicine grounded in scientific principles.⁴ The report emphasized the importance of the natural sciences in medical education but also stressed that they should be presented in a way that students recognize their relevance to medical practice. These competencies, along with the accompanying learning objectives in the report, will serve as an excellent guide in helping medical educators present the scientific concepts that will prepare the medical student to practice science-based medicine.

The ultimate goal of all of the foundational sciences is to prepare the student to take the greatest advantage of clinical experience available in their medical training. Regardless of their separate venues, foundational science education and clinical training are characterized by an extensive interdependency. The foundational sciences provide a high quality learning experience when they are correlated with clinical problem solving challenges.

Likewise, clinical training becomes a high quality learning experience when it is fully supported by the foundational sciences.

Scientific reasoning serves as the basis for clinical problem solving. It requires a fund of knowledge upon which to base hypothetical possibilities that can be tested. Thus, in its most general aspect, the process of clinical diagnosis is a guess based on the facts available. More precisely, it is a guess that is made more reliable when based on information provided by the foundational sciences

In general the foundational sciences should be integrated, both horizontally and vertically, in the medical curriculum and should be taught in a clinical context whenever possible. The vocabulary and core concepts that underpin all of the other courses should be introduced in year 1 and reinforced in year 2. These core concepts should be introduced in a clinical context with problem solving exercises so that the students gain experience applying those concepts to clinical decision making. The clinical years are the most appropriate place for the mastery of the detailed basic science concepts required for a full understanding of the clinical condition and treatment options for the patients with whom the students are working. This education strategy allows the students to appreciate fully the importance of mastering those detailed basic science concepts that most closely relate to patient care. Also, because students are learning these concepts in the clinical framework of a real patient experience they are more likely to retain and be able to apply these concepts in the future.

There are almost as many strategies for achieving horizontal and vertical integration as there are medical schools, but there are some fundamental principles for successful integration that apply to most of the integration models that exist. While there are many ways in which integration of the foundational sciences can be organized, successful integration always requires that faculty work with each other in the planning and implementation of integration so that key concepts flow from one lecture to another. Since it is seldom possible for all related lectures to be organized sequentially, it is important that faculty make it clear to the students how the concepts that they cover are linked to others in the curriculum.

Foundational sciences are best integrated in a clinical context that requires clinical application of the core foundational science concepts. For the didactic portion of the curriculum, this can be achieved by organizing lectures around clinical cases. However, it is also important to involve the students in decision-making processes that utilize core foundational science concepts to solve clinical problems and to do this in an integrated manner to the extent possible. For example, clinical case exercises related to lysosomal storage diseases, glycogen storage diseases, cardiovascular disease and diabetes can be designed to involve core concepts that are associated with biochemistry, cell biology, molecular biology, genetics and nutrition.

The second year curriculum varies widely among medical schools, but it is important that the first-year and second-year faculty work together so that the core concepts from the foundational science curriculum in year 1 are integrated with the second-year curriculum. The first step in this process is an identification of the key concepts from the first-year curriculum that underpin the second-year curriculum. This helps to define those concepts that should be part of the first-year curriculum. It also allows a coordination of the first-and second- year curriculum so that there is appropriate review and expansion of important foundational science concepts in the second year curriculum. It can also be valuable to introduce clinical cases in the first year and revisit them in a more detailed manner in the second year.

Integration of the foundational and clinical sciences is the most challenging in the clinical years because much of the content is taught at the bedside and often at various locations. However, many clinical courses are now standardizing the clinical experience by defining lists of patients that every student must see and procedures that every student must master. In much the same manner foundational science and clinical faculty can work together to identify the key foundational science concepts which are important for student understanding of the clinical learning issues and should require mastery of those foundational science concepts. Typically, this would draw on the foundational science concepts learned in years 1 and 2 that are ideally suited for understanding the disease process being studied, but would go into a level of detail that would be inappropriate for a first or second year course.

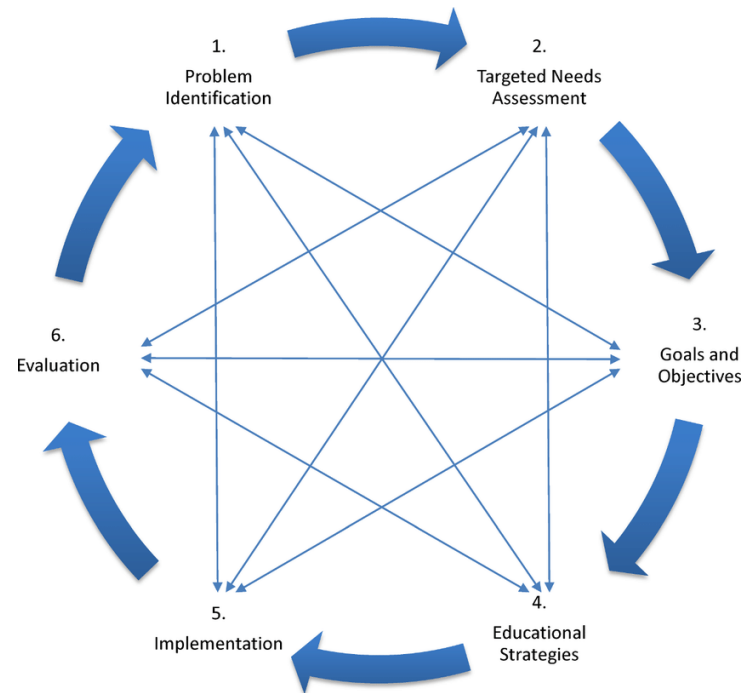
Diversity is strength in the gene pool and it is strength in the curriculum. In order to play a proper role in the curriculum, it needs to be taught through a diversity of modalities that allow its fundamentals to be applied, either in learning more complex concepts or in application to clinical problems. While the traditional lecture has a strength in organizing and communicating facts and concepts, the absence of using that information to make a decision and act on it, e.g. dialog, drawings, reports, prevents the students from using an optimal whole-brain approach.⁵ The temporal lobes that process the information in our long term memory are not designed to postulate possibilities and also make a logical choice among them. A whole-brain approach engages the prefrontal area to perform the latter task and draws on known information thus producing a highly effective use of the whole brain in learning. The modalities of Team-Based Learning and Problem Based Learning are two examples of teaching strategies that employ group problem solving to engage the whole brain including the limbic emotions that result when people work together.^{6,7} This metacognitive approach has been recognized in a report by Bransford, Brown and Cocking as one of the three key essential elements for effective education that were identified by the National Research Council.⁸

Many teachers are now also employing active strategies during lecture to better engage the student. The use of hand-held audience response transmitters, —clickers,⁹ permit the instructor to make a formative assessment of the understanding of a concept as it is being taught and a —think-pair-share¹⁰ method that has students talk briefly with a neighbor in response to a question about the topic being taught are two examples.

Physician competency in the foundational sciences is best achieved when they are integrated with each other throughout the medical curriculum and effectively applied to solve clinical problems. An in depth mastery of the foundational sciences is becoming increasingly important to prepare future physicians for the scientific advances that are rapidly changing the practice of medicine. At the same time there are pressures to shrink the curriculum time devoted to the foundational sciences. Thus, it is absolutely imperative that students enter medical school with a prior exposure to some combination of biochemistry, cell biology, molecular biology and genetics. This prerequisite will introduce undergraduate students to the vocabulary and basic concepts that they will be learning and applying in a more clinical context in medical school. Ideally, this undergraduate

prerequisite will also teach students the basics of scientific reasoning. It should be recognized that the coverage of these topics is very uneven at the undergraduate level, so this prerequisite should not be considered as a replacement for these content areas in medical school, but rather a means to make learning in the medical curriculum more effective. Finally, as described in the 2009 AAMC-HHMI report, these topics would be best taught in an integrated manner at the undergraduate level so that students are exposed to the vocabulary and basic concepts of all four content areas equally, and so that the students learn how those content areas are interrelated.

Our concept and process of curriculum development is grounded in the Kern's model for medical curriculum development.



Types of Integration

- Integrated teaching was first introduced at the Case Western Reserve University Medical School, Cleveland, Ohio in 1952 in one course.⁴ The integrated curriculum combines independent disciplines in an integrated approach, usually organized around an organ/system of the body. The pioneer in the UK was the University of Newcastle upon Tyne in 1962⁵. By 1974 it had been introduced in many medical schools in USA and Canada.⁶ Integrated strategies have the advantage of motivating students. It develops a holistic approach to clinical problems, better recall, early clinical training, and development of self-learning skills which are essential in preparing students for continued education beyond the university.
- There are many versions of integration and any one of a number of combinations between the basic sciences and the clinical disciplines may be adopted. The integration can be horizontal; between the basic sciences or between the clinical disciplines, or vertical between the basic sciences and the clinical subjects, or both.⁷
- Vertical integration between basic sciences and clinical medicine according to the organ-system model has been used by different Medical Schools.^{8–9} However, vertical integration throughout the entire curriculum require a lot of time and work in planning, organization and execution. The teachers have to be deeply involved and enthusiastic and have to cooperate beyond departmental borders, which may produce positive spin-off effects in teaching and research but also produce conflicts that have to be resolved.⁹
- In the horizontal integration, the interdisciplinary approach is mostly applied to the pre-clinical teaching in different Schools of Medicine.^{10–14} The Basic Medical Science Faculty along with representatives from the clinical sciences has to hold joint meetings to design a system based integrated curriculum for the first two years of the MBBS class.¹³ Sobral¹⁰ pointed out that the educational strategy in horizontal integration should be examined in reference to three features: the expected outcomes with regard to the competence of the graduate; the parameters of interdisciplinary integration; and the limiting factors for the development of interdisciplinary integration in medical education. Further, efforts have to be made both to bring clinical relevance to the basic sciences and to strengthen basic science in the clinical years.¹²
- There was partial integration in many Schools of Medicine where one or more courses were designed to include interdisciplinary material.^{15–17} The Oregon Health Sciences University (OHSU) School of Medicine developed a 2-year longitudinal course, called Principles of Clinical Medicine, integrating input from both basic and clinical science departments.¹⁵ Dauphinee & Martin¹⁶ described the integration of the biomedical and behavioral sciences, particularly to advance the understanding of the human brain. Rudich and Bashan¹⁷ described an interdisciplinary one-week course for the sixth-year medical students. In that course, students were required to conduct an in-depth investigation of a defined clinical topic.
- Geffen et al¹⁸ reviewed and evaluated horizontal, vertical, and full integration. He concluded that the fully integrated curriculum has been able to adapt to the changing

needs of medical education because its organization is relatively free from the constraints of departmental rivalry over resources. Brynhildsen et al compared the vertical with horizontal integration using student and faculty questionnaire.¹⁴ Students scored horizontal integration significantly higher than the teachers, whereas teachers scored vertical integration higher than students. Both students and teachers considered horizontal and vertical integration as highly important components of the undergraduate medical program.

Integrated Modular Curriculum of First Year MBBS

Preamble:

The curriculum of the UNIVERSITY is defined according to the Vision and Mission which is aligned to the national health needs. This Curriculum highlights the kind of physician expected to graduate from its medical colleges and Universities, outcomes and competencies and is based on best evidence in medical education.

RMU ensures that the minimum standards are achieved and the medical graduates are competent to practice medicine and ensure that graduates should be able to meet the health needs of the society. These graduates should be competent to apply evidence based medicine to health promotion, disease prevention, curative and rehabilitative care, using the bio-psycho-social model.

Curriculum:

Medical education is a life-long process and MBBS curriculum is a part of the continuum of education from pre-medical education, MBBS, proceeding to house job, post-graduation, continuous medical education and continuous professional development (CME/CPD). Curriculum development is a dynamic process and works best in an environment conducive to learning, and thrives on monitoring, quality assurance and continuous quality improvement. It consists of not only the formal curriculum but also the informal learning that takes place through day-to-day interactions of students with peers, teachers, colleagues, other health care providers, and the patients and their families. With the information explosion of the last century and scientific discoveries expanding the boundaries and restructuring the concepts of current knowledge, it is essential to work towards curricular integration, identify a core curriculum which all students must master, with plenty of opportunities for students to follow their own interest as electives.

The curricular model that has been grounded in educational theory and adult learning principles, which will promote learning of basic sciences in the clinical context. It ensure building of analytical and critical thinking, clinical and lifelong learning skills, and desired professional behaviors in our graduates by appropriate multi-modal teaching, learning, and assessment and feedback strategies.

Competencies of Medical Graduate Required By PM&DC

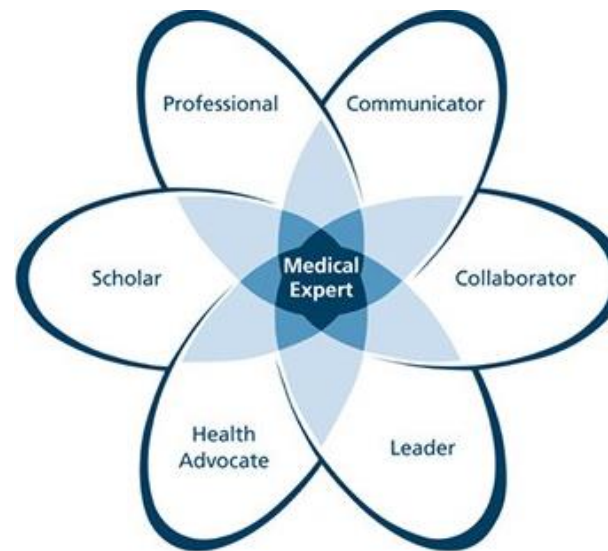
PM&DC outlines the guiding principles for undergraduate medical curriculum and has defined the generic competencies and desired outcomes are required for a medical graduate to provide optimal health care, leading to better health outcomes for patients and societies. These generic competencies set the standards of care for all physicians, and form a part of the identity of a doctor. Each competency describes a core ability of a competent physician. These competencies provide a framework for the development of educational programs throughout the physicians learning continuum, from undergraduate MBBS level, to postgraduate and continuing professional development (CPD).

Graduates of medical and dental colleges of Pakistan should be able to demonstrate four main outcomes: those of a competent medical practitioner, a professional, a researcher, a role model leader; demonstrating competencies of a seven star doctor.

Framework OF MBBS Programme Followed By RMU:

To produce **seven-star doctor** who has following competencies;

1. Skillful
2. Knowledgeable
3. Community health promoter
4. Critical thinker
5. Professional and role model
6. Researcher
7. Leader



Seven-Star Doctor Model

Integrated Curriculum Design of MBBS Programme of RMU

Two designs of the MBBS curriculum are acceptable by PMC/PMDC.

System Based (Preferred) with horizontal and vertical integration. The curriculum of each Clinical Discipline must emphasize–Health Promotion and Disease Prevention, besides Curative Health Care.

RMU has opted for system based modular curriculum.

The Module: Module is the smallest unit of Curriculum both in the System- Based and Subject-Base (topic-based) Curricula. Modules are taught as a continuous block or as a longitudinal theme and assessments is carried out at the end of each module.

The System-Based Curriculum made up of —Modules, where each module is based upon organ-system(s) of the body. In each module, the Basic and Clinical Sciences are taught and learned in an integrated fashion. In RMU we are following the system based curriculum.

The Module should explicit makes:

Title of Module of a System 2) Learning Objectives, 3) Allocated Time in weeks/Hours and Credit Hours, 4) the name of the Coordinator, 5) Teaching Faculty (regular/visiting) 6) Learning Sites, 8) Modes of Information Transfer, 9) List of the Recommended Books, 10) Assessment strategies, and 11) Strategies for Monitoring and Improvement.

Learning Objectives: Learning Objectives are defined for each module. They are Specific, Measurable, Achievable, Relevant to the desired competencies (Outcomes) of the PMC Curriculum and Time bound (SMART), related to level of the learner and the three main domains.

Level of the Learner: While developing the curriculum, the learning objectives are according to the desired level of the learner, and the assessment systems must assess the knowledge, skills and attitudes to be achieved for that level.

Cognition Domain (Knowledge)

- C1 Recognition and Recall
- C2 Interpretation and application
- C3 Problem-solving (analysis, synthesis and judgment)

Psychomotor Domain (Skills)

- P1 Observe
- P2 Assist in the procedure

- P3 Perform under supervision P4 Perform independently

Affective Domain (Attitudes, Values, Behaviours)

Learning Sites and Strategies: The University ensures student-centered active learning in the context of real problems, patients and the community. It may take many forms, for example, –Problem Based Learning, –Case-based Learning and–Community Oriented Practices. Appropriate learning sites and Modes of Information Transfer are selected.

1. Large Group interactive session
2. Logbook
3. On-line courses
4. Photographs, Slides and Software
5. Practical exercises.
6. Self-Learning: Medical Colleges/Universities must provide sufficient opportunities for self- learning in the curriculum
7. Small Group Learning
8. Student Assignments and Projects
9. Student Presentations
10. Videos
11. Others.

Subjects / Rotations / Disciplines in the Curriculum

1. Anatomy
2. Physiology
3. Biochemistry
4. Pharmacology
5. Pathology
6. Community Medicine Medicine and Allied Specialities
7. Paediatric Medicine
8. Surgery and Allied Specialties
9. Obstetrics and Gynaecology
10. Ophthalmology
11. Otolaryngology
12. Behavioral Sciences
13. Medical Ethics
14. Professionalism.
15. Communication Skills
16. Radiology

- 17. Research Methods
- 18. Islamiyat and Pakistan Studies (as per HEC Guidelines)
- 19. The Holy Quran Translation (as per HEC Guidelines)

Theoretical and Practical Learning: Approximate allocation of time for Theoretical and Practical Learning is based on the ratio of contact hours (theory: practice) Basis Sciences 50:50

Credit Accumulation and Transfer System: Credit Hour is Academic Currency. Medical Colleges should use the notional learning hours concept for defining a credit. For example, in the European Credit Transfer System (ECTS) 1, –one ECTS is equivalent to 25-30 student learning hours.

Allocation of Hours and Credits in the MBBS Curriculum One Academic Year = 9 months = 36 weeks Academic Week = 423 hours/week (= 1512 hours/year = 7560 hours in 5 years. According to ECTS, where 25 student learning hours equals one credit, one year of the MBBS programme (1512 hours) equals approximately 60 Credits (1512 / 25 = 60). When one year (36 weeks) is divided into two (2) Semesters of 18 weeks each, each semester will have 30 Credits. The MBBS programme will have a total of 300 credits (7560 hours / 25 student learning hours).

Teacher-Student Ratio: As per guidelines of the PMC/PMDC but in RMU we are working with less human resource.

Minimum Attendance: 75% attendance is required from each student for examination subject and non-examination subjects, in order to be eligible to take the module or annual examinations.

Assessments and Examinations:

For Assessment details there is separated document that is part of curriculum.

Programme Administration

- Each Module / clerkship has its own Teaching Faculty with one coordinator and three co-coordinators.
- All such coordinators/heads shall constitute –Module Team chaired by Dean Basic Sciences.
- Responsibilities of the Curriculum Committee are given in TORs.

Continuous Quality Improvement of MBBS Programme: The effectiveness of the curriculum in achieving the goals, learning outcomes and objectives will be measured by:

1. Self-Monitoring by the Coordinator/head of each module clerkship/rotation/course and reported to the Coordinator/head of the MBBS Curriculum Coordination Committee *every year*, as required by HEC
2. Self-Assessment by the Institution by appointing a peer review committee to evaluate the MBBS Programme Examination Subject (13 subjects), *every 2-3* years, reported as —Self-Assessment Report (SAR) of HEC
3. External review (Reaccreditation) *every 5 years* by PMC.

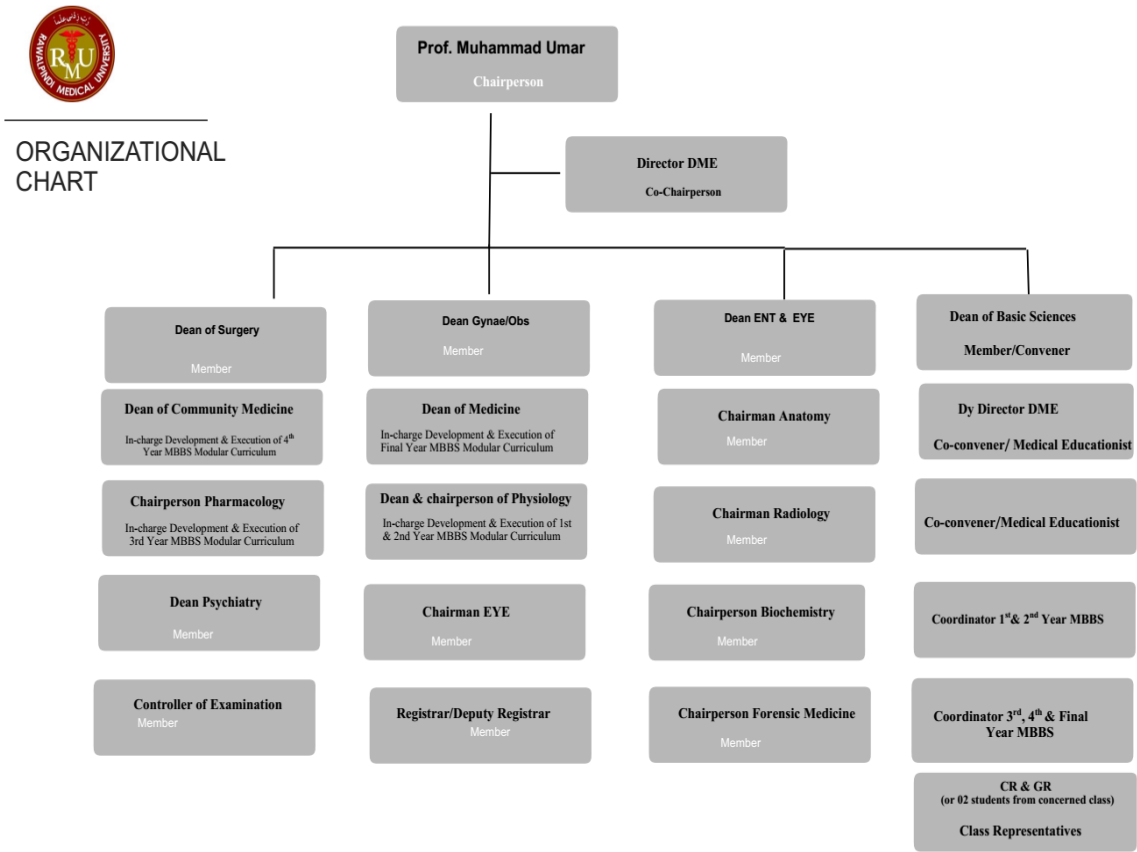
Institutional Responsibilities for Learning Resources:

RMU provides following resources:

1. An enabling educational environment conducive to learning
2. Library with books, Journals, e-library services, appropriate software and others
3. Skills learning and practice sites, equipment and opportunities
4. Student support programs
5. Extracurricular activities
6. Financial Assistance for deserving students.

Extra-Curricular Activities: Medical Colleges/Universities must provide sufficient opportunities for extracurricular activities which RMU provides as sports week.

Organogram of Organizational Chart of Curriculum Management



Rawalpindi Medical University Curriculum Committee

The following faculty members of the Rawalpindi Medical University are hereby nominated for Curriculum Committee to supervise development, implementation and feedback evaluation of all levels of the curriculum as per PM&DC curriculum guidelines including course content and subject wise teaching hours. They will perform duties as mentioned against each.

1.	Prof. Dr. Muhammad Umar Vice Chancellor	Chairperson
2.	Prof.Dr. Jahangir Sarwar (CHPE) Principal / Dean of Surgery & Allied	Co-Chairperson
3.	Prof. Dr. Muhammad Rai Asghar (MHPE) Controller of Examination Director Department of Medical Education	Member
4.	Prof. Dr. Lubna Ejaz (MHPE) Dean & Professor of Gynae-Obstetrics	Member
5.	Prof. Dr. Nosheen qureshi Professor of ENT	Member
6.	Prof. Dr. Naeem Akhtar Professor of pathology	Member/Convener
7.	Prof. Dr. Mobeena Dohdhi Professor of pathology	Member
8.	Dr. Asma Khan Head of Pharmacology	Member/Co-convener In-charge Development & Execution of 3 rd Year MBBS Modular Curriculum
9.	Dr. Syed Arshad Sabir Head of Community Medicine & Public Health	Member In-charge Development & Execution of 4 th Year MBBS Modular Curriculum

10.	Prof. Dr. Muhammad Khurram Dean of Medicine & Allied	Member In-charge Development & Execution of Final Year MBBS Modular Curriculum
11.	Prof. Dr. Samia Sarwar Head of Physiology Department	Member
12.	Prof.Dr. Asad Tameezudin (MHPE) Head, Institute of Psychiatry	Member
13.	Prof. Dr. Fuad Niazi (MHPE) Dean of Eye and ENT, Professor of Ophthalmology	Member
14.	Prof.Akram Randhawa Head of Bioethics Department	Member
15.	Prof. Dr. Nasir Khan Professor Head of Radiology Department	Member
16.	Dr. Romana Head of Forensic Medicine Department	Member
17.	Prof. Dr. Ayesha Yousaf (CHPE) Head of Anatomy Department	Member Dean Basic Sciences
18.	Prof.Ifra Saeed (CHPE) Additional Director Department of Medical Education	Member/Co-convener Incharge Curriculum Pre-clinical years In-charge Development & Execution of 1 st & 2 nd Year MBBS Modular Curriculum
19.	Dr. Aneela Jamil Assistant Professor	Member Head of Biochemistry Department
20.	Dr. Rabia Khalid Registrar/Assistant Registrar	Member

21.	Dr. Fahd Anwar Focal Person The Holy Quran Translation Curriculum	Member
22.	Mufti Naeem Ahmad Sherazi Incharge and focal person Islamiyat Curriculum	Member
23.	Qari Aman ullah Focal person Pak studies curriculum	Member
24.	Dr. Khaula Noreen (MHPE) Focal Person Research Curriculums of University	Member
25.	Dr. Sidra Hamid (DHPE) Assistant Prof. Physiology/Assistant Director DME	Curriculum Coordinator 1 st & 2 nd year MBBS
26.	Dr. Omaira Asif (CHPE) Demonstrator Pharmacology/ Assistant Director DME	Curriculum Coordinator 3 rd , 4 th & Final Year MBBS
27.	CR & GR (or 02 students from concerned class)	Class Representatives

Modules of 2nd Year MBBS

Sr. No	Module	Time Scheduled	Blocks
1.	Gastrointestinal tract Module	06 Weeks	I
2.	Renal Module	05 Weeks	
3.	Reproduction Module	04 Weeks	II
4.	Central Nervous System Module	06 Weeks	
5.	Special Senses Module	04 Weeks	III
6.	Endocrinology Module	05 Weeks	

Academic Canlender



DEPARTMENT OF MEDICAL EDUCATION RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI

DME/NO: _____

Date: / / 2023

Academic Calendar of Second Year MBBS (Batch 49) 2022-2023

BLOCK	Block-I		Block-II		Block - III		Revision Module	Schedule <u>Of</u> Send Up And Professional Examination			
Modules	GIT	Renal	Reproduction	CNS	Special Senses	Endocrinology		Prep leaves for send up	Send up Examination	Prep leaves for Professional Examination	Professional Examination
Duration in weeks	06	05	04	06	04	05	02				
Dates	30 th Jan to 11 th March 2023	13 th March- 15 th April 2023	26 th April to 3 rd June 2023 (Sports Week 22 nd - 27 th May)	5 th June - 12 th August 2023 (26 th June - 22 nd July Summer Vacation)	15 th August - 9 th September 2023	11 th September - 14 th October 2023	16 th Oct-28 th Oct 2023	30 th Oct - 11 th Nov 2023 (15 days)	13 th Nov 2023 to 25 th Nov, 2023	27 th Nov 2023 to 17 th Dec 2023 Days (20 days)	18 th Dec-2023 11 th Jan, 2024

- Vacation Schedule during Academic Year 2023
14th - 21st April - Spring Vacation
22nd - 24th April Eid ul Fitr Holidays
22nd - 27th May - Students week
26th June - 22nd July - Summer Vacation
- Note: All dates are subject to change

SECTION-II

Study Guides






Gastrointestinal Tract Module

Study Guide
Second Year MBBS 2021 - 2022



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Document Information

Category	Respiration Module Study Guide
Document	Procedure for Control of Documented Information
Issue	1
Rev	00
Identifier	RMU-MR-SOP-66
Status	Final Document
Author(s)	Additional Director Medical Education, Asst. Director Medical Education,
Reviewer(s)	Curriculum Committee.
Approver(s)	Vice Chancellor
Creation Date	10-01-2023
Effective Date	10-01-2023
Control Status	CONTROLLED
Distribution	VC, Principle, ISO Committee
Disclaimer	This document contains confidential information. Do not distribute this document without prior approval from higher management of Rawalpindi Medical University .

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	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-56	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 10-01-2023


Document Approval

Prepared By	Reviewed By	Approved By
Additional Director Medical Education, Asst. Director Medical Education,	Curriculum Committee	Vice Chancellor

	RAWALPINDI MEDICAL UNIVERSITY			
	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-56	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 10-01-2023

Document Revision History

Author(s)	Date	Version	Description

	RAWALPINDI MEDICAL UNIVERSITY			
	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-56	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 10-01-2023

List of Copy Holders

Document Code	Issue # /Rev.#	Copy #	Copy Holders	Distribution Mode	Signature
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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

GIT Module

Discipline wise Details of Modular Content

Block	Module	General Anatomy	Embryology	Histology	Gross Anatomy
1	Anatomy	-	Tongue, Body Cavities, Gastrointestinal System	Digestive Tract & associated organs (Junqueira)	Oral Cavity, Abdomen and associated viscera
	Biochemistry	Carbohydrate metabolism, GIT digestive juices, Digestion and absorption, Nutrition			
	Physiology	General Principles of Gastrointestinal Function—Motility, Nervous Control, and Blood Circulation Propulsion and Mixing of Food in the Alimentary Tract Secretory Functions of the Alimentary Tract, Digestion and Absorption in the Gastrointestinal Tract Physiology of Gastrointestinal Disorders			
	Bioethics & Professionalism	<ul style="list-style-type: none"> Pakistan Medical & dental council Code of Ethics 			
	Research (IUGRC)	<ul style="list-style-type: none"> Introduction to descriptive statistics Classification of different types of Data Scales of Data measurement Measures of central Tendency Compute & Interpret measures of central tendency Measure of dispersion/ Secondary data Analysis 			
	Radiology & Artificial Intelligence	<ul style="list-style-type: none"> Medical imaging of abdomen- I Medical imaging of abdomen-II 			
	Family Medicine	<ul style="list-style-type: none"> Common Abdominal diseases 			
	Vertical components	<ul style="list-style-type: none"> The Holy Quran Translation Component 			
	Vertical Integration	Clinically content relevant to GIT module <ul style="list-style-type: none"> Eating disorders (Psychiatry) Concept of health & disease (Community medicine) Epidemiology of infectious diseases & Basic Concepts (Community medicine) Dysphagia (Medicine) Pathologies of Salivary glands (Pathology) Abdominal hernias (Surgery) 			

		<ul style="list-style-type: none"> • Abdominal incisions (Surgery) • Peptic ulcer (Medicine) • Surgical complications of Peptic Ulcer Disease (Surgery) • Pakistan Medical & dental council Code of Ethics (Community Medicine) • Jaundice (Medicine) • Gall stones & Cholecystectomy (Surgery) • Acute & Chronic Diarrhea (Pediatrics) • Acute Abdominal Pain (Surgery) • Irritable Bowel Syndrome (Medicine) • Antidiarrheal drugs & drugs for Peptic Ulcer Disease (Pharmacology) • Common GIT problems in pregnancy (Hyperemesis gravidarum, GERD, Constipation, hemorrhoids) (Gynae and OBS) • Pathologies of gallbladder and pancreas (Pathology) • Anal fissure, Hemorrhoids, Fistula in ano (Surgery)
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GIT Module Team

Module Name : GIT Module
 Duration of module : 06 Weeks
 Coordinator : Dr. Maryam Sohail
 Co-coordinator : Dr. Ali Raza
 Reviewed by : Module Committee

Module Committee		Module Task Force Team	
Vice Chancellor RMU	Prof. Dr. Muhammad Umar	Coordinator	Dr. Maryam Sohail (Senior Demonstrator of Anatomy)
Director DME	Prof. Dr. Rai Muhammad Asghar	DME Focal Person	Dr. Sidra Hamid (DHPE)
Convener Curriculum	Prof. Dr. Naeem Akhter	Co-coordinator	Dr. Shazia Nosheen (Senior Demonstrator of Physiology)
Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	Co-Coordinator	Dr. Almas Ijaz (Senior Demonstrator of Biochemistry)
Additional Director DME	Prof. Dr. Ifra Saeed	Co-coordinator	Dr. Ali Raza
Chairperson Physiology	Prof. Dr. Samia Sarwar		
Chairperson Biochemistry	Dr. Aneela Jamil	DME Implementation Team	
		Director DME	Prof. Dr. Rai Muhammad Asghar
Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
Focal Person Physiology	Dr. Sidra Hamid	Deputy Director DME	Dr Shazia Zaib
Focal Person Biochemistry	Dr. Aneela Jamil	Module planner & Implementation coordinator	Dr. Sidra Hamid
Focal Person Pharmacology	Dr. Zunera Hakim	Editor	Muhammad Arslan Aslam
Focal Person Pathology	Dr. Asiya Niazi		
Focal Person Behavioral Sciences	Dr. Saadia Yasir		
Focal Person Community Medicine	Dr. Afifa Kulsoom		
Focal Person Quran Translation Lectures	Dr. Fahad Anwar		

Module I -GIT Module

Rationale: GIT module has been designed to unravel the basic structure function of the alimentary system along with its embryological development and anomalies. The composition of the food is complex and little of it is water soluble. Therefore, it cannot enter body fluids. Hence it needs to be broken down into its chemical components before it can be absorbed. Four activities of the GIT tract can be identified for this process to occur. These are:

Motility: The term is used to describe the movements of the GIT tract. These movements are responsible for breaking down and pushing the food along the alimentary tract and to its destination as feces.

Secretion: Different secretion of the GIT are concerned with breakdown of food into its digestive particles

Digestion: Break down of food into small pieces. It is produced by the mechanical activity of the alimentary tract. The surface of the food is exposed to enzymatic activity.

Absorption: The transfer of nutrients or the digestive products from the lumen to blood or the lymph.

Disruption of any of its activities can lead to disease states such as pain, peptic ulceration, diarrhea & constipation.

Coordination of all these functions is brought about hormones of GIT and exocrine pancreas.

Module Outcomes

At the end of this module the student should be able to:

Knowledge

- Explain the structural & developmental organization of GIT.
- Explain the composition, functions, mechanism & control of following gastrointestinal secretions: salivary, gastric, pancreatic, biliary, small & large intestines.
- Explain the swallowing and motility patterns in the GIT & its role in mixing, propulsion & evacuation of feces.
- Describe the mechanism of absorption of various nutrients and their role in malabsorption syndrome.
- Explain the physiological anatomy, biochemistry functions and dysfunctions of Liver.
- Explain the formation, function & control of secretion of bile.
- Explain the GIT hormones (structure, function) & their role in secretion and motility.

- Apply the knowledge of the basic sciences to understand pathophysiology of common GIT diseases.
- Appreciate concepts & importance of
 - **Family Medicine**
 - **Biomedical Ethics**
 - **Artificial Intelligence**
 - **Research**

Skills

- Dissect various parts of GIT, and related structures including peritoneum, to demonstrate their gross Anatomy and relationship to each other.
- Identify different organs of GIT under microscope and on model.

Attitude

- Demonstrate a **professional attitude, team-building** spirit and **good communication skills**.

This module will run in 6 weeks duration. The content will be covered through introduction of topics. Instructional strategies are given in the timetable and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning
- Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar's Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will be followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

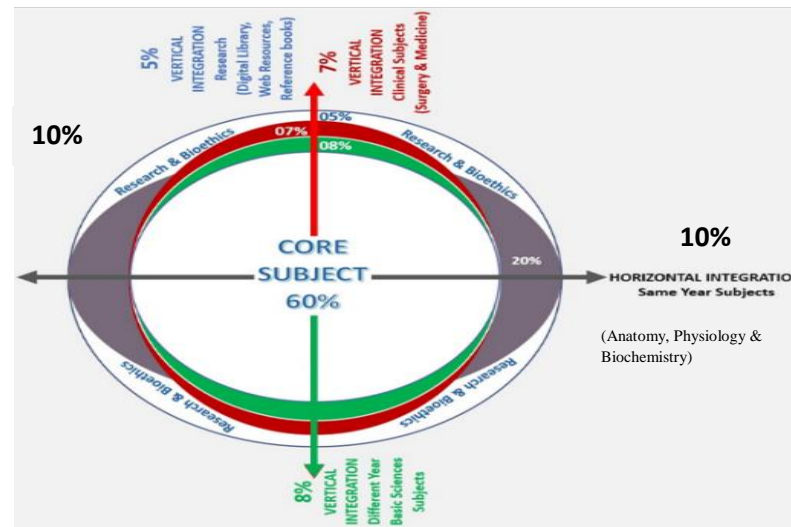


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It’s a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthesize & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organize Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- Small Group Discussions
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- Self-Directed Topic, Learning Objectives & References
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- Skill Laboratory
 - Anatomy
 - Physiology
 - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
Anatomy Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to General Anatomy	• Define the term Anatomy and its various branches	C1	LGIS	SAQ MCQ VIVA
	• Define different terminologies related to Anatomy	C1		
	• Describe different Anatomical planes and directions in relation to anatomical position	C1		
	• Elaborate different phases in life span of man	C2		
	• Define basic tissues of human body	C1		
	• Discuss general outlines and functions of basic tissues	C2		
	• Describe formation of different systems of body	C1		
Embryology				
EMBRYOLOGY Development of Tongue	• Describe the development of pharyngeal apparatus	C1	LGIS	SAQ MCQ VIVA
	• Enlist the sources for development of different parts of tongue.	C2		
	• Explain the development of tongue along with its nerve supply.	C1		
	• Describe the congenital anomalies associated with tongue	C3		
	• Describe the developmental basis of physiological and biochemical mechanisms involved in perception and transmission of taste sensation	C2		
EMBRYOLOGY Development of Body cavities I & II	• Enumerate different body cavities	C1	LGIS	SAQ MCQ VIVA
	• Describe division of embryonic body cavity	C1		
	• Discuss formation and significance of pleuropericardial membranes and pleuroperitoneal membranes	C1		
	• Describe muscular ingrowth from Lateral body walls	C1		
	• Discuss positional changes and innervations of the Diaphragm	C1		
EMBRYOLOGY Development of Salivary glands	• Explain different stages of development of Salivary glands	C2	LGIS	SAQ MCQ VIVA
	• Enlist the sources for development of different types of Salivary glands.	C2		
	• Explain development of its nerve supply.	C2		
	• Describe the congenital anomalies associated with salivary glands	C3		

	<ul style="list-style-type: none"> Describe the developmental basis of physiological and biochemical mechanisms associated with salivary glands 	C2		
EMBRYOLOGY Development of Esophagus	<ul style="list-style-type: none"> Discuss the formation of tracheoesophageal septum and its importance 	C1	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Describe salient features of esophageal development. 	C1		
	<ul style="list-style-type: none"> Describe congenital anomalies of esophagus. 	C3		
	<ul style="list-style-type: none"> Describe the developmental basis for the physiological and biochemical mechanisms involved in the process of swallowing 	C2		
EMBRYOLOGY Development of Stomach	<ul style="list-style-type: none"> Explain the development of stomach 	C1	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Discuss rotations and positional shifts of stomach & their effect on nerve supply and peritoneal attachments 	C1		
	<ul style="list-style-type: none"> Explain formation of omental bursa. 	C1		
	<ul style="list-style-type: none"> Describe congenital anomalies of stomach 	C3		
	<ul style="list-style-type: none"> Describe the developmental basis for the physiological and biochemical mechanisms involved in the process of digestion in the stomach 	C2		
EMBRYOLOGY Liver	<ul style="list-style-type: none"> Discuss pernicious anemia 	C3	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Describe formation of hepatic diverticulum 	C1		
	<ul style="list-style-type: none"> Describe histogenesis of liver during intrauterine life 	C1		
	<ul style="list-style-type: none"> Describe formation of various ligaments of liver. 	C1		
	<ul style="list-style-type: none"> Discuss congenital abnormalities of liver 	C3		
	<ul style="list-style-type: none"> Describe the developmental basis for the physiological and biochemical mechanisms involved in the process of detoxification in the liver 	C2		
EMBRYOLOGY Gall bladder, pancreas and Biliary apparatus	<ul style="list-style-type: none"> Discuss development of Gall bladder 	C1	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Describe /congenital anomalies of gall bladder 	C1		
	<ul style="list-style-type: none"> Discuss development and congenital anomalies of pancreas 	C1		
	<ul style="list-style-type: none"> Describe development of extrahepatic biliary apparatus and its parts with abnormalities 	C1		
	<ul style="list-style-type: none"> Describe the developmental basis for the physiological and biochemical mechanisms involved in the process of production of bile and pancreatic secretions 	C2		
EMBRYOLOGY	<ul style="list-style-type: none"> Describe development of mid gut, midgut loop and rotation of midgut loop. 	C1	LGIS	SAQ

Development of small intestine	• Explain physiological umbilical hernia and return of mid gut to abdomen.	C1		MCQ VIVA
	• Describe fixation of intestines and transformations in peritoneal dispositions after mid gut loop return.	C1		
	• Describe congenital anomalies and clinical correlation of mid gut development.	C3		
	• Discuss clinical conditions related	C3		
EMBRYOLOGY Development of large intestine	• Enlist parts of large intestine.	C1	LGIS	SAQ MCQ VIVA
	• Describe partitioning of cloaca and cloacal membrane.	C1		
	• Describe development of anal canal.	C1		
	• Describe congenital anomalies of large intestine.	C3		
Histology				
HISTOLOGY: Tongue	• Discuss surfaces of tongue with their histological features	C1	LGIS	SAQ MCQ VIVA
	• Describe different papillae of tongue with their location & features	C1		
	• Explain histological features of taste buds	C1		
	• Discuss leukoplakia and oral thrush	C3		
HISTOLOGY Salivary glands	• Enlist major salivary glands	C1	LGIS	SAQ MCQ VIVA
	• Explain histological structure of salivary glands	C1		
	• Discuss different cells forming parenchyma of salivary glands	C1		
	• Discuss histology of duct system	C1		
	• Differentiate between major salivary glands on histological basis	C2		
	• Discuss effects of viral infections on salivary glands	C3		
HISTOLOGY General organization of G.I. T	• Describe the developmental basis of physiological and biochemical mechanisms involved in perception and transmission of taste sensation	C2	LGIS	SAQ MCQ VIVA
	• Describe the histological characteristics of each layer with functional significance	C1		
	• Discuss associated clinicals (megacolon, chagas disease)	C3		
HISTOLOGY Esophagus	• Describe the histological layers of esophagus.	C1	LGIS	SAQ MCQ
	• Compare between various portions of esophagus histologically.	C2		
	• Discuss GERD	C3		

				VIVA
HISTOLOGY Stomach	• Describe the histological layers of different parts of stomach	C1	LGIS	SAQ MCQ VIVA
	• Describe histological differences of different parts of the gastric glands	C1	LGIS	SAQ MCQ VIVA
	• Describe the structure and function of different cells of gastric glands	C1		
	• Explain clinical conditions associated with stomach histologically	C3		
	• Discuss pernicious anemia	C3		
HISTOLOGY Liver	• Discuss in detail the histological organization of liver	C1	LGIS	SAQ MCQ VIVA
	• Explain the structure of liver lobule, portal triads& hepatic acinus and its functional importance	C1		
	• Discuss histological features of hepatocytes.	C1		
	• Explain Hepatic cords, central vein, portal triad, hepatic venules, hepatic arterioles, bile duct & liver sinusoids.	C1		
	• Discuss the blood supply of the liver.	C1	LGIS	SAQ MCQ VIVA
	• Explain different cells of the liver tissue	C1		
	• Describe clinical aspects of liver on histological grounds	C1		
	• Discuss cirrhosis, fatty liver	C3		
	• Discuss jaundice	C3		

Physiology Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching Strategy	Assessment Tools
	• Explain the physiologic anatomy of GIT	C2		
	• Summarize the functions of GIT	C1		
	• Explain the electrical activity of GIT smooth muscle	C2		
	• Describe the concept of slow waves and spike potentials	C1		
	• Explain resting membrane potential and factors affecting RMP	C2		

Introduction to GIT, Electrical activity in GIT Movements of GIT	• Explain role of calcium ions in muscle contraction	C2	LGIS	SEQ MCQ VIVA
	• Describe tonic contraction in GIT smooth muscles	C1		
	• Enumerate different types of movements in GIT	C1		
	• Define propulsive movements	C1		
	• Define mixing movements	C1		
	• Describe sites of peristaltic movement in GIT	C1		
	• Describe stimulus, mechanism and direction of peristaltic movement	C1		
	• Discuss role of Myenteric plexus in peristaltic movement	C2		
	• Explain peristaltic reflex and Law of gut	C2		
	• Describe mechanism and function performed by mixing movements	C1		
Enteric nervous system and GIT reflexes	• Describe physiological anatomy of enteric nervous system	C1	LGIS	SEQ MCQ VIVA
	• Enlist functions of enteric nervous system	C1		
	• Compare and contrast Myenteric and Meissner's plexus	C2		
	• Enumerate neurotransmitters of enteric nervous system	C1		
	• Describe the autonomic regulation of enteric nervous system	C1		
	• Enumerate afferent sensory connections of enteric nervous system	C1		
	• Discuss the physiology of GIT reflexes	C2		
	• Explain GIT reflexes integrated at the level of gut wall, prevertebral sympathetic ganglia and spinal cord/brain stem	C2		
Control of GIT motility and factors affecting GIT blood flow	• Enumerate hormones of GIT	C2	LGIS	SEQ MCQ VIVA
	• Describe the hormonal control of GIT motility	C1		
	• Explain site of secretion, stimuli for secretion and actions of Gastrin, Cholecystokinin, Secretin, Gastric inhibitory peptide and Motilin	C2		
	• Discuss the factors affecting GIT blood flow	C2		
	• Recall anatomy of GIT blood supply	C1		
	• Explain splanchnic circulation and hepatic portal circulation	C2		
	• Describe the significance of blood flow to liver through portal vein	C1		
	• Describe special organization of blood flow through intestinal villus	C1		
	• Explain factors affecting gastrointestinal blood flow	C2		
	• Describe counter current blood flow in villi.	C1		
	• Explain nervous control of GIT blood supply	C2		
	• Discuss physiological importance of sympathetic vasoconstriction in GIT under special conditions	C2		

Swallowing1 and (Mastication and Saliva)	• Describe the secretion and composition of saliva and its physiologic roles	C1	LGIS	SEQ MCQ VIVA
	• Describe the nervous regulation of saliva	C1		
	• Describe mastication	C1		
	• Enumerate functions of mastication	C1		
	• Explain role of teeth and muscles of mastication	C2		
	• Describe the steps and nervous control center of chewing reflex	C1		
	• Introduce swallowing	C1		
	• Enumerate stages of swallowing (voluntary/involuntary)	C1		
	• Explain in detail each stage of swallowing <ul style="list-style-type: none"> ○ Voluntary stage Mechanism ○ Pharyngeal stage (reflex act) <ul style="list-style-type: none"> ▪ Stimulus, receptors, afferents, center, efferent, effectors, response ▪ Relate pharyngeal stage with process of respiration ▪ Esophageal stage 	C2		
	• Primary peristalsis Secondary peristalsis (stimulus, afferent, center, efferent, response)	C2		
Swallowing -II	• Describe physiological anatomy and function of Lower esophageal sphincter	C1	LGIS	SEQ MCQ VIVA
	• Explain receptive relaxation of stomach with nervous pathway	C2		
	• Describe physiological anatomy and function of distal end of esophagus	C1		
Clinical disorders of swallowing (Achalasia cardia, vomiting & nausea)	• Define Achalasia cardia	C1	LGIS	SEQ MCQ VIVA
	• Describe causes, effects and treatment of achalasia cardia	C1		
	• Define vomiting	C1		
	• Describe stimuli & nervous pathway of vomiting	C1		
	• Discuss act of vomiting	C2		
	• Describe chemoreceptor trigger zone	C1		
	• Define nausea	C1		
	• Enlist causes of nausea	C2		
Regulation of Stomach emptying	• Discuss in detail gastric factors that promote emptying and duodenal factors that inhibit emptying	C2	LGIS	SEQ MCQ VIVA
	• Explain the role of enterogastric nervous reflexes and hormonal	C2		

	feedback			
Motor functions of stomach	• Recall physiological anatomy of stomach	C1	LGIS	SEQ MCQ VIVA
	• Describe motor functions of stomach in detail 1. Storage 2. Mixing and propulsion of food chyme and Hunger contractions 3. Stomach emptying 4. Role of pyloric pump	C1		
	• Discuss role of pyloric sphincter	C2		
Gastric juice-I and Digestion in stomach Physiological barrier protecting development of peptic ulcer	• Describe the secretion of gastric juice. a. Describe the basic mechanism of HCl secretion. b. Describe the secretion and activation of pepsinogen c. Describe the secretion of intrinsic factor d. Describe the secretion of mucous and gastrin e. Describe the regulation of gastric acid and pepsinogen secretion	C1	LGIS	SEQ MCQ VIVA
	• Summarize the digestive process occurring in stomach	C1		
	• Discuss the role of gastric juice, hormones and enzymes acting in stomach	C2		
	• Discuss sites, causes and physiological factors preventing peptic ulcer	C2		
Liver & gall bladder, liver and biliary secretions	• Recall physiological anatomy of liver & portal circulation	C1	LGIS	SEQ MCQ VIVA
	• Describe in detail metabolic and non metabolic functions of liver	C1		
	• Explain the mechanism of secretion of bile.	C2		
	• Explain the functions of biliary tree.	C2		
	• Describe the composition of bile.	C1		
	• Explain the role of bile in fat digestion.	C2		
	• Explain the formation of gall stones.	C2		
LFTs and jaundice	• Enlist liver functions test	C1	LGIS	SEQ MCQ VIVA
	• Describe liver function tests	C1		
	• Discuss in detail pathophysiology of jaundice	C2		
Cirrhosis & portal hypertension	• Describe causes and effects of cirrhosis	C1	LGIS	SEQ MCQ VIVA
	• Describe causes and effects of portal hypertension	C1		
Physiology of pancreas Pancreatic	• Discuss composition of pancreatic secretions	C2	LGIS	SEQ MCQ
	• Describe mechanism of secretion of bicarbonate ions	C1		

secretions	<ul style="list-style-type: none"> Describe the regulation and phases of pancreatic secretion. 	C1		VIVA
Digestion and Absorption –I (digestion and absorption of carbohydrates and proteins)	<ul style="list-style-type: none"> Enumerate dietary sources of carbohydrates 	C1	LGIS	SEQ MCQ VIVA
	<ul style="list-style-type: none"> Describe the structure of villi. 	C1		
	<ul style="list-style-type: none"> Enumerate the features of small intestine which increase its surface area 	C1		
	<ul style="list-style-type: none"> Explain in detail mechanism of absorption of fluids, ions & carbohydrates 	C2		
	<ul style="list-style-type: none"> Enumerate dietary sources of proteins. 	C1		
	<ul style="list-style-type: none"> Describe the role of hydrolysis in digestion of food. 	C1		
	<ul style="list-style-type: none"> Explain in detail the digestion of proteins with emphasis on enzymes at relevant steps. 	C2		
	<ul style="list-style-type: none"> Describe the sites of absorption 	C1		
Digestion and absorption-II (digestion and absorption of lipids)	<ul style="list-style-type: none"> Enumerate dietary sources of fats 	C1	LGIS	SEQ MCQ VIVA
	<ul style="list-style-type: none"> Explain in detail the digestion of lipids in relation to bile 	C2		
Movements & functions of large intestine (motor functions of large gut and defecation) Flatus & constipation	<ul style="list-style-type: none"> Recall functions of large intestine 	C1	LGIS	SEQ MCQ VIVA
	<ul style="list-style-type: none"> Discuss in detail mixing and propulsive movements 	C2		
	<ul style="list-style-type: none"> Explain the role of Gastrocolic & Duodenocolic reflex in 	C2		
	<ul style="list-style-type: none"> large intestine motility 	C2		
	<ul style="list-style-type: none"> Enumerate causes of empty rectum 	C1		
	<ul style="list-style-type: none"> Explain defecation reflex, its importance and nervous control 	C2		
	<ul style="list-style-type: none"> Discuss composition of feces 	C2		
	<ul style="list-style-type: none"> Enlist causes of flatus 	C1		
	<ul style="list-style-type: none"> Discuss causes and effects of constipation 	C2		
Hormones of GIT	<ul style="list-style-type: none"> Explain the general principles of alimentary tract secretion 	C2	LGIS	SEQ MCQ VIVA
	<ul style="list-style-type: none"> Enlist the stimuli for alimentary tract secretion 	C1		
	<ul style="list-style-type: none"> Describe the basic mechanism of secretion by glandular cells 	C1		
	<ul style="list-style-type: none"> Elaborate the role of autonomic stimulation on glandular secretion 	C2		
Small intestine	<ul style="list-style-type: none"> Enlist types of movements of small intestine 	C1		
	<ul style="list-style-type: none"> Discuss in detail mixing contractions and propulsive movements 	C2		

motility, Diarrhea, malabsorption & sprue, ulcerative colitis and paralytic ilius	• Describe peristaltic rush	C1	LGIS	SEQ MCQ VIVA
	• Explain functions of ileocecal valve and feedback control of ileocecal sphincter	C2		
	• Discuss causes, types and effects of diarrhea, malabsorption and sprue	C2		
	• Discuss causes and effects of Ulcerative colitis & paralytic ilius	C2		

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching Strategy
Introduction to metabolism	• Introduction and stages of Metabolism	C2	LGIS
Introduction to carbohydrate metabolism	• Introduction to carbohydrate Metabolism	C2	LGIS
	• Transport of Glucose across the cell (Glucose transporters)	C2	
Glycolysis	• Steps of Glycolysis	C2	LGIS
	• Regulation of the committed steps	C2	
	• Energy calculation in anaerobic and aerobic conditions	C2	
	• Pyruvate Kinase deficiencies	C3	
	• Hyperglycemia & Sorbitol Metabolism	C3	
Fate of pyruvate	• Fate of pyruvate	C2	LGIS
	• Cori's lactic acid cycle & lactic acidosis	C2	
	• Describe steps regulation, energy calculation and significance of Citric acid cycle	C2	
	• Deficiencies of co-enzymes of pyruvate Dehydrogenate Complex (Thymine or Niacin)	C3	
Hexose monophosphate pathway	• Describe Hexose Monophosphate pathway	C2	LGIS
	• Explain functions of NADPH, G ⁶ PD deficiency	C2	
	• G6PDH Deficiency	C3	
Gluconeogenesis	• Explain steps and regulation of Gluconeogenesis	C2	LGIS
Glycogen metabolism	• Explain synthesis and breakdown of Glycogen	C2	LGIS
	• Discuss glycogen storage diseases	C2	
	• Explain metabolism of fructose, galactose, ethyl alcohol and related disease	C2	

Metabolism of fructose and galactose metabolism	<ul style="list-style-type: none"> • Fructose disorder's <ul style="list-style-type: none"> ➤ Essential Fructose Uria ➤ Hereditary Fructose intolerance • Galacto Kinase Deficiency Classic Galacto Semia	C3	LGIS
Saliva	• Explain composition, functions of saliva & related diseases	C2	LGIS
Gastric juice	• Explain composition, function, formation of Gastric juice and related disorders	C2	LGIS
	• Peptic Ulcer Disease	C3	
Pancreatic juice	• Explain composition, functions & related diseases of pancreatic juice	C2	LGIS
Bile	• Describe composition, function, formation of Bile and related disorders	C2	LGIS
	• Gall Stone	C3	
Digestion & Absorption of Proteins	<ul style="list-style-type: none"> • Cystine Uria • Hart Nup Disease 	C3	LGIS
Digestion & Absorption of Lipids	• Steatorrea	C3	LGIS
Nutritional Disorders	<ul style="list-style-type: none"> • Protein energy Malnutrition • Kwashiorkor • Marasmus 	C3	LGIS

Anatomy Small Group Discussion (SGDs)

Topic	Learning Objectives Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Topographical organization of Gastrointestinal tract	• Enlist components of gastrointestinal tract	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Mark the planes dividing the abdomen into nine quadrants	P		
	• Enumerate the parts of GIT lying in the various quadrants	C1		
Oral Cavity, tongue and salivary glands,	• Define the boundaries of oral cavity	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Tabulate the Extrinsic and Intrinsic muscles of the tongue, anatomical location and clinical importance of tongue	C2		
	• Brief Introduction of salivary glands with their anatomical location	C1		
Anterolateral abdominal wall	• Explain the layers of abdominal wall.	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Explain the fascia and muscles of abdominal wall.	C1		
	• Describe nerve supply of anterior and lateral abdominal wall.	C1		
	• Explain the segmental sympathetic supplies	C1		
	• Abdominal Hernias	C3		
Rectus sheath,	• Describe Formation of rectus sheath	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Enlist contents of rectus sheath	C1		
	• Discuss associated clinical anatomy	C3		
Inguinal Region & Inguinal Hernias	• Describe Walls of Inguinal Canal	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Explain Deep & Superficial Inguinal Ring	C1		
	• Enumerate Structures passing through the inguinal canal	C1		
	• Enlist Coverings of spermatic cord	C1		
	• Explain Mechanics of the inguinal Canal	C1		
	• Describe boundaries of Hassalbachs triangle	C1		
	• Define hernia	C1		
	• Differentiate indirect from direct inguinal hernia	C3		
	• Define Anatomy of Testes and Scrotum	C1		SAQ
	• Differentiate between Protective Coverings of Testes & scrotum	C1		

Testes, scrotum	• Enumerate Nerve & blood supply of these Structures	C1	Skill lab	MCQ VIVA OSPE
	• Discuss the parts of epididymis	C1		
	• Discuss Spermatocoele, Varicocoele, Hematocoele, hydrocoele, Testicular torsion	C3		
Peritoneum & Peritoneal Cavity	• Define peritoneum	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Explain the different folds of peritoneum.	C1		
	• Describe greater and lesser sacs	C1		
	• Enlist the intra and retroperitoneal viscera	C1		
	• Discuss vertical tracings of peritoneum	C1		
Subdivisions of Peritoneal Cavity	• Describe arrangement of peritoneum in transverse & Longitudinal section of abdomen	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Describe arrangement of peritoneum in transverse section of male pelvis	C1		
	• Explain arrangement of peritoneum in transverse section of female pelvis	C1		
	• Explain the layers, folds, recesses and compartments of peritoneum with their clinical importance	C1		
	• Describe peritonitis	C3		
	• Enumerate the signs and symptoms of peritonitis	C3		
	• Treat peritonitis by antibiotics and peritoneal dialysis	C3		
Esophagus	• Discuss gross features of abdominal part of esophagus	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Enumerate their peritoneal & visceral relations.	C1		
	• Explain blood supply, lymphatic drainage & nerve supply of esophagus	C1		
	• Discuss Esophageal varices	C3		
Stomach	• Explain gross features of stomach.	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Discuss blood supply, lymphatic drainage & nerve supply of stomach	C1		
	• Explain peritoneal & visceral relations of stomach	C2		
	• Discuss greater and lesser omentum	C2		
	• Describe formation and boundaries of epiploic foramen	C2		
	• Discuss hiatus hernia	C3		
Small Intestine	• Describe the different parts of duodenum with their anatomical	C2		SAQ

(Duodenum)	differences		Skill lab	MCQ VIVA OSPE
	• Enumerate the relations of different parts of duodenum	C1		
	• Discuss its clinical importance	C3		
Small Intestine (Jejunum and Ileum)	• Describe jejunum and ileum with their anatomical features	C2	Skill lab	SAQ MCQ VIVA OSPE
	• Discuss mesentery and its attachment	C2		
	• Discuss its clinical importance	C2		
Large Intestine & Appendix	• Enlist various parts of large intestine	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Demonstrate gross anatomical features of different parts of large intestine	C2		
	• Enlist intra and retroperitoneal parts of large intestine	C1		
	• Discuss gross features of caecum	C1		
	• Describe gross anatomy of appendix	C1		
	• Enlist different anatomical positions of vermiform appendix.	C1		
	• Mark McBurney's point	C1		
	• Demonstrate McBurney's incision	P		
	• Discuss common features, differential diagnosis of acute appendicitis and appendicectomy	C3		
Liver, Portal hypertension, Portosystemic Anastomosis	• Describe the anatomical structure of liver.	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Describe the lobes, surfaces and segments of liver	C1		
	• Describe peritoneal reflections, ligaments and bare area of liver.	C1		
	• Enumerate visceral relations of liver.	C1		
	• Enlist the structures in porta hepatis.	C1		
	• Discuss Sub hepatic abscess & Live Biopsy	C3		
	• Discuss formation, course and parts of portal vein	C1		
	• Enumerate relations and tributaries of portal vein	C1		
	• Define portal hypertension	C1		
	• Describe sites of the portocaval anastomosis and their clinical significance	C3		
	• Explain role of portocaval shunts	C3		
Gallbladder and	• Describe location & size of gall bladder	C1	Skill lab	SAQ
	• Enumerate relations of gallbladder.	C1		

Biliary apparatus	• Describe clinical conditions related to gallbladder	C3		MCQ VIVA OSPE
	• Enlist different components of Extra-hepatic biliary System	C1		
	• Discuss the right & left hepatic ducts, common hepatic duct, cystic ducts, bile duct	C1		
	• Explain differences between Intra & Extra Hepatic Biliary Systems.	C2		
	• Discuss clinicals related with biliary apparatus	C3		
	• Discuss accessory hepatic ducts	C3		
Spleen	• Discuss anatomical location and features of spleen with its blood supply, and lymphatic drainage	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Explain Rupture of spleen & its effects	C3		
Pancreas	• Recall location, shape, dimensions and extent of pancreas	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Discuss parts, ducts and relations of pancreas	C1		
	• Describe arterial supply of pancreas	C1		
	• Explain applied aspects of pancreas	C3		
Vasculature of GIT	• Describe the position and the vertebral levels of aorta in the abdomen.	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Enlist the main branches of the aorta and its territories.	C1		
	• Explain the applied anatomy of the aorta	C1		
	• Explain origin, course, branches and distribution of celiac trunk	C1		
Nerve supply and Lymphatic drainage of GIT	• Discuss enteric nervous system with formation of plexuses and its parasympathetic role	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Enlist the types of lymph nodes draining the abdomen	C1		
	• Describe lymphatic drainage of GIT with special reference to lymphatic trunks, cisterna chyli & the thoracic duct	C1		
Rectum	• Discuss the location and extent of rectum	C1	Skill lab	SCQ MCQ VIVA OSPE
	• Describe the internal and external features of rectum	C1		
	• Discuss peritoneal reflections rectouterine, rectovesical fossae and their clinical significance	C3		
	• Enumerate relations of rectum	C1		
	• Discuss blood supply, nerve supply, venous and lymphatic drainage	C1		
	• Describe the basis and features of rectal prolapsed	C3		

Anal canal	• Discuss location and extent of anal canal	C1	Skill lab	SAQ MCQ VIVA OSPE
	• Describe external and internal features of Anal Canal	C1		
	• Discuss features of anal sphincters	C1		
	• Tabulate relations of the anal canal with the surrounding structures	C2		
	• Describe the Blood supply, venous and lymphatic drainage & innervations of anal canal	C1		
	• Discuss anal continence	C1		
	• Differentiate between internal and external haemorrhoids	C3		

Physiology Small Group Discussion (SGDs)

Topic	Learning Objectives Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tools
Introduction to GIT	• Enlist general four functions performed by GIT	C1	SGD	SEQ MCQ VIVA
	• Recall physiological anatomy and blood flow through GIT	C1		
	• Briefly discuss electrical activity of GIT smooth muscle	C1		
Swallowing	• Discuss in detail the three stages of swallowing	C2	SGD	SEQ MCQ VIVA
	• Briefly discuss physiological anatomy of lower esophageal sphincter and distal end of esophagus and state their functional importance	C2		
Functions of stomach	• Recall physiological anatomy of stomach	C1	SGD	SEQ MCQ VIVA
	• Describe motor functions of stomach including storage, mixing, propulsion and stomach emptying.	C1		
	• Discuss in detail gastric factors that promote emptying	C2		
	• Explain the role of enterogastric nervous reflexes and hormonal feedback.	C2		
Liver functions	• Recall physiological anatomy of liver	C1	SGD	SEQ MCQ VIVA
	• Discuss formation and storage of bile	C2		
	• Enlist and describe all functions performed by liver	C1		
Digestion and absorption	• Describe in detail the process of digestion of carbohydrates, proteins and fats with special emphasis on enzymes involved at each step	C1	SGD	SEQ MCQ VIVA
	• Discuss special features of small and large intestine to promote	C2		

	absorptive process and mechanism of absorption in detail			
Large intestine	• Recall movements and functions of large intestine	C1	SGD	SEQ MCQ VIVA
	• Enumerate causes of empty rectum	C1		
	• Explain defecation reflex, its importance and nervous control	C2		
	• Explain GIT reflexes integrated at the level of gut wall, prevertebral sympathetic ganglia and spinal cord/brain stem.	C2		

Biochemistry Small Group Discussion (SGDs)

Topic	Learning Objectives Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Saliva and gastric juice	• Explain formation, composition & biochemical functions	C2	SGD	MCQs SAQs Viva
Pancreatic juice, bile & succus entericus	• Explain formation, composition & biochemical functions	C2	SGD	MCQs SAQs Viva
Digestion & absorption of Carbohydrates, Proteins & Fats and GIT hormones	• Describe mechanism of digestion & absorption of carbohydrates, protein & fats	C2	SGD	MCQs SAQs Viva
	• Explain biochemical functions of GIT hormones			
Balanced diet & individual food groups	• Describe balanced diet & individual food groups	C2	SGD	MCQs SAQs Viva
Nutritional disorders & LFTS and Jaundice	• Explain PEM, obesity, liver functions & its tests	C2	SGD	MCQs SAQs Viva
	• Describe types of jaundice,			
	• Understand and interpret LFTs			
Glycolysis, fates of pyruvate	• Explain steps, regulation of glycolysis and fates of pyruvate	C2	SGD	MCQs SAQs Viva
Functions of NADPH, G6PD deficiency	• Describe functions of NADPH, deficiency effects of NADPH	C2	SGD	MCQs SAQs Viva
Gluconeogenesis & Glycogen metabolism	• Explain main steps of gluconeogenesis & glycogen metabolism & their role in blood glucose regulation	C2	SGD	MCQs SAQs Viva

Anatomy Self Directed Learning (SDL)

Topics of SDL	Learning Objectives Students Should Be Able To	Learning Resources
Antero lateral abdominal wall,	• Explain the layers of abdominal wall.	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 183,184-216).
	• Explain the fascia and muscles of abdominal wall.	
	• Describe nerve supply of anterior and lateral abdominal wall.	
	• Explain the segmental sympathetic supplies	
Rectus sheath	• Describe Formation of rectus sheath	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 188-201).
	• Enlist contents of rectus sheath	
Inguinal region & Hernias	• Describe Walls & detailed anatomy of Inguinal Canal	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 197, 202-203, 212-213).
	• Explain Deep & Superficial Inguinal Ring	
	• Associated Clinicals	
Peritoneum & Peritoneal Cavity.	• Define peritoneum	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 219-221.).
	• Explain the different folds of peritoneum.	
	• Describe greater and lesser sacs	
	• Enlist the intra and retroperitoneal viscera	
	• Discuss vertical tracings of peritoneum	
	• Describe arrangement of peritoneum in transverse & Longitudinal section of abdomen	
	• Describe arrangement of peritoneum in transverse section of male pelvis	
	• Explain arrangement of peritoneum in transverse section of female pelvis	
	• Explain the layers, folds, recesses and compartments of peritoneum with their clinical importance	
	• Describe peritonitis	
	• Enumerate the signs and symptoms of peritonitis	
	• Treat peritonitis by antibiotics and peritoneal dialysis	
	• Describe the different parts of duodenum with their anatomical differences	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 239,

Small Intestine	• Enumerate the relations of different parts of duodenum	241, 244, 245, 325, 436).
	• Discuss its clinical importance	
	• Anatomy of Jejunum & Ileum	
Large Intestine	• Enlist various parts of large intestine	
	• Demonstrate gross anatomical features of different parts of large intestine • Enlist intra and retroperitoneal parts of large intestine	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 227,246,248, 325).
Liver and pancreas	• Describe formation of hepatic diverticulum	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 267-268, 272-278, 282,323, 395).
	• Describe histogenesis of liver during intrauterine life	
	• Describe formation of various ligaments of liver.	
	• Discuss congenital abnormalities of liver	
	• Differentiate between exocrine and endocrine pancreas.	
	• Discuss the cellular structure and function of exocrine pancreatic acinus and ducts.	
Vasculature of GIT (Blood Supply, Venous drainage, Lymphatic drainage)	• Explain the applied anatomy of the aorta	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 228-233, 249-250, 263-285).
	• Explain origin, course, branches and distribution of celiac trunk	
	• Discuss formation, course and parts of portal vein	
	• Enumerate relations and tributaries of portal vein	
	• Define portal hypertension	
	• Discuss Major Lymphatic Channels	
Rectum & Anal Canal	• Discuss the location and extent of rectum	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 239, 248,253 368-371,436,438).
	• Describe the internal and external features of rectum	
	• Discuss peritoneal reflections rectouterine, rectovesical fossae and their clinical significance	
	• Enumerate relations of rectum	
	• Discuss blood supply, nerve supply, venous and lymphatic drainage	
	• Describe the basis and features of rectal prolapsed	
	• Discuss location and extent of anal canal	
	• Describe external and internal features of Anal Canal	
	• Discuss features of anal sphincters	
	• Tabulate relations of the anal canal with the surrounding	

	structures	
	<ul style="list-style-type: none"> Describe the Blood supply, venous and lymphatic drainage & innervations of anal canal 	
	<ul style="list-style-type: none"> Discuss anal continence 	
	<ul style="list-style-type: none"> Differentiate between internal and external hemorrhoids 	
Innervation of Abdominal Viscera's	<ul style="list-style-type: none"> Discuss cutaneous & Somatic innervation of GIT 	❖ Clinical Oriented Anatomy by Keith L. Moore.7 TH Edition. (Chapter 2, Page 301-305).
	<ul style="list-style-type: none"> Describe Autonomic innervation of GIT 	

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives Students Should Be Able To	Learning resources
Introduction to GIT, electrical activity in GIT, Enteric Nervous System and GIT reflexes	<ul style="list-style-type: none"> Introduction Role of GIT in control system Concept of Enteric nervous system GIT reflexes and its clinical correlation 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology.25TH Edition. Overview of gastrointestinal function and regulation (Chapter 25, Page 453,467,472). ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Digestive System (Chapter 21Page 691,700) ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page 339) ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 6.Gastrointestinal System. (Chapter 43, Page 681) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Gastrointestinal Physiology. Section 12. (Chapter 63, Page 787)
Gastric secretion, digestion in stomach, peptic ulcer and gastritis	<ul style="list-style-type: none"> Gastric secretion and role in digestion Peptic ulcer disease Type of gastritis and clinical importanceof gastritis Investigations to diagnose gastritis 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. Overview of gastrointestinal function and regulation(Chapter 25, Page 455). ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page356,360) ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 6.Gastrointestinal System. (Chapter 44, Page 706) (Chapter 45, Page 720,726) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Gastrointestinal Physiology. Section 12. (Chapter 65, Page 809,811)

<p>Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn's disease)</p>	<ul style="list-style-type: none"> ❖ Factors affecting motility of small intestine ❖ Concept of absorption of nutrients ❖ Importance of history in diagnosis of various malabsorption diseases ❖ Inflammatory bowel disease 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition, Gastrointestinal motility. (Chapter 27, Page 495) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Digestive System (Chapter 21, Page 697) ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page 348) ❖ Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 6. Gastrointestinal System. (Chapter 44, Page 690, 710)
<p>Intestinal secretion and its functions, pancreatic juice, its composition and functions</p>	<ul style="list-style-type: none"> • Intestinal secretions and action • Anatomy of pancreas and its blood supply • Composition of pancreatic juice and its role in absorption • Function of pancreas 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition. Overview of gastrointestinal function and regulation (Chapter 25, Page 460). ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Digestive System (Chapter 21, Page 709) ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page 366, 371) ❖ Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 6. Gastrointestinal System. (Chapter 45, Page 738, 739) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. Gastrointestinal Physiology. Section 12. (Chapter 65, Page 814, 820)
<p>Pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose)</p>	<ul style="list-style-type: none"> • Pancreatitis • Conclusion of digestion and absorption of nutrients. • Clinical correlation with pancreatic enzymes. • Hormones secreted by pancreas 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition. Digestion, Absorption and Nutritional Principles. (Chapter 2, Page 475) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Digestive System (Chapter 21, Page 703-710, 715) ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page 374) ❖ Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 6. Gastrointestinal System. (Chapter 47, Page 770) (Chapter 48, Page 785) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. Gastrointestinal Physiology. Section 12. (Chapter 66, Page 823)

Motor function of large gut,defecation reflex	<ul style="list-style-type: none"> • Motor function of large gut • Inflammatory bowel disease • Defecation reflex • Concept of Hemorrhoids 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology.25TH Edition, Gastrointestinal motility. (Chapter 27,Page 495) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Digestive System (Chapter 21,Page 720) ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 6.Gastrointestinal System. (Chapter 44,Page 713) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Gastrointestinal Physiology.Section 12. (Chapter 64,Page 804)
Pathophysiology (vomiting, diarrhea, constipation, ulcerative colitis, megacolon and carcinoma of colon)	<ul style="list-style-type: none"> • Symptomsrelated to GIT • Clinical role of various symptoms • Overview of Carcinoma of stomach, smalland large intestine 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology.25TH Edition, Gastrointestinal motility. (Chapter 27,Page495) ❖ Physiology by Linda S. Costanzo 6th Edition. Gastrointestinal Physiology (Chapter 8. Page 385) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. Gastrointestinal Physiology.Section 12. (Chapter 67, Page 833)

Biochemistry Self Directed Learning (SDL)

Topics of SDL	Learning Objective	References
Carbohydrate Metabolism & Glycolysis	<ul style="list-style-type: none"> • Understand stages of metabolism • Explain transport of glucose across cell membrane • Describe steps of glycolysis • Discuss regulation of committed steps • Explain energy calculation in anaerobic and aerobic conditions • Understand pyruvate kinase deficiency 	<ul style="list-style-type: none"> ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#8, Page 100.
TCA Cycle & Gluconeogenesis	<ul style="list-style-type: none"> • Describe steps of TCA cycle • Discuss substrates, steps and regulation of gluconeogenesis 	<ul style="list-style-type: none"> ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#9, Page 120. ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#10, Page 128.
Glycogen metabolism	<ul style="list-style-type: none"> • Explain synthesis and breakdown of glycogen • Discuss glycogen storage diseases 	<ul style="list-style-type: none"> ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#11, Page 137.

LFT, s	<ul style="list-style-type: none"> • Explain liver function test • Interpret. Diagnostic role of LFTs 	<ul style="list-style-type: none"> ❖ Essentials of Medical Biochemistry Book By Mushtaq Ahmed Edition 9th Volume#1 ,Chapter#7 , Page 186 ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#19, Page 276, 77.
Bile	<ul style="list-style-type: none"> • Describe composition and function of bile • Discuss related disorders 	<ul style="list-style-type: none"> ❖ Essentials of Medical Biochemistry Book By Mushtaq Ahmed Edition 9th Volume#1 ,Chapter#7 , Page 186
Pancreatic juice	<ul style="list-style-type: none"> • Explain composition and function of pancreatic juice • Discuss related disorders 	<ul style="list-style-type: none"> ❖ Essentials of Medical Biochemistry Book By Mushtaq Ahmed Edition 9th Volume#1 ,Chapter#7 ,Page 181
Digestion and absorption of lipids	<ul style="list-style-type: none"> • Explain digestion and absorption of lipids • Discuss related disorders 	<ul style="list-style-type: none"> ❖ Reference Book: Lippincott's Illustrated reviews of Biochemistry 8th Edition Chapter#15, Page 91

Histology Practicals Skill Laboratory (SKL)

Topic	At the end of practical students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Tongue & salivary glands	• Identify slides of tongue & glands under microscope	P	Skill lab	OSPE
	• Illustrate histological structure of tongue & salivary glands	C2		
	• Write two points of identification	C1		
Esophagus	• Identify slide of Esophagus under microscope	P	Skill lab	OSPE
	• Illustrate histological structure of Esophagus	C2		
	• Write two points of identification	C1		
Stomach	• Identify slide of Stomach under microscope	P	Skill lab	OSPE
	• Illustrate histological structure of Stomach	C2		
	• Write two points of identification	C1		
	• Differentiate mucosa of cardiac, fundus, body and pyloric end of stomach	C2		
Liver, Gall bladder & Pancreas	• Identify slides of Liver, Gall bladder & Pancreas under microscope	P	Skill labs	OSPE
	• Illustrate histological structures of Liver, Gallbladder & Pancreas	C2		
	• Write two points of identification	C1		
Small Intestine	• Identify slide of small intestine under microscope	P	Skill lab	OSPE
	• Illustrate histological structure of small intestine	C2		
	• Write two points of identification	C1		
Large Intestine	• Identify slide of Large Intestine under microscope	P	Skill lab	OSPE
	• Illustrate histological structure of large intestine	C2		
	• Write two points of identification	C1		

Physiology Practicals Skill Laboratory (SKL)

Topic	At the end of this skill lab, student should be able to illustrate:	Learning Domain	Teaching Strategy	Assessment Tool
Sense of taste	• Apparatus identification	P	Skill lab	OSPE
	• Principle	C1		
	• Procedure	P		
	• Precautions	C1		
	• Recall taste modalities, taste pathway & abnormalities of taste	C1		
Examination of sense of smell	• Apparatus identification	P	Skill lab	OSPE
	• Principle	C1		
	• Procedure	P		
	• Precautions	C1		
	• Recall Olfactory pathways and abnormalities of olfaction	C1		
Examination of superficial reflexes	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Recall reflex arc	C1		
	• Recall effects of UMNL & LMNL on reflexes	C1		
Examination of deep reflexes	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Recall reflex arc	C1		
	• Recall effects of UMNL & LMNL on reflexes	C1		

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Saliva	<ul style="list-style-type: none"> Understand Normal constituents of saliva Discuss effects of saliva on digestion of starch 	P	Skill Lab	OSPE
Bile	<ul style="list-style-type: none"> Explain organic constituents of bile Explain inorganic constituents of bile 	P	Skill Lab	OSPE
Estimation of ALT	<ul style="list-style-type: none"> Perform estimation of ALT 	P	Skill Lab	OSPE
Estimation of ALP	<ul style="list-style-type: none"> Perform estimation of ALP 	P	Skill Lab	OSPE
Wheat analysis	<ul style="list-style-type: none"> Demonstrate the organic and inorganic constituents of wheat 	P	Skill Lab	OSPE
Milk analysis	<ul style="list-style-type: none"> Demonstrate the organic and inorganic constituents of milk 	P	Skill Lab	OSPE
Potato analysis	<ul style="list-style-type: none"> Demonstrate the organic and inorganic constituents of potato 	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Basic and Clinical Sciences (Vertical Integration)

Case Based Learning (CBL)

Subject	Topic	At The End Of Lecture Students Should Be Able To	Learning Domain
Anatomy	• Acute Appendicitis	Apply basic knowledge of subject to study clinical case.	C3
	• Liver Cirrhosis	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Peptic Ulcer	Apply basic knowledge of subject to study clinical case.	C3
	• Food poisoning	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Glucose 6 Phosphate Dehydrogenase Deficiency	Apply basic knowledge of subject to study clinical case.	C3
	• Lactose Intolerance	Apply basic knowledge of subject to study clinical case.	C3

Large Group Interactive Sessions (LGIS)

Pathology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Salivary Glands	• Define xerostomia	C1	LGIS	MCQs
	• Enlist causes and pathogenesis of sialadenitis	C2	LGIS	MCQs
	• Diagnosis of pleomorphic adenoma	C2	LGIS	MCQs
Gall Bladder & Pancreas	• Describe etiology and pathogenesis of cholelithiasis and cholecystitis	C2	LGIS	MCQs
	• Enlist the laboratory diagnosis and causes of acute and chronic pancreatitis	C2	LGIS	MCQs

Pharmacology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Anti diarrheal drugs	<ul style="list-style-type: none"> Revise the physiology of gastrointestinal motility 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> Outline the main causes of diarrhea 	C1		
	<ul style="list-style-type: none"> Enlist the major groups of anti- diarrheal drugs 	C1		
	<ul style="list-style-type: none"> Identify the role of anti-diarrheal drugs in different types of diarrheas based on their mechanism 	C1		
	<ul style="list-style-type: none"> Recall the physiology of production of gastric acid and natural protective barriers against it 	C1		
	<ul style="list-style-type: none"> Recognize different etiological factors responsible for peptic ulcer 	C1		
	<ul style="list-style-type: none"> Classify different drugs used in peptic ulcer disease based on their mechanism 	C1		
	<ul style="list-style-type: none"> Discuss briefly major pharmacokinetic and pharmacodynamics features of these drugs 	C2		
	<ul style="list-style-type: none"> Cite main regimens used against peptic ulcer due to H. pylori 	C1		

Community Medicine

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Concept of Health and Disease	By the end of the session students will be able to; • Define Health	C1	LGIS	MCQs
	• Identify different phases of Health	C1		
	• Elaborate concepts of Health	C2		
	• Acknowledge Dimensions of Health	C2		
	• Elucidate Dimensions of health	C2		
	• Appreciate Determinants of Health	C2		
	• Describe the types of determinants	C2		
Infectious Disease Epidemiology				
Definitions	• Define important terms related to infectious disease epidemiology.	C1	LGIS	MCQs
Epidemic, endemic and pandemic	• Differentiate between epidemic, endemic and pandemic	C2		
Dynamics of disease transmission	• Describe the dynamics of transmission of disease	C2		
Incubation period	• Explain the concept of incubation period and its importance.	C2		

Medicine

Topic	At the end of the lecture, students should be able to	Learning Domain	Learning Strategy	Assessment Tools
Dysphagia	<ul style="list-style-type: none"> Define and discuss pathophysiology 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Discuss the causes 	C2		
	<ul style="list-style-type: none"> Describe clinical features 	C2		
	<ul style="list-style-type: none"> Describe the management 	C2		
Peptic ulcer	<ul style="list-style-type: none"> Describe Mechanism of digestion in stomach 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Describe Mechanism of APD and GERD 	C2		
	<ul style="list-style-type: none"> Discuss Peptic ulcer formation 	C2		
	<ul style="list-style-type: none"> Enlist Clinical features 	C2		
	<ul style="list-style-type: none"> Enlist Investigations 	C1		
	<ul style="list-style-type: none"> Describe management 	C2		
Jaundice	<ul style="list-style-type: none"> Enlist types of Jaundice 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Discuss changes in Liver 	C2		
	<ul style="list-style-type: none"> Describe clinical features 	C2		
	<ul style="list-style-type: none"> Enlist investigations 	C1		
	<ul style="list-style-type: none"> Discuss management 	C2		
Inflammatory bowel disease	<ul style="list-style-type: none"> Describe features of IBD 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> Classify IBD 	C2		
	<ul style="list-style-type: none"> Describe pathogenesis of IBD 	C2		
	<ul style="list-style-type: none"> Describe histological diagnosis of IBD 	C1		
	<ul style="list-style-type: none"> Enlist complication of IBD 	C1		

Surgery

Topic	At The End Of The Lecture, Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tools
Ventral wall hernias	• Enlist types of Ventral wall hernias	C1	LGIS	MCQs
	• Understand the symptomatology pathophysiology of the hernias	C2		
Abdominal incisions	• Enlist types of Abdominal incisions	C1		
	• Discuss different methods of Abdominal incisions	C2		
	• Describe possible symptoms and physical findings in a patient with carcinoma stomach.	C2		
	• Physiological changes because of Gastric Outlet Obstruction	C2		
Gall stones and Cholecystectomy	• Understand the symptomatology pathophysiology of the diseases.	C2		
	• Outline management plan	C1		
Anal fissure, Hemorrhoids, Fistula in ano	• Enlist important causes of these problems	C1		
	• Discuss in detail management options	C2		

Obstetrics & Gynaecology

Topic	At The End Of The Lecture, Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tools
Common GIT problems in pregnancy (Hyperemesis gravidarum, GERD, Constipation, haemorrhoids)	• Understand the physiological changes in gastrointestinal tract during pregnancy	C1	LGIS	MCQs
	• Know the clinical manifestations of these changes	C2		
	• Outline their managements	C2		

Peadiatrics

Topic	At the end of the lecture, students should be able to	Learning Domain	Teaching strategy	Assessment Tools
Acute diarrhea and chronic diarrhea	<ul style="list-style-type: none"> Define Acute diarrhea 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Describe epidemiology and disease burden 	C2		
	<ul style="list-style-type: none"> Discuss etiology and causative organisms' pathophysiology 	C2		
	<ul style="list-style-type: none"> Assess case 	C2		
	<ul style="list-style-type: none"> Enlist complications of Acute diarrhea 	C2		
	<ul style="list-style-type: none"> Describe prevention 	C2		
	<ul style="list-style-type: none"> Define chronic diarrhea 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Describe epidemiology and disease burden 	C2		
	<ul style="list-style-type: none"> Discuss etiology and causative organisms' pathophysiology 	C2		
	<ul style="list-style-type: none"> Assess case 	C2		
	<ul style="list-style-type: none"> Enlist complications of chronic diarrhea 	C2		
	<ul style="list-style-type: none"> Describe prevention 	C2		

Radiology & Artificial Intelligence

Topic	At the end of lecture student should be able to	Learning Domain	Teaching Strategy	Assessment Tools
X-ray abdomen	<ul style="list-style-type: none"> Identify normal and abnormal radiographs of abdomen (AP view) 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Identify filling defects (Barium meal and Barium enema) 	C1		
	<ul style="list-style-type: none"> Recognize the correct and incorrect positioning of feeding tubes 	C1		
CT Scan MRI abdomen	<ul style="list-style-type: none"> Identify normal and abnormal CT Scan MRI abdomen 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Discuss co-relation with Artificial Intelligence 	C2		

Behavioral Sciences

Topic	At The End of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Eating disorders	• To be able to define eating disorders	C1	LGIS	MCQs
	• To be able to describe the types of eating disorders	C2		
	• To make differential diagnosis	C2		
	• To be able to manage such conditions	C2		

Biomedical Ethics & Professionalism

Topic	At the End of The Session, Student Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Pakistan Medical & Dental Council Code of Ethics	At the end of the session students should be able to;	C2	LGIS	SAQ MCQ VIVA
	• Appreciate the value of oath and pledge taken by medical student at the time of graduation from medical school			
	• Appraise the importance of principles to be followed by the medical and dental practitioners to fulfil the social contract with the society in order to win the trust of the public in the profession	C2		
	• Cognizant with disciplinary proceedings in case of violation of rules laid down by regulatory body	C1		

Integrated Undergraduate Research Curriculum (IUGRC)

Topic	At the End of The Session, Student Should Be Able To	Teaching Strategy	Assessment Tool
Lecture 1: Introduction to Descriptive Statistics	At the end of the session students should be able to;	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Define & enlist uses of statistical knowledge in research & healthcare profession. 		
	<ul style="list-style-type: none"> Differentiate descriptive statistics from inferential statistics 		
	<ul style="list-style-type: none"> Appreciate value of information & precision in scientific decision making 		
Lecture 2: Classification of different types of Data	<ul style="list-style-type: none"> Describe the concept of data, variable & sources of data with respect to descriptive statistics 	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Enlist data types with examples from medical background 		
	<ul style="list-style-type: none"> Classify types of data with examples (qualitative & quantitative) 		
	<ul style="list-style-type: none"> Exercise on the identification of different types of data 		
Lecture 3: Scales of Data Measurement	<ul style="list-style-type: none"> Enlist types of data measurement scales 	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Elaboration of different types of data measurement scales with example 		
	<ul style="list-style-type: none"> Enlist different method of data presentation (tables, graphs, diagrams, pie chart, Bar graph, histogram, line diagram, scatter diagram, statistical maps, pictogram and ogive curve) according to type of data. 		
	<ul style="list-style-type: none"> Explain concept of Measures of central tendency with illustrations from medical 	LGIS	SAQ MCQ

Lecture 4: Measure of central tendency	background		VIVA
	<ul style="list-style-type: none"> Calculate and interpret the different measures of central tendency 		
Lecture 5: Measures of Dispersion	<ul style="list-style-type: none"> Explain concept of Measures of dispersion with illustrations form medical background 	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Calculate and interpret the different measures of dispersion 		
Lecture 6: Practice Session	<ul style="list-style-type: none"> Compute and Interpret results of different measures of dispersion form a given data file 	LGIS	SAQ MCQ VIVA

Family Medicine

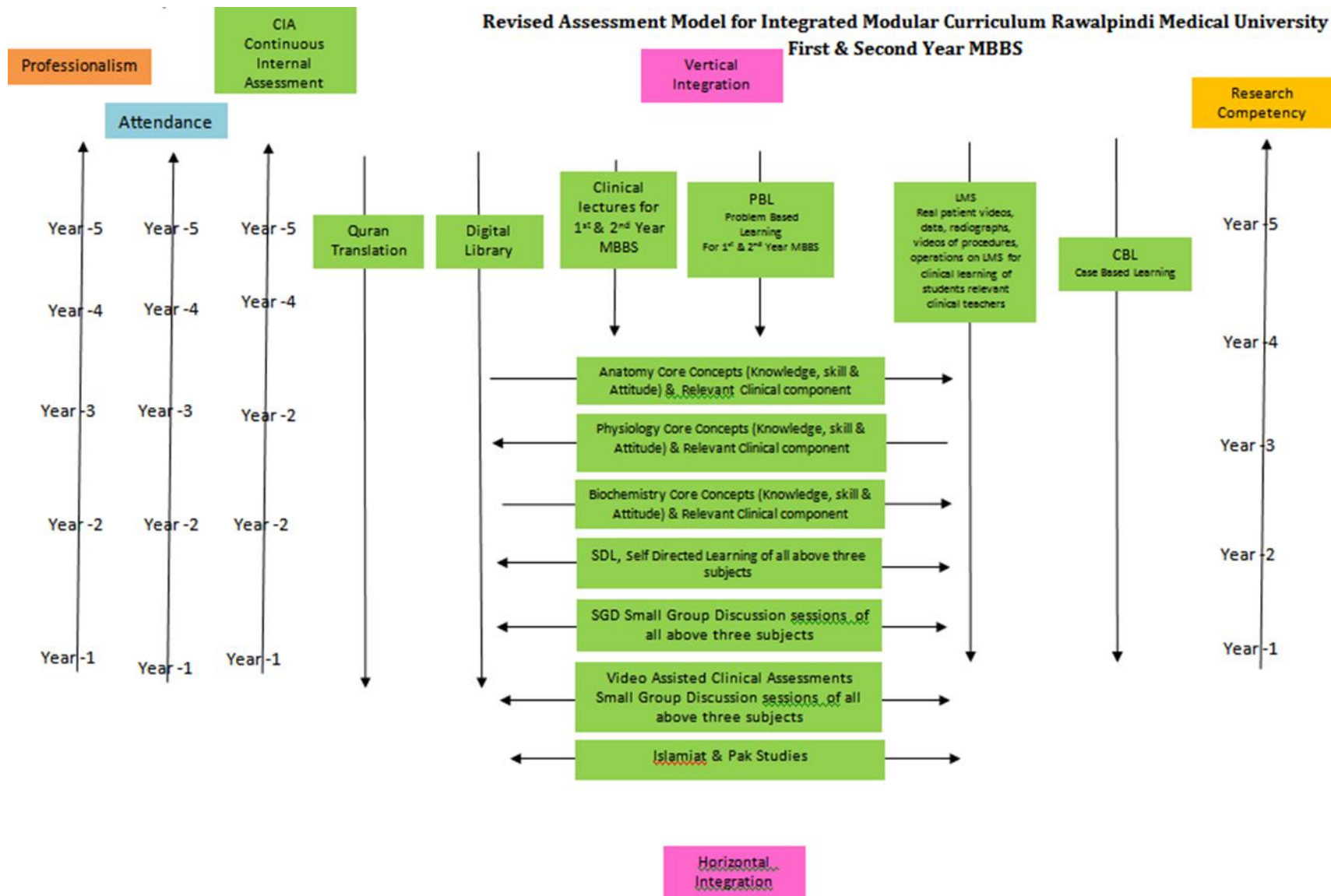
Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Approach to a Patient with abdominal pain	<ul style="list-style-type: none"> Discuss what is abdominal pain 	C2	LGIS-1	MCQs
	<ul style="list-style-type: none"> Discuss its causes 			
	<ul style="list-style-type: none"> Disscus diagnosis & principle of management 			

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in GIT Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in GIT Module

Block	Sr #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC,Family Medicine Lectures	Summative	10 Minutes				

**No. of Assessments of Anatomy for Second Year MBBS
GIT Module**

Block	Sr #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	29-03-2023 12:00pm- 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	08-03-2023 08:30am - 10:30am 2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	06-03-2023 & 07-03-2023 09:00am - 01:00pm 10 Minutes/student				
	6	Assessment of Clinical Lectures	Formative	10-03-23 09:30am- 10:00am 10 Minutes				

**No. of Assessments of Physiology for Second Year MBBS
GIT Module**

Block	Sr. #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Date/Time/Duration	Summative Assessment Time	Formative Assessment Time		
Block - I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM -09:30PM 30 Minutes	2 Hours & 40 minutes	20 minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	18-03-2023 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	09-03-2023 08:30am -10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	06-03-2023 & 07-03-2023 09:00am -01:00pm 10 Minutes/student				
	5	Assessment of Clinical Lectures	Formative	10-03-23 09:30am-10:00am 10 Minutes				

No. of Assessments of Biochemistry for Second Year MBBS
GIT Module

Block	Sr. #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	18-03-2023 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	10-03-2023 08:30am- 10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10-03-2023 08:30am- 10:30am 10 Minutes				
	Total				3 Hours			5 Assessments

Learning Resources

Subject	Resources
Anatomy	A. Gross Anatomy <ol style="list-style-type: none"> Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. Clinical Anatomy for Medical Students by Richard S.Snell 10th edition. Clinically Oriented Anatomy by Keith Moore 9th edition. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III B. Histology <ol style="list-style-type: none"> B. Young J. W. Health Wheather's Functional Histology 6th edition. Medical Histology by Prof. Laiq Hussain 7th edition. C. Embryology <ol style="list-style-type: none"> Keith L. Moore. The Developing Human 11th edition. Langman's Medical Embryology 14th edition.
Physiology	A. Textbooks <ol style="list-style-type: none"> Textbook Of Medical Physiology by Guyton And Hall 14th edition. Ganong ' S Review of Medical Physiology 26th edition. B. Reference Books <ol style="list-style-type: none"> Human Physiology by Lauralee Sherwood 10th edition. Berne & Levy Physiology 7th edition. Best & Taylor Physiological Basis of Medical Practice 13th edition. Guyton & Hall Physiological Review 3rd edition.
Biochemistry	Textbooks <ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition. Lehninger Principle of Biochemistry 8th edition. Biochemistry by Devlin 7th edition.
Community Medicine	Textbooks <ol style="list-style-type: none"> Community Medicine by Parikh 25th edition. Community Medicine by M Illyas 8th edition. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	Textbooks <ol style="list-style-type: none"> Robbins & Cotran, Pathologic Basis of Disease, 10th edition. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	Textbooks <ol style="list-style-type: none"> Lippincot Illustrated Pharmacology 9th edition. Basic and Clinical Pharmacology by Katzung 5th edition.

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

GIT Module Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

GIT Module Team

Module Name : GIT Module
 Duration of module : 06 Weeks
 Coordinator : Dr. Maryam Sohail
 Co-coordinator : Dr. Ali Raza
 Reviewed by : Module Committee

Module Committee		Module Task Force Team	
Vice Chancellor RMU	Prof. Dr. Muhammad Umar	Coordinator	Dr. Maryam Sohail (Senior Demonstrator of Anatomy)
Director DME	Prof. Dr. Rai Muhammad Asghar	DME Focal Person	Dr. Sidra Hamid (DHPE)
Convener Curriculum	Prof. Dr. Naeem Akhter	Co-coordinator	Dr. Shazia Nosheen (Senior Demonstrator of Physiology)
Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	Co-Coordinator	Dr. Almas Ijaz (Senior Demonstrator of Biochemistry)
Additional Director DME	Prof. Dr. Ifra Saeed	Co-coordinator	Dr. Ali Raza
Chairperson Physiology	Prof. Dr. Samia Sarwar		
Chairperson Biochemistry	Dr. Aneela Jamil	DME Implementation Team	
		Director DME	Prof. Dr. Rai Muhammad Asghar
Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
Focal Person Physiology	Dr. Sidra Hamid	Deputy Director DME	Dr Shazia Zaib
Focal Person Biochemistry	Dr. Aneela Jamil	Module planner & Implementation coordinator	Dr. Sidra Hamid
Focal Person Pharmacology	Dr. Zunera Hakim	Editor	Muhammad Arslan Aslam
Focal Person Pathology	Dr. Asiya Niazi		
Focal Person Behavioral Sciences	Dr. Saadia Yasir		
Focal Person Community Medicine	Dr. Afifa Kulsoom		
Focal Person Quran Translation Lectures	Dr. Fahad Anwar		

Discipline wise Details of Modular Content

Block	Module	General Anatomy	Embryology	Histology	Gross Anatomy
1	Anatomy	-	Tongue, Body Cavities, Gastrointestinal System	Digestive Tract & associated organs (Junqueira)	Oral Cavity, Abdomen and associated viscera
	Biochemistry	Carbohydrate metabolism, GIT digestive juices, Digestion and absorption, Nutrition			
	Physiology	General Principles of Gastrointestinal Function—Motility, Nervous Control, and Blood Circulation Propulsion and Mixing of Food in the Alimentary Tract Secretory Functions of the Alimentary Tract, Digestion and Absorption in the Gastrointestinal Tract Physiology of Gastrointestinal Disorders			
	Bioethics & Professionalism	<ul style="list-style-type: none"> Pakistan Medical & dental council Code of Ethics 			
	Research (IUGRC)	<ul style="list-style-type: none"> Introduction to descriptive statistics Classification of different types of Data Scales of Data measurement Measures of central Tendency Compute & Interpret measures of central tendency Measure of dispersion/ Secondary data Analysis 			
	Radiology & Artificial Intelligence	<ul style="list-style-type: none"> Medical imaging of abdomen- I Medical imaging of abdomen-II 			
	Family Medicine	<ul style="list-style-type: none"> Common Abdominal diseases 			
	Vertical components	<ul style="list-style-type: none"> The Holy Quran Translation Component 			
	Vertical Integration	Clinically content relevant to GIT module <ul style="list-style-type: none"> Eating disorders (Psychiatry) Concept of health & disease (Community medicine) Epidemiology of infectious diseases & Basic Concepts (Community medicine) Dysphagia (Medicine) 			

		<ul style="list-style-type: none"> • Pathologies of Salivary glands (Pathology) • Abdominal hernias (Surgery) • Abdominal incisions (Surgery) • Peptic ulcer (Medicine) • Surgical complications of Peptic Ulcer Disease (Surgery) • Pakistan Medical & dental council Code of Ethics (Community Medicine) • Jaundice (Medicine) • Gall stones & Cholecystectomy (Surgery) • Acute & Chronic Diarrhea (Pediatrics) • Acute Abdominal Pain (Surgery) • Irritable Bowel Syndrome (Medicine) • Antidiarrheal drugs & drugs for Peptic Ulcer Disease (Pharmacology) • Common GIT problems in pregnancy (Hyperemesis gravidarum, GERD, Constipation, hemorrhoids) (Gynae and OBS) • Pathologies of gallbladder and pancreas (Pathology) • Anal fissure, Hemorrhoids, Fistula in ano (Surgery)
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Categorization of Modular Content

Anatomy:

CATEGORY A	CATEGORY B	CATEGORY C		
Special Embryology	Special Histology	Demonstrations	Practical's	CBL
Development Of -Tongue, - Salivary Glands - Esophagus & Stomach - Liver - Gallbladder & Pancreas - Small Intestine - Large Intestine	Histological Features Of - Tongue, - Salivary Glands -General Structure of GIT - Esophagus & Stomach - Liver - Gallbladder & Pancreas - Small Intestine - Large Intestine	Gross Anatomy: -Topographical Organization Of GIT -Oral Cavity -Tongue - Salivary Glands -Anterolateral Abdominal Wall -Rectus Sheath -Inguinal Region & Hernias - Testes -Scrotum -Peritoneum & Peritoneal Cavity -Subdivisions of Peritoneal Cavity -Esophagus -Stomach -Small & Large Intestines -Liver -Gallbladder -Biliary Apparatus -Spleen -Pancreas -Vasculature of GIT -Portosystemic Anastomosis -Rectum -Anal Canal -Innervation of Abdominal Viscera	<ul style="list-style-type: none">• Histology of Tongue & Salivary glands• Esophagus & Stomach• Liver & Gallbladder<ul style="list-style-type: none">• Small Intestine• Large Intestine	<ul style="list-style-type: none">• Acute Appendicitis• Liver & Portal Hypertension
	Development of Body Cavities Histology Of Liver			

Category A: By Professors
Category B: By Associate & Assistant Professors
Category C: By Senior Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
3.	Assistant professor of Anatomy department (AP)	01
4.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	19 hours
2.	Small Group Discussions (SGD)	46 hours
4.	Practical / Skill Lab	38 hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	10 hours
2.	Small Group Discussions (SGD)	46 hours
4.	Practical / Skill Lab	7.5 hours
5.	Self-Directed Learning (SDL)	20 hours

Physiology:

Category A	Category B	Category C
Introduction to GIT, electrical activity in GIT, Enteric Nervous System and GIT reflexes (Dr. Samia Sarwar)	Saliva and mastication, stages of swallowing, clinical disorders of esophagus and swallowing, achalasia and vomiting (Dr. Shazia)	PBL:
Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn's disease) (Dr. Samia Sarwar)	Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT (Dr. Aneela)	CBL: Peptic Ulcer Food poisoning
	Motor functions of stomach, physiology of regulation of gastric emptying (Dr. Shazia)	Practical: Sense of taste Sense of smell Examination of superficial reflexes (CNS) Examination of deep reflexes Performance of axon reflex (triple response of skin)
	Physiology of liver and gall bladder, liver and biliary secretion(Dr. Aneela)	SGD: Saliva and mastication, stages of swallowing, clinical disorders of esophagus and swallowing, achalasia and vomiting Motor functions of stomach, physiology of regulation of gastric emptying Physiology of liver and gall bladder, liver and biliary secretion
	Gastric secretion, digestion in stomach, peptic ulcer and gastritis (Dr. Shazia)	SDL: Introduction to GIT, electrical activity in GIT, Enteric Nervous System and GIT reflexes Gastric secretion, digestion in stomach, peptic ulcer and gastritis Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn's disease) Intestinal secretion and its functions, pancreatic juice, its composition and functions Pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose) Motor function of large gut, defecation reflex Pathophysiology (diarrhea, constipation , ulcerative colitis, mega colon and carcinoma of colon)
	Liver function tests, types of jaundice, pathophysiology of cirrhosis and portal hypertension (Dr. Aneela)	
	Intestinal secretion and its functions, pancreatic juice, its composition and functions, pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose) (Dr. Aneela)	
	Motor function of large gut, defecation reflex and pathophysiology (diarrhea, constipation , ulcerative colitis, mega colon and carcinoma of colon) (Dr. Shazia)	

Category A: By HOD and Associate Professor

Category B: By All (HOD, Associate, Assistant, Senior Demonstrators)

Category C: By Demonstrators and Residents

Teaching Staff / Human Resource of Department of Physiology

Sr. #	Designation Of Teaching Staff / HumanResource	Total number of teaching staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01 (DME)
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of TeachingStrategies	Total Hours
1.	Large Group Interactive Session (Lectures)	22 hours
2.	Small Group Discussions (SGD)/CBL	38.5 hours
3.	Problem Based Learning (PBL)	2.5 hours
4.	Practical / Skill Lab	38.5 hours
5.	Self-Directed Learning (SDL)	17 hours

Biochemistry:

CATEGORY A	CATEGORY B	CATEGORY C
Carbohydrate metabolism (Dr Tehmina /Dr Uzma)	Saliva (Dr Almas)	PBL: GERD (Gastroesophageal Reflux Disease)
Glycolysis (Dr Tehmina /Dr Uzma)	Individual Sugars (Dr Aneela)	CBL: G6PDH Deficiency Lactose Intolerance
Gluconeogenesis (Dr Aneela)	Fate Of Pyruvate (Dr Tehmina /Dr Uzma)	Practical: Saliva Bile Analysis Of Food Components (Potato, Wheat)
TCA cycle (Dr Tehmina /Dr Uzma)	Function Of NADPH And G6PD Deficiency (Dr Aneela)	SGD: Gluconeogenesis and Its Regulation Jaundice And LFTs
Glycogen metabolism (Dr Aneela)	Gastric Juice (Dr Almas)	
LFTS Jaundice (Dr Anoosh)	Bile & Pancreatic Juice (Dr Uzma)	
Digestion And Absorption of Carbohydrates, Proteins and Lipids (Dr Anoosh)	Nutrition (Dr Rahat)	
	GIT Hormones & Succus Entericus (Dr Uzma)	

Category A: By HOD And Assistant Professor

Category B: By All HOD, Assistant Professors, Senior Demonstrators

Category C: By All Demonstrator

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	02
2	Demonstrators of biochemistry department	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	20 hours	10 hours
2.	Small Group Discussions (SGD)	38 hours	7.5 hours
4.	Practical / Skill Lab	38 hours	7.5 hours
5.	Self-Directed Learning (SDL)	4 hours	04

Time Table For GIT Module (First Week)
(30-01- 2023 to 04-02- 2023)

DATE/DAY	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 2:00pm	Home Assignments(2HRS)
30-01-2023 MONDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Physiology Enteric Nervous System
			Introduction to GIT Electrical Activity in GIT, Enteric Nervous System & GIT Reflexes	Saliva &Mastication,Stages ofSwallowing,Clinical DisordersofEsophagus &Swallowing,Achalasia & Vomiting	Development Of Tongue	Histology of Tongue	Introduction to Carbohydrate Metabolism	Saliva	Topographical Organization of GIT	
			Prof. Dr. Samia Sarwar / Dr. Aneela (Even)	Dr Shazia (Odd)	Prof. Dr Ifra (Even)	Ass. Prof. Dr Maria (Odd)	Dr. Tehmina / Dr Uzma (Even)	Dr. Almas (Odd)		
31-01-2023 TUESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS		BEHAVIORAL SCIENCES LGIS		COMMUNITY MEDICINE LGIS		DISSECTION/SGD	SDL Physiology GIT Reflexes
			Saliva & Mastication,Stages of Swallowing, Clinical Disorders of Esophagus & Swallowing,Achalasia &Vomiting	Introduction to GIT Electrical Activity in GIT, Enteric Nervous System & GIT Reflexes	Eating Disorders		Concept Of Health & Disease	Epidemiology Of Infectious Diseases& Basic Concepts	Oral Cavity, Tongue and Salivary Glands	
			Dr Shazia (Even)	Prof. Dr. Samia Sarwar / Dr. Aneela (Odd)	Dr. Sadia Yasir (Even)	Dr. Zona Tahir (Odd)	Dr. Rizwana Shahid (Even)	Dr. Uzma Hayat (Odd)		
01-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		COMMUNITY MEDICINE LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Biochemistry Carbohydrate Metabolism Glycolysis
			Epidemiology Of Infectious Diseases Basic Concepts	Concept Of Health & Disease	Histology of Tongue	Development of Tongue	Saliva	Carbohydrate Metabolism	Anterolateral Abdominal Wall	
			Dr. Uzma Hayat (Even)	Dr. Rizwana Shahid (Odd)	Ass. Prof. Dr Maria (Even)	Prof. Dr Ifra (Odd)	Dr. Almas (Even)	Dr. Tehmina /Dr Uzma (Odd)		
02-02-2023 THURSDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		MEDICINE LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Anatomy Anterolateral Abdominal Wall
			Dysphagia		Development Of Salivary Glands	Histology Salivary Glands	Metabolism of Monosaccharide & Disaccharide(Fructose, Lactose, Galactose)	Glycolysis	Rectus Sheath	
			Dr. Sadia Ahmed (Even)	Dr. Aqsa Naseer (Odd)	Prof. Dr Ifra (Even)	Ass. Prof. Dr Maria (Odd)	Dr. Aneela (Even)	Dr. Tehmina / Dr Uzma (Odd)		
03-02-2023 FRIDAY	8:00-9:00AM		9:00-10:00AM		10:00-11:00AM		11:00-12:00PM			
	ANATOMY LGIS		BIOCHEMISTRY LGIS		QURAN TRANSLATION - I		QURAN TRANSLATION - I			
	Histology Salivary Glands	Development Of Salivary Glands	Glycolysis	Metabolism of Monosaccharide & Disaccharide(Fructose, Lactose, Galactose)	Imaniaat-1	Ibadaat-1	Ibadaat-1	Imaniaat-1		
	Ass. Prof. Dr Maria (Even)	Prof. Dr Ifra (Odd)	Dr. Tehmina / Dr Uzma (Even)	Dr. Aneela (Odd)	Mufti Naeem Sherazi (Even)	Dr. Fahd Anwar (Odd)	Dr. Fahd Anwar (Even)	Mufti Naeem Sherazi (Odd)		
04-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		BIOETHICS LGIS	RESEARCH-I LGIS	PATHOLOGY LGIS		BIOCHEMISTRY LGIS		PBL SESSION – I	SDL Anatomy Rectus Sheath
			Pakistan Medical & Dental Council Code of Ethics	Introduction to Descriptive Statistics	Pathologies of Salivary Glands		Fate Of Pyruvate	Gluconeogenesis	PBL SESSION – I	
			Dr. Sidra Hamid (Even)	Dr. Rizwana Shahid (Odd)	Dr.Rabbiyah Khalid(Even)	Dr. Sara Rafi (Odd)	Dr. Tehmina / Dr Uzma(Even)	Dr. Aneela (Odd)	Physiology Batch Teachers Of 2 nd Year	

Topics For Practical with Venue						Topics for Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology Of Tongue and Salivary Glands (Anatomy Histology Practical) Venue-Histology Lab-Dr Gaiti AraSaliva I (Biochemistry Practical) Venue- Biochemistry LaboratorySense Of Taste (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Saliva and mastication, stages of swallowing, clinical disorders of esophagus and swallowing, achalasia and vomiting Saliva Venue - Lecture Hall No 5Biochemistry SGD: Saliva Venue - Lecture Hall No 2				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Gaiti Ara	Lecture Hall No.04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Maryam Sohail	Lecture Hall No. 03 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-Onwards	Dr. Sadia Baqir	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen		2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil		3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Nayab Zonish / Dr. Muhammad Usman
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)		Topic Details Of SDL Anatomy				
Topic Details Of SDL Biochemistry						<ul style="list-style-type: none">Anterior Abdominal Wall				
<ul style="list-style-type: none">Glycogen Storage Diseases						<ul style="list-style-type: none">Rectus Sheath				
<ul style="list-style-type: none">Regulation of Glycogen Metabolism										
<ul style="list-style-type: none">Diseases of Galactose Metabolism										
<ul style="list-style-type: none">Diseases of Fructose Metabolism										
<ul style="list-style-type: none">Glucose Transporters										
<ul style="list-style-type: none">Regulation of Glycolysis										
<ul style="list-style-type: none">Pyruvate Dehydrogenase Complex										

Time Table For GIT Module (Second Week)
(06-02-2023 to 11-02-2023)

DATE/DAY	8:00am-9:30am		9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 2:00pm	Home Assignments(2HRS)			
06-02-2023 MONDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS	BIOCHEMISTRY LGIS		SURGERY LGIS		DISSECTION/SGD	SDL Physiology Control Of GI Motility & Factors Affecting GIT Blood Flow	
			Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT	Motor functions of stomach, physiology of regulation of gastric emptying	Gluconeogenes is	Fate Of Pyruvate	Abdominal Hernias			
			Dr. Aneela (Even)	Dr. Shazia (Odd)	Dr. Aneela (Even)	Dr. Tehmina / Dr Uzma (Odd)	Dr. Hira (Even)			Dr. Ruqaiya (Odd)
07-02-2023 TUESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS	ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Physiology Swallowing	
			Motor functions of stomach, physiology of regulation of gastric emptying	Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT	Development Of Esophagus & Stomach-1	Histology General Structure of GIT & Esophagus	Function Of NADPH & Deficiency of G6PD			Citric Acid Cycle
			Dr. Shazia (Even)	Dr. Aneela (Odd)	Prof. Dr Ifra (Even)	Ass. Prof. Dr Maria (Odd)	Dr. Aneela (Even)			Dr. Tehmina / Dr Uzma (Odd)
08-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS	ANATOMY LGIS		SURGERY LGIS		DISSECTION/SGD	SDL Biochemistry TCA Cycle Gluconeogenesis Regulation	
			Physiology of liver and gall bladder, liver and biliary secretion	Gastric secretion, digestion in stomach, peptic ulcer and gastritis	Histology General Structure of GIT & Esophagus	Development Of Esophagus & Stomach-1	Abdominal Incisions			
			Dr. Aneela (Even)	Dr. Shazia (Odd)	Ass. Prof. Dr Maria (Even)	Prof. Dr Ifra (Odd)	Dr. Omer Qasiser (Even)			Dr. Samra Riaz (Odd)
09-02-2023 THURSDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS	PHYSIOLOGY SGD		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Anatomy Inguinal Region Canal and Hernias	
			Gastric secretion, digestion in stomach, peptic ulcer and gastritis	Physiology of liver and gall bladder, liver and biliary secretion	Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT		Citric Acid Cycle			Function of NADPH & Deficiency of G6PD
			Dr. Shazia (Even)	Dr. Aneela (Odd)	SGD Team of Second Year MBBS		Dr. Tehmina / Dr Uzma(Even)			Dr. Aneela (Odd)
10-02-2023 FRIDAY	8:00-9:00am		9:00-10:00am		10:00-11:00am		11:00-12:00pm			
	MEDICINE LGIS		ANATOMY LGIS		Quran Translation - II		Quran Translation - II			
	Peptic Ulcer		Development of Stomach-2	Histology Of Stomach	Ibadaat-2	Imaniyaat-2	Ibadaat-2	Imaniyaat-2		
	Dr. Javeria (Even)	Dr. Anam (Odd)	Prof. Dr. Ifra (Even)	Ass. Prof. Dr Maria (Odd)	Dr Fahd (Even)	Mufti Naeem Sherazi (Odd)	Dr Fahd (Odd)	Mufti Naeem Sherazi (Even)		
11-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		SURGERY LGIS	ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD	SDL Anatomy Peritoneum & Peritoneal Cavity	
			Surgical complications of Peptic Ulcer Disease		Histology Of Stomach	Development of Stomach-2	Glycogen Metabolism			Gastric Juice
			Dr. Ali Kamran (Even)	Dr. Sidra (Odd)	Ass. Prof. Dr Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Aneela (Even)			Dr. Almas (Odd)

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Esophagus & Stomach (Anatomy Histology Practical) Venue-Histology lab-Dr Maryam SohailSaliva I (Biochemistry Practical) Venue- Biochemistry laboratorySense of Smell (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Motor functions of stomach, physiology of regulation of gastric emptying Venue: Lecture Hall No 5)Biochemistry CBL: Glucose 6 Phosphate Dehydrogenase Deficiency (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Gaiti Ara	Lecture Hall No.04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Maryam Sohail	Lecture Hall No. 03 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-Onwards	Dr. Sadia Baqir	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar	
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil	3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Nayab Zonish / Dr. Muhammad Usman	
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail	
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)	Topic Details Of SDL Anatomy					
Topic Details Of SDL Biochemistry						<ul style="list-style-type: none">Inguinal Canal and Hernia				
<ul style="list-style-type: none">Glycolysis and gluconeogenesis regulation						<ul style="list-style-type: none">Peritoneum				
<ul style="list-style-type: none">Fates of pyruvate										
<ul style="list-style-type: none">TCA cycle										
<ul style="list-style-type: none">Glucose 6 Phosphate Dehydrogenase Deficiency										

Time Table For GIT Module (Third Week)

(13-02-2023 to 18-02-2023)

DATE/DAY	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 2:00pm		Home Assignments (2HRS)		
13-02-2023 MONDAY	Practical &CBL/SGD Topic & venue mentioned at the end	PHYSIOLOGY LGIS		PHYSIOLOGY SDL-I		BIOCHEMISTRY LGIS		DISSECTION/SGD		SDL Physiology Clinical disorders of Esophagus & Swallowing., Achalasia/ vomiting		
		Liver function tests, types of jaundice,pathophysiology of cirrhosisandportalhypertension	Small intestine motilityand malabsorption (sprue,paralytic ileus and Crohn’s disease)	Introduction to GIT, electrical activity in GIT, Enteric Nervous System and GIT reflexes		Gastric Juice	Glycogen Metabolism	Small intestine (Duodenum)				
		Dr. Aneela (Even)	Prof. Dr. Samia Sarwar / Dr. Shazia(Odd)	Dr. Uzma (Even)	Dr. Fareed (Even)	Dr. Almas (Even)	Dr. Aneela (Odd)					
14-02-2023 TUESDAY	Practical &CBL/SGD Topic & venue mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		RESEARCH -I		DISSECTION/SGD		SDL Physiology Motor function of stomach		
		Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn’s disease)	Liver function tests, types of jaundice, pathophysiology of cirrhosis and portal hypertension	Development of Liver & Biliary Apparatus	Histology of Liver	Introduction to descriptive statistics	Pakistan Medical & dental council Code of Ethics	Small intestine (Jejunum & ileum)				
		Prof. Dr. SamiaSarwar / Dr. Shazia(Even)	Dr. Aneela (Odd)	Prof. Dr Ifra (even)	Ass. Prof. Dr Maria (Odd)	Dr. Uzma Hayat(Even)	Dr. Sidra Hamid (Odd)					
15-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & venue mentioned at the end	RESEARCH-II LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/CBL		SDL Biochemistry Glycogen Metabolism		
		Classification of different types of data		Histology of Liver	Development of Liver & Biliary Apparatus	LFT’s Jaundice	Bile & pancreatic juice	Liver-I CBL- Liver & portal Hypertension				
		Dr. Rizwana Shahid(Even)	Dr. Uzma Hayat (Odd)	Ass. Prof. Dr Maria (even)	Prof. Dr Ifra (Odd)	Dr. Anoosh (Even)	Dr. Uzma (Odd)					
16-02-2023 THURSDAY	Practical &CBL/SGD Topic & venue mentioned at the end	MEDICINE LGIS		ANATOMY LGIS		SURGERY LGIS		DISSECTION/ CBL		SDL Anatomy Small Intestine		
		Jaundice		Development of Gallbladder & Pancreas	Histology of Gallbladder & Pancreas	Gall Stones & cholecystectomy		Liver II				
		Worthy Vice Chancellor Prof. Dr. Muhammad Umar		Prof Dr Ifra (Even).	Ass. Prof. Dr Maria (Odd)	Dr. Asifa (Even)	Dr. Yasmin (Odd)					
17-02-2023 FRIDAY	8:00-9:00AM	9:00-10:00AM		10:00-11:00AM		11:00-12:00PM						
	DISSECTION	ANATOMY LGIS		QURAN TRANSLATION-III		QURAN TRANSLATION-III						
	DISSECTION / SPOTTING	Histology Of_Gallbladder & Pancreas	Development Of Gallbladder &Pancreas	Ibadaat-3	Imaniat-3	Imaniat-3	Ibadaat-3					
		Ass. Prof. Dr Maria (Even)	Prof Dr Ifra (Odd)	Dr. Fahd Anwar (Even)	Mufti Naeem Sherazi(Odd)	Mufti Naeem Sherazi(Even)	Dr. Fahd Anwar(Odd)					
18-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS		ANATOMY LGIS		PEDIATRICS		SDL EVALUATION 12AM-12:30PM		DISSECTION/SGD 12:30PM-2:00PM		SDL Anatomy Large Intestine Online SDL Evaluation
		Intestinal secretion and its functions, pancreatic juice, its composition and functions, pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose	Motor function of large gut, defecation reflex and pathophysiology (diarrhea,constipation, ulcerative colitis, mega colon and carcinoma of colon)	Development Of Small Intestine	Histology Of Small Intestine	Acute & Chronic Diarrhea		SDL EVALUATION		Gallbladder & Biliary Apparatus		
		Dr Aneela (Even)	Dr Shazia (Odd)	Prof Dr Ifra (Even)	Ass. Prof. Dr Maria (Odd)	Dr. Samra Javed(Even)	Dr. Javeria Zain (Odd)					

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology Of Liver & Gall Bladder (Anatomy Histology Practical) Venue-Histology Laboratory-Dr Sadia BaqirAnalysis Of Food Components (Wheat) (Biochemistry Practical) Venue- Biochemistry LaboratoryExamination Of Superficial Reflexes (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology CBL: Peptic Ulcer (Venue: Lecture Hall No 5)Biochemistry SGD: Gluconeogenesis and Its Regulation (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Gaiti Ara	Lecture Hall No.04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Maryam Sohail	Lecture Hall No. 03 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-Onwards	Dr. Sadia Baqir	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar	
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil	3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Nayab Zonish / Dr. Muhammad Usman	
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail	
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)	Topic Details Of SDL Anatomy					
Topic Details Of SDL Biochemistry					• Small Intestine					
• Types of Jaundice with Lab Investigations (Tabulated Form)					• Large Intestine					
• Digestion of Lipids by Pancreatic Enzymes										
• Protein Degradation by Enzyme Systems										
• Types of Jaundice with Lab Investigations (Tabulate										

Time Table For GIT Module (Fourth Week)

(20-02-2023 to 25-02-2023)

DATE/DAY	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 2:00pm		Home Assignments(2HRS)			
20-02-2023 MONDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD		SDL Physiology Physiology Of Liver / Gall Bladder, Liver And Biliary Secretion			
			Motor function of large gut, defecation reflex and pathophysiology (diarrhea, constipation, ulcerative colitis, mega colon and carcinoma of colon)	Intestinal secretion and its functions, pancreatic juice, its composition and functions, pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose)	Histology Of Small Intestine	Development Of Small Intestine	Bile & Pancreatic Juice	LFT’s Jaundice	Spleen					
			Dr Shazia (Even)	Dr Aneela (Odd)	Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra(Odd)	Dr. Uzma (Even)	Dr. Anoosh (Odd)						
21-02-2023 TUESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY SDL-II		RESEARCH-III LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD		SDL Physiology LFTs, Jaundice			
			Gastric secretion, digestion in stomach, peptic ulcer and gastritis		Scales of Data Measurement		Nutrition-I	GIT Hormones & Succusertericus	Pancreas					
			Dr. Shazia (Even)	Dr. Sheena (Even)	Dr. Rizwana Shahid (Even)	Dr. Uzma Hayat(Odd)	Dr. Rahat (Even)	Dr. Uzma (Odd)						
22-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PBL SESSION-II		SURGERY LGIS		ANATOMY LGIS		DISSECTION/SGD		SDL Biochemistry Individual Sugars			
			PBL SESSION-II		Acute Abdominal Pain		DevelopmentOf Large Intestine	Histology Of Large IntestineI	Large intestine CBL- Acute Appendicitis					
			PBL Team Of Second Year MBBS		Dr. Amjad (Even)	Dr. Kiran (Odd)	Prof. Dr. Ifra (Even)	Ass. Prof. Dr. Maria(Odd)						
23-02-2023 THURSDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		PHYSIOLOGY SDL-III		ANATOMY LGIS		MEDICINE		DISSECTION/SGD		SDL Anatomy Liver And Pancreas			
			Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn’s disease)		Histology of Large Intestine-I	Development of Large Intestine	Irritable Bowel Syndrome		Vasculature of GIT (Blood Supply, Venous drainage, Lymphatic drainage)					
			Dr Uzma (Even)	Dr. Fareed (Odd)	Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Aqsa (Even)	Dr. Sadia (Odd)						
24-02-2023 FRIDAY	8:00-9: 00AM		9:00-10:00am		10:00-11:00am		11:00-12:00pm							
	RESEARCH-IV		PHYSIOLOGY SDL-IV		PAK STUDIES/ISLAMIYAT-I		PAK STUDIES/ISLAMIYAT-I							
	Measures of central tendency		Intestinal secretion and its functions, pancreatic juice, its composition and functions		Toheed	Qayam e Pakistan, Aghraaz o Maqasid	Qayam e Pakistan, Aghraaz o Maqasid	Toheed						
	Dr. Rizwana Shahid (Even)	Dr. Uzma Hayat(Odd)	Dr. Shazia (Even)	Dr. Sheena (Odd)	Mufti Naeem Sherazi (Even)	Qari Aman Ullah(Odd)	Qari Aman Ullah(Even)	Mufti Naeem Sherazi (Odd)						
25-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End		BIOCHEMISTRY LGIS		ANATOMY LGIS		PHARMACOLOGY LGIS		PAK STUDIES/ISLAMIYAT				SDL Anatomy (Blood Supply, Venous drainage, Lymphatic drainage)	
			GIT Hormones & Succusertericus	Nutrition-I	Development Of Body Cavities-I	Histology Of Large Intestine-II	Anti-Diarrheal Drugs & drugs for Peptic Ulcer Disease	Tehreek-E-Pakistan Islaahi Tehreekain	Akhi rat-I	Akhr t -I	TehreekE- Pakistan Islaahi Tehreckn			
			Dr. Uzma (Even)	Dr. Rahat (Odd)	Ass. Prof. Dr. Arsalan (Even)	Ass. Prof Dr Maria (Odd)	Dr. Uzma Omer	Qari Aman Ullah (Even)	Mufi Naeem Sherazi (Odd) (Even)	Qari Aman Ullah (Odd)				

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Small Intestine (Anatomy Histology Practical) Venue-Histology laboratory-Dr Gaiti AraAnalysis of food components (wheat) (Biochemistry Practical) Venue- Biochemistry laboratoryExamination of Deep reflexes (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Physiology of liver and gall bladder, liver and biliary secretion (Venue: Lecture Hall No 5)Biochemistry SGD: Jaundice & LFTs (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Gaiti Ara	Lecture Hall No.04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Maryam Sohail	Lecture Hall No. 03 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-Onwards	Dr. Sadia Baqir	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar	
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil	3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Nayab Zonish / Dr. Muhammad Usman	
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail	
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)	Topic Details of SDL Anatomy					
Topic Details of SDL Biochemistry					• Blood Supply Of GIT					
• Balanced diet					• Liver And Pancreas					
• Types & effects of Dietary Proteins										
• Kwashiorkor & Marasmus (Differentiate)										

Time Table For GIT Module (Fifth Week)
(27-02-2023 to 04-03-2023)

DATE/DAY	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 2:00pm				Home Assignments(2HRS)
27-02-2023 MONDAY	Practical &CBL/SGD Topic & venue mentioned at the end		PHYSIOLOGY SDL-V		GYNAE & OBS LGIS		PATHOLOGY (LGIS)		SDL EVALUATION 12AM-12:30PM		DISSECTION/SGD 12:30PM-02:00PM		SDL Physiology Hormones of GIT
			Pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose)		Common GIT problems in pregnancy (Hyperemesis gravidarum, GERD, Constipation, haemorrhoids)		Pathologies of Liver, gallbladder and pancreas		Surface Marking & Radiographs				
			Dr. Uzma (Even)	Dr. Fareed (Odd)	Dr. Ammara Arooj (Even)	Dr. Shama Bashir (Odd)	Dr. Rabbiyah Khalid (Even)	Dr. Iqbal Haider (Odd)					
28-02-2023 TUESDAY	Practical &CBL/SGD Topic & venue mentioned at the end		PHYSIOLOGY SDL-VI		SURGERY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD				SDL Physiology Digestion & Absorption
			Motor function of large gut, defecation reflex		Anal fissure, Haemorrhoids, Fistula in Ano		Digestion & Absorption-I		Nutrition-II		Rectum		
			Dr. Shazia (Even)	Dr. Sheena (Odd)	Dr. Asif (Even)	Dr. Asad (Odd)	Dr. Anoosh (Even)	Dr. Rahat (Odd)					
01-03-2023 WEDNESDAY	Practical &CBL/SGD Topic & venue mentioned at the end		ANATOMY LGIS		RADIOLOGY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD				SDL Biochemistry Food groups Digestion of Lipids by Pancreatic Enzymes Online Clinical Evaluation
			Histology of Large Intestine-II	Development of body Cavities-I	Medical Imaging of abdomen-I		Digestion and absorption-I		Nutrition-II		Anal canal		
			Ass. Prof. Dr. Maria	Ass. Prof. Dr. Arsalan	Dr. Qurat ul Ain (Even)	Dr. Aniqua Saleem (Odd)	Dr. Anoosh (Even)	Dr. Rahat (Odd)					
02-03-2023 THURSDAY	Practical &CBL/SGD Topic & venue mentioned at the end		ANATOMY LGIS		RESEARCH-V		BIOCHEMISTRY LGIS		DISSECTION/SGD				SDL Anatomy Rectum & Anal canal
			Development of body Cavities-II		Compute and Interpret measures of central tendency		Digestion & Absorption-II		Nutrition-III		Innervation of abdominal Viscera		
			Ass. Prof. Dr. Arsalan		Dr. Uzma Hayat (Even)	Dr. Rizwana Shahid (Odd)	Dr. Anoosh (Even)	Dr. Rahat (Odd)					
03-03-2023 FRIDAY	8:00-9:00AM		9:00-10:00AM		10:00-12:00PM								
	PHYSIOLOGY SDL-VII		BIOCHEMISTRY LGIS		DISSECTION/SGD								
	Pathophysiology (diarrhea, constipation, ulcerative colitis, mega colon and carcinoma of colon)		Nutrition-III	Digestion & Absorption-II	Dissection & Spotting								
	Dr. Uzma (Even)	Dr. Fareed (Odd)	Dr. Rahat (Even)	Dr. Anoosh (Odd)									
04-03-2023 SATURDAY	Practical &CBL/SGD Topic & venue mentioned at the end		RESEARCH-VI		RADIOLOGY LGIS		FAMILY MEDICINE LGIS		PAK STUDIES/ISLAMIYAT-II		PAK STUDIES/ISLAMIYAT-II		SDL Anatomy Innervation of abdominal Visceras
			Measures of dispersion/Secondary Data Analysis		Medical Imaging of abdomen-II		Common Abdominal diseases		Tehreek-e-Aligarh, Sir Syed Ahmad Khan	Akhirat -II	Akhirat -II	Tehreek-e-Aligarh , Sir Syed Ahmad Khan	
			Dr. Uzma Hayat (Even)	Dr. Rizwana Shahid (Odd)	Dr. Sana Yaqoob (Even)	Dr. Saba Bint e Kashmir (Odd)	Dr. Sadia (Even)	Dr. Ishtiaq (Odd)	Qari Aman Ullah (Even)	Mufti Naeem Sherazi (Odd)	Mufti Naeem Sherazi (Even)	Qari Aman Ullah (Odd)	

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Large Intestine (Anatomy Histology Practical) Venue-Histology laboratory-Dr Sadia BaqirAnalysis of food components (wheat) (Biochemistry Practical) Venue- Biochemistry laboratoryPerformance of Axon reflexes (Triple Response of Skin) (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology CBL: Food Poisoning (Venue: Lecture Hall No 5)Biochemistry CBL: Lactose Intolerance (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Gaiti Ara	Lecture Hall No.04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Maryam Sohail	Lecture Hall No. 03 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-Onwards	Dr. Sadia Baqir	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar	
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil	3.	Batch – C	141-210	Dr. Shahrukh Khan	Dr. Nayab Zonish / Dr. Muhammad Usman	
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail	
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)		Topic Details Of SDL Anatomy				
Topic Details Of SDL Biochemistry					<ul style="list-style-type: none">Biliary apparatus & Portosystemic AnastomosisRectum & Anal canal					
<ul style="list-style-type: none">Food groups										
<ul style="list-style-type: none">Digestion of Lipids by Pancreatic Enzymes										
<ul style="list-style-type: none">Protein Degradation by Enzyme Systems										
<ul style="list-style-type: none">Types & effects of Dietary Fats and carbohydrates										
<ul style="list-style-type: none">Obesity and BMI										

Time Table For GIT Module (Sixth Week)
(06-03-2023 TO 10-03-2023)

DATE / DAY	8:00 AM – 9:00 AM	2:00 PM – 03:00 PM
06-03-2023 Monday	Anatomy Regional Assessment /Physiology Viva Voce	
07-03-2023 Tuesday	Anatomy Regional Assessment /Physiology Viva Voce	
08-03-2023 Wednesday	Anatomy Theory Paper	
09-03-2023 Thursday	Physiology Theory Paper	
10-03-2023 Friday	Biochemistry Theory Paper	

Note: Detailed notice regarding content, time and venue will be issued accordingly

Note: Timetable Subject to change according to the current circumstances.

SECTION-VI

Table of Specification (TOS) For GIT Module Examination for Second MBBS

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
						No. of items	Marks					
			C1	C2	C3			C1	C2	C3		
1.	Anatomy	25	12	5	5	5	25	1	2	2	50	100
2.	Physiology	20	12	6	2	4	20	1	2	1	40	90
3.	Biochemistry	18	09	8	1	2	10	5	1.5			35
4.	Pediatrics	5										5
5.	Bioethics Professionalism	1										1
6.	Research, Artificial Intelligence & Innovation	9										9
7.	Pharmacology	2										2
8.	Pathology	3										3
9.	Medicine	2										2
10.	Surgery	1										1
11.	Family Medicine	1										1
12.	Obs & Gynaecology	1										1
Grand Total											250	

Annexure-I

(Sample MCQ & SEQ Papers)

RAWALPINDI MEDICAL UNIVERSITY, RWP
ANATOMY DEPARTMENT
2nd Year MBBS Module Exam (GIT)

1. Omental bursa develops due to:
 - a. Gut rotation.
 - b. Rotation of stomach.
 - c. Rotation of dorsal mesogastrium.
 - d. Rotation & cavitations in dorsal mesogastrium.
 - e. Formation of synovial membrane behind stomach.
3. Primarily retro peritoneal organs include:
 - a. Pancreas.
 - b. Ascending & descending colon.
 - c. Kidneys & suprarenals.
 - d. Kidneys, suprarenals & rectum.
 - e. Duodenum & pancreas.
5. Which of the following is not a derivative of hind gut:
 - a. Left 1/3 of transverse colon.
 - b. Descending colon.
 - c. Rectum & upper part of anal canal.
 - d. ileum
 - e. Sigmoid colon
2. Rotation of stomach takes place around:
 - a. Longitudinal & antero posterior axes.
 - b. Axis formed by celiac trunk.
 - c. Dorsal mesogastrium.
 - d. Ventral mesogastrium.
 - e. Longitudinal axis only
4. Regarding spleen:
 - a. It is derived from foregut endoderm.
 - b. It develops from a mass of mesenchymal cells located between the layers of the dorsal mesogastrium.
 - c. Develops in ventral mesogastrium.
 - d. Is solely ectodermal.
 - e. Never functions as hematopoietic organ

RAWALPINDI MEDICAL UNIVERSITY
GIT MODULE EXAM 2ND YEAR MBBS
ANATOMY SEQS

- | | | |
|----|--|-----|
| 1. | a. Describe formation and enlist contents of rectus sheath. | 2.5 |
| | b. Give various sites of portosystemic anastomosis with its clinical significance. | 2.5 |
| 2. | a. Draw and label posterior relations of right kidney. | 02 |
| | b. Give course and relations of abdomino pelvic part of left ureter. | 03 |

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF PHYSIOLOGY
GIT MODULE EXAMINATION MCQ PAPER FOR SECOND YEAR MBBS

1. Mass Movements are initiated by following reflex:
 - a. Vomiting
 - b. Entrogastric
 - c. Gastro colic
 - d. Vasovagal
 - e. Chewing
3. The center for control of parasympathetic defecation reflex is located in:
 - a. Brainstem
 - b. Meissner's plexus
 - c. Cerebral cortex
 - d. Sacral segments of spinal cord
 - e. Myenteric plexus
5. The cephalic phase of gastric secretion accounts for the following percentage of total gastric secretion:
 - a. 10%
 - b. 60%
 - c. 20%
 - d. 70%
2. Intrinsic factor is secreted by the following cells:
 - a. Chief
 - b. Peptic
 - c. Mucus Neck
 - d. Enterochromaffin-like
 - e. Parietal
4. Spike potentials in intestinal smooth muscle are caused by influx of:
 - a. Sodium ions
 - b. Chloride ions
 - c. Potassium ions
 - d. Both sodium ions & calcium ions
 - e. Calcium ions

e. 30%

**RAWALPINDI MEDICAL UNIVERSITY
GIT MODULE EXAM 2ND YEAR MBBS
PHYSIOLOGY SEQS**

1. A 5-year -old child went to the amusemet park. While taking rotatory rides he developed nausea, vomiting & vertigo.
 - a) Name the center located in medulla for initiation of vomiting by motion sickness. 1
 - b) Give a brief account of vomiting reflex leading to the vomiting act. 4

2. Briefly write the physiological importance of:
 - a) Countercurrent blood flow in the villi 2
 - b) Mastication (Chewing) 3

Rawalpindi Medical University Department of Biochemistry
2nd Year MBBS
GIT Module

1. Glycogen:

- a. Stores are increased in fed state
- b. Structure is abnormal shaped in von Gierke's disease
- c. Less branched structure than starch
- d. Stores in liver decrease if phosphofructokinase enzyme is deficient
- e. Muscle glycogen provides glucose to brain during fasting

2. End product of carbohydrate digestion is:

- a. Glucose
- b. Lactose
- c. Starch
- d. Glycogen
- e. Maltose Synthase

3. Regulatory enzyme of Glycogenolysis is:

- a. Synthase
- b. Phosphorylase
- c. Branching enzyme
- d. Debranching enzyme
- e. Phosphoglucomutase mutase

4. End product of anaerobic glycolysis is:

- a. Pyruvate
- b. Acetyl CoA
- c. Citrate
- a. Lactate
- d. Oxaloacetate

SEQ

Q. a. Explain composition and role of gastric juice. 03

b. Discuss fate of pyruvate. 02

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF BIOMEDICAL ETHICS
2ND YEAR MBBS
GIT MODULE

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.

- a. Bio-piracy
- b. Biosafety
- c. Bioethics
- d. Bio-patents
- e. Bio-logistic

3. Following is not code of ethics.

- a. Integrity
- b. Objectivity
- c. Confidentiality
- d. Behaviour
- e. Autonomy

5. -----Principle requiring that physicians provide, positive benefits

- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity

2. The right of patients having self-decision is called.

- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity

4. -----in the context of medical ethics, if it's fair and balanced


- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity



Renal Module

Study Guide Second Year MBBS 2022 - 2023



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Document Information

Category	Renal Module Study Guide
Document	Procedure for Control of Documented Information
Issue	1
Rev	00
Identifier	RMU-MR-SOP-57
Status	Final Document
Author(s)	Additional Director Medical Education, Asst. Director Medical Education,
Reviewer(s)	Curriculum Committee.
Approver(s)	Vice Chancellor
Creation Date	01-03-2023
Effective Date	01-03-2023
Control Status	CONTROLLED
Distribution	VC, Principle, ISO Committee
Disclaimer	This document contains confidential information. Do not distribute this document without prior approval from higher management of Rawalpindi Medical University .

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	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-57	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 01-03-2023


Document Approval

Prepared By	Reviewed By	Approved By
Additional Director Medical Education, Asst. Director Medical Education,	Curriculum Committee	Vice Chancellor

	RAWALPINDI MEDICAL UNIVERSITY			
	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-57	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 01-03-2023

Document Revision History

Author(s)	Date	Version	Description

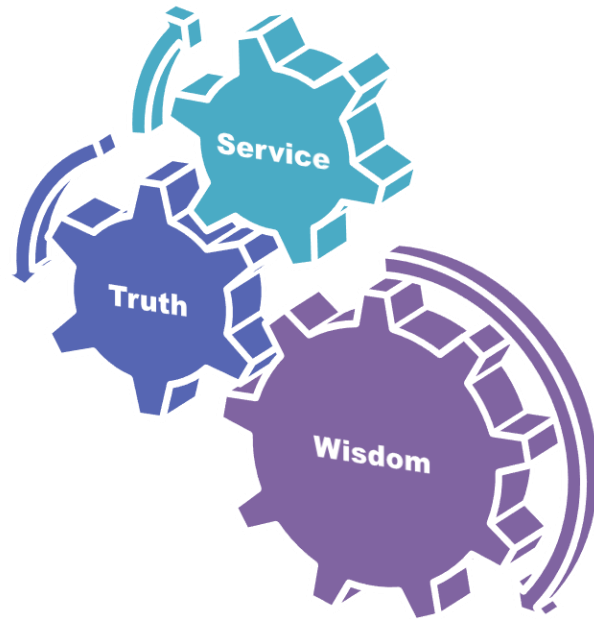
	RAWALPINDI MEDICAL UNIVERSITY			
	DOC. TITLE: PROCEDURE FOR CONTROL OF DOCUMENTED INFORMATION			
	DOCUMENT #: RMU-MR-SOP-57	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 01-03-2023

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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

Renal Module

Discipline wise Details of Modular Content

Block	Module	Embryology	Histology	Gross Anatomy
I	<ul style="list-style-type: none"> Anatomy 	Embryology <ul style="list-style-type: none"> Kidney Ureter Urinary Bladder Urethra 	Histology <ul style="list-style-type: none"> Kidney Ureter Urinary Bladder 	<ul style="list-style-type: none"> Posterior Abdominal Wall & Organs of Urinary System
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Amino Acid Pool Protein Turn Over Nitrogen Balance & transport of Amino Acid, Urea Cycle & Disorder Arginine & Branched Chain Amino Acid Metabolism Ammonia Toxicity 		
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Body Fluid Compartments, Volume & osmolarity of ECF NICF Physiology of Renal System, GFR Regulation of GFR & RBF Tubular Reabsorbtion & Scretion Micturition Reflex & Abnormalities Acid base balance 		
	<ul style="list-style-type: none"> Bioethics & Professionalism 	<ul style="list-style-type: none"> Islam & Teachings of Bioethics Ethics of social media & advertising Ethical principles 		
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> Prenatal ultrasonography Contrast Nephropathy 		
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> How To Generate a Research Question 		
	<ul style="list-style-type: none"> Family Medicine 	<ul style="list-style-type: none"> Renal Failure 		
	<ul style="list-style-type: none"> Vertical components 	<ul style="list-style-type: none"> The Holy Quran Translation Component IUGRC Biomedical Ethics Component 		
	<ul style="list-style-type: none"> Vertical Integration 	Clinically content relevant to Renal module <ul style="list-style-type: none"> Nephrotic syndrome. & Nephritic syndrome. (Medicine) Acute renal failure (Medicine) Potassium imbalance and its management (Medicine) CRF & Rehabilitation of patient with CRF(Medicine) 		

		<ul style="list-style-type: none">• Management of Acid base disorders (Medicine)• Hydronephrosis / Pyonephrosis (Surgery)• Investigations of urinary tract (Surgery)• Renal tuberculosis (Surgery)• Renal calculi (Surgery)• Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence) (Obstetrics & Gynecology)• UTI (Peds)• Introduction to diuretics (Pharmacology)
--	--	--

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Renal Module Team

Module Name : Renal Module
 Duration of module : 05 Weeks
 Coordinator : Dr. Sheena Tariq
 Co-coordinator : Dr. Uzma Kiani
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Sheena Tariq (Senior Demonstrator of Physiology)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (DHPE) (Assistant Professor of Biochemistry)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Tariq Furqan (Senior Demonstrator of Anatomy)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Uzma Kiyani (Senior Demonstrator of Physiology)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Module II – Renal Module

Rationale: The urinary system is an important system of the body and it is also concerned with homeostasis and it is essential for survival of individuals. Kidney is the principal organ in the urinary system. It is an essential viscous concerned with maintenance of homeostasis. It performs its function through formation of urine in which hazardous waste products of metabolism, drugs, toxins and excess amounts of water and electrolytes are excreted. Kidneys also help in controlling body fluid volume, arterial blood pressure and acid base balance. Whereas, prostate gland is also included in this module as it is concerned with production of semen.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- This module is expected to build students basic knowledge about normal structure, organization, functions and development of urinary system
 - **Family Medicine**
 - **Biomedical Ethics**
 - **Artificial Intelligence**
 - **Research**

Skills

- Demonstrate effective skill for performing and interpreting various laboratory tests like urine routine examination.
- Demostrate awareness of ethical, legal and social implecation of issues related to bioethics

Attitude

- Demonstrate a **professional attitude, team building spirit and good communication** specially in small group discussions.

This module will run in 5 weeks duration. Instructional strategies are given in the time table and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning
- Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar’s Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

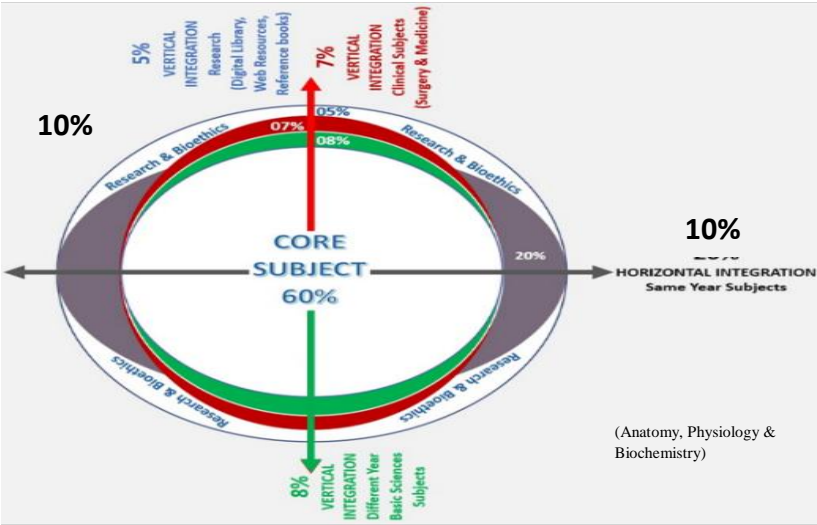


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthesize & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organize Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
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 - Physiology (SDL)
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- Skill Laboratory
 - Anatomy
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Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End of The Lecture the Student Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Embryology				
Development of Kidney & ureter	• Enumerate the derivatives of intermediate mesoderm, urogenital and gonadal ridges.	C1	LGIS	SAQ MCQ VIVA
	• Describe the stages of development of human kidneys	C1		
	• Describe the molecular regulation of kidney development.	C2		
	• Correlate positional changes of the kidney with its blood supply	C1		
	• Describe different stages of development of ureter from ureteric bud and metanephrogenic blastema.	C1		
	• Understand the bio-physiological aspects of kidney & ureter development	C2		
	• Enumerate Congenital anomalies of kidney and ureter.	C3		
	• Discuss polycystic kidney	C3		
	• Discuss horseshoe shaped kidney	C3		
	• Search a relevant research article	C3		
	• Use digital library	C3		
Development of urinary bladder & urethra	• Describe the development of urinary bladder	C1	LGIS	SAQ MCQ VIVA
	• Understand the bio-physiological aspects of bladder development	C2		
	• Discuss the parts of urethra in males and females	C1		
	• Describe development of male urethra	C1		
	• Describe development of female urethra	C1		
	• Discuss the anomalies related to urethra & bladder development	C3		
	• Read a relevant research article	C3		
Histology				
Histology of kidney I	• Discuss the structural components of the nephron..	C1	LGIS	SAQ MCQ VIVA
	• Discuss the histology of filtration barrier.	C1		
	• Understand the bio-physiological aspects of filtration	C2		
	• Distinguish the key microscopic components of the renal cortex and medulla.	C1		
	• Differentiate the histological appearance of proximal tubule, loop of Henley, distal convulated tubule and collecting duct.	C1		

Histology of kidney II	• Enumerate the component cells of the juxta glomerular apparatus.	C1	LGIS	SAQ MCQ VIVA
	• Discuss the component cells of the juxtaglomerular apparatus	C1		
	• Discuss the effect of diabetes & hypertension on glomerular filtration rate	C3		
	• Understand the effect of hypertension on renin angiotensin release	C3		
	• Search a relevant research article	C3		
	• Use digital library	C3		
Histology of Urinary bladder	• Describe histological characteristics of urinary bladder.	C1	LGIS	SAQ MCQ VIVA
	• Explain the concept of umbrella cells and Uroplakins.	C1		
	• Explain the concept of internalization	C1		
	• Understand the bio-physiological effects of urinary epithelium	C2		
	• Compare the histological changes of empty and full bladder.	C1		
	• Read a relevant research article	C3		
Histology of ureter & urethra	• Describe the microscopic structure of ureter	C1	LGIS	SAQ MCQ VIVA
	• Discuss the histological features of urethra	C1		
	• Distinguish the transition in epithelium in different types of urethra	C1		
	• Read a relevant research article	C3		
	• Use digital Library	C3		

Physiology Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Body fluid compartments, Volume & osmolarity of ECF & ICF.	<ul style="list-style-type: none"> Fluid Intake/Output balance Body fluid compartments Constituents of ECF & ICF Concept of Osmolarity, Osmolality, Osmosis and Osmotic pressure 	C1	LGIS	SAQ MCQ VIVA
		C2		
		C2		
		C1		
Physiology of Renal system, Glomerular filtration rate	<ul style="list-style-type: none"> Functions of kidney. Physiologic Anatomy of Kidney Concept of Glomerular Filtration Introduction to Glomerular filtration rate. 	C2	LGIS SGD	SAQ MCQ VIVA
		C2		
		C2		
		C1		
Abnormalities of fluid volume & regulation, Edema	<ul style="list-style-type: none"> Volume and osmolarity in abnormal states Abnormalities of fluid volume & Regulation Hyponatremia and Hypernatremia Edema and its Mechanism. Fluid in potential spaces of the body 	C1	LGIS SGD	SAQ MCQ VIVA
		C1		
		C2		
		C1		
A. Regulation of GFR & RBF-I (Determinants of GFR & RBF) Regulation of GFR & RBF-II, Physiological control of GFR and	<ul style="list-style-type: none"> Glomerular filtration rate & Renal Blood flow Determinants of GFR 	C1	LGIS SGD	SAQ MCQ VIVA
		C1		
		C2		
RBF, Auto regulation of GFR and RBF/Macula densa feedback mechanism	<ul style="list-style-type: none"> Determinants of RBF Physiological control of GFR and RBF. Auto regulation of GFR and RBF. Tubulo-glomerular Feedback Mechanism Macula-densa Feedback Mechanism 	C1	LGIS SGD	SAQ MCQ VIVA
		C1		
		C2		
		C1		
		C2		
		C3		
Tubular reabsorption & secretion along various parts of nephrons	<ul style="list-style-type: none"> Tubular reabsorption & secretion in <ul style="list-style-type: none"> Proximal tubule Loop of Henle 	C1	LGIS	SAQ MCQ
		C2		
		C1		

	<ul style="list-style-type: none"> Distal tubule & collecting tubule. Active and passive transport mechanisms 	C1	Group presentations	VIVA
		C2		
Regulation of tubular reabsorption	<ul style="list-style-type: none"> Concept of Glomerulo tubular Balance Peritubular capillary and Renal interstitial fluid Physical forces. Mechanism of Pressure natriuresis and Pressure diuresis 	C1	LGIS SGD Group presentations	SAQ MCQ VIVA
		C2		
A. Clearance methods to quantify kidney function Micturition reflex & Abnormalities of micturition	<ul style="list-style-type: none"> Clearance Methods (Inulin clearance, Creatinine clearance, Para ammino hipuric acid clearance) Filtration Fraction Anatomy of bladder Micturition and urine formation. Control of Micturition and Micturition Reflex Abnormalities of Micturition Reflex 	C1	LGIS SGD	SAQ MCQ VIVA
		C1		
		C1		
		C1		
		C1		
		C2		

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to protein metabolism	Understand protein turn-over, amino acid pool and entry of amino acid into cell	C2	LGIS	MCQs, SAQs & Viva
Nitrogen balance	Describe positive and negative nitrogen balance	C2	LGIS	MCQs, SAQs & Viva
General reactions of amino acids	Discuss reactions of amino acids Interpret the clinical importance of transaminases	C2 C3	LGIS	MCQs, SAQs & Viva
Metabolism of ammonia	Explain sources of NH ₃ formation and its transport Discuss causes and effects of Hyperammonemia Explain mechanism of ammonia toxicity	C2 C3 C2	LGIS	MCQs, SAQs & Viva

Urea cycle	Describe the location, steps and regulation of Urea cycle	C2	LGIS	MCQs, SAQs & Viva
Disorders of urea cycle	Describe Disorders of the urea cycle	C2	LGIS	MCQs, SAQs & Viva
Metabolism of glycine	Explain Glycine metabolism and related disease	C2	LGIS	MCQs, SAQs & Viva
Metabolism of phenyl alanine and tyrosine	Explain Phenyl alanine & tyrosine metabolism Discuss related inherited disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Metabolism of Tryptophan	Explain Tryptophan metabolism Discuss related inherited disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Metabolism of methionine	Describe metabolism of sulphur containing amino acids Discuss related disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Metabolism of branched chain amino acids	Explain Metabolism of branched chain amino acids Discuss related inherited disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Metabolism of polyamines	Discuss Synthesis of polyamines and their clinical significance	C2	LGIS	MCQs, SAQs & Viva
Acid base imbalance	Explain causes and compensation of metabolic and respiratory acid base disorders Describe anion gap and its significance Interpret different acid base disorders	C2 C2 C3	LGIS	MCQs, SAQs & Viva
Water	Explain Distribution of water in different compartments of body Interpret Dehydration & over hydration	C2 C3	LGIS	MCQs, SAQs & Viva
Electrolytes Sodium (Na)	Describe Daily requirements, sources and functions of sodium Explain causes and effects of hyponatremia & hypernatremia	C2 C3	LGIS	MCQs, SAQs & Viva

Potassium	Describe Daily requirements, sources and functions of potassium Explain causes and effects of hypokalemia & hyperkalemia	C2 C3	LGIS	MCQs, SAQs & Viva
Chloride (Cl) & Bicarbonate (HCO ₃)	Describe Daily requirements, sources, functions & their deficiency and toxic effects on body	C2	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topics	Learning Objectives Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Posterior abdominal wall I (Fascia & Muscles)	<ul style="list-style-type: none"> Describe the the fascia of posterior abdominal wall Tabulate the muscles of posterior abdominal wall with reference to, origin, insertion, nerve supply and action, Describe the relations of Psoas major muscle. Discuss Psoas abscess Read a relevant research article Use digital Library 	C1 C1 C1 C3 C3 C3	Skill labs	OSPE MCQ SAQ VIVA
Posterior abdominal wall II (Nerves)	<ul style="list-style-type: none"> Trace the nerves present on posterior abdominal wall Discuss the formation of nerves Discuss the formation of lumbosacral plexus Discuss clinical significance of Lumbar symphathectomy Read a relevant research article Use digital Library 	C1 C1 C1 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Posterior abdominal wall III (vessels) & Lumbar Vertebrae	<ul style="list-style-type: none"> Enlist branches of Abdominal Aorta. Describe the tributaries of inferior vena cava. Describe lymph nodes of posterior abdominal wall with emphasis on lumbar and intestinal trunk. Differentiate between typical and atypical lumbar vertebrae. Identify different parts of lumbar vertebrae. Discuss the attachments of lumbar vertebrae. Discuss abdominal aortic aneurysm 	C1 C1 C1 C1 C1 C1 C3	Skill lab	OSPE MCQ SAQ VIVA

Kidney	<ul style="list-style-type: none"> • Discuss the site and extent of kidneys • Differentiate right from left kidney • Understand the bio-physiological aspects of kidney • Discuss the renal capsule and its role in support of kidney. • Describe the structure of cortex and medulla • Describe peritoneal relationship of both kidneys. • Describe visceral relationship of both kidneys • Explain blood supply of both kidneys with emphasis on renal artery. • Discuss the venous drainage of both kidneys. • Discuss related clinicals; perinephric abscess, nephroptosis, renal cysts and renal colic 	C1 C1 C2 C1 C1 C1 C1 C1 C1 C1 C3	Skill lab	OSPE MCQ SAQ VIVA
Ureter	<ul style="list-style-type: none"> • Discuss extent and course of ureter in abdomen and pelvis in males and females • Explain peritoneal reflections of ureter in both sexes. • Describe relations of ureter. • Describe the arterial, venous and lymphatic drainage of ureter. • Discuss the related clinicals; ureteric colic • Read a relevant research article • Use digital Library 	C1 C1 C1 C1 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Supra renal gland	<ul style="list-style-type: none"> • Describe the location & visceral relations of right and left supra renal glands • Understand the bio-physiological aspects of kidney • Discuss supra renal cortex and medulla • Discuss vessels and nerves of supra renal gland • Discuss the related clinicals • Read a relevant research article • Use digital Library 	C1 C2 C1 C1 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Urinary bladder	<ul style="list-style-type: none"> • Interpret size and extent of urinary bladder in different ages and states. 	C2 C1	Skill lab	OSPE MCQ

	<ul style="list-style-type: none"> Discuss the peritoneal and visceral relationships of urinary bladder(bladder bed) Understand the bio-physiological aspects of kidney Discuss the trigone of urinary bladder Elaborate nerve supply of urinary bladder Discuss the related clinicals; urinary incontinence, suprapubic cystotomy and atonic bladder 	C2 C1 C1 C3		SAQ VIVA
Urethra	<ul style="list-style-type: none"> Describe different parts of male and female urethra. Explain blood supply, innervation and lymphatics of urethra in both sexes Discuss the clinically significant differences between male and female urethra Read a relevant research article Use digital Library 	C1 C1 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Radiology & Surface Marking	<ul style="list-style-type: none"> Identify structures on a normal X-ray abdomen Identify kidney and its associated structures on contrast studies. Appreciate filling defects. Mark anatomical landmarks. Demarcate specific points for surface marking of the kidney and structures on posterior abdominal wall 	C2 C2 C2 P P	Skill lab	OSPE MCQ SAQ VIVA

Physiology Small Group Discussion (SGDs)

Topic	Learning Objectives Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tools
GFR & RBF	<ul style="list-style-type: none"> Explain factors effecting GFR 	C2	SGD	MCQ
	<ul style="list-style-type: none"> Discuss determinants of RBF 	C2		SEQ
	<ul style="list-style-type: none"> Explain autoregulatory mechanism of GFR & RBF 	C2		VIVA OSPE
Micturition	<ul style="list-style-type: none"> Describe the physiological anatomy & nervous connections of urinary bladder 	C1	SGD	MCQ

	• Explain Micturition reflex	C2		SEQ VIVA OSPE
	• Discuss abnormalities of Micturition	C2		
Clearancemethods	• Define Renal clearance	C1	SGD	MCQ SEQ VIVA OSPE
	• Enumerate & Explain clearance methods to quantify renal functions	C1		
	• Explain filtration fraction	C2		
Acid basebalance	• Describe mechanism of action of buffer systems of body fluid	C1	SGD	MCQ SEQ VIVA OSPE
	• Discuss buffering power of respiratory & renal system	C2		
	• Explain the acid base disorders	C2		

Biochemistry Small Group Discussion (SGDs)

Topic	Learning Objectives At The End Of Tutorial Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Ammonia formation, transport and toxicity	Explain formation, transport and toxicity of ammonia in the body	C2	SGD	MCQs, SAQs & Viva
Urea cycle and Hyperammonemia	Describe steps of urea cycle and causes of Hyperammonemia	C2	SGD	MCQs, SAQs & Viva
Metabolism of tryptophan, tyrosine and branched chain amino acids	Explain metabolism and related disorders of amino acids	C2	SGD	MCQs, SAQs & Viva
Acid base imbalance	Explain causes and compensation of acid base disorders	C2	SGD	MCQs, SAQs & Viva
Water and Electrolyte balance	Describe causes and effects of hypo and hyper natremia, hypo and hyper kalemia	C2	SGD	MCQs, SAQs & Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning Objectives Students Should Be Able To	Learning resources
Posterior abdominal wall I (Fascia & Muscles)	<ul style="list-style-type: none"> Describe the the fascia of posterior abdominal wall Tabulate the muscles of posterior abdominal wall with reference to, origen, insertion, nerve supply and action, Describe the relations of Psoas major muscle. Discuss Psoas abscess Read a relevant research article Use digital Library 	❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. (Chapter 5, Page 537- 541).
Posterior abdominal wall II (Nerves)	<ul style="list-style-type: none"> Trace the nerves present on posterior abdominal wall Discuss the formation of nerves Discuss the formation of lumbosacral plexus Discuss clinical significance of Lumbar symphathectomy Read a relevant research article Use digital Library 	❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. (Chapter 5, Page 527-532).
Posterior abdominal wall III (vessels) & Lumbar Vertebrae	<ul style="list-style-type: none"> Enlist branches of Abdominal Aorta. Describe the tributaries of inferior vena cava. Describe lymph nodes of posterior abdominal wall with emphasis on lumbar and intestinal trunk. Differentiate between typical and atypical lumbar vertebrae. Identify different parts of lumbar vertebrae. Discuss the attachments of lumbar vertebrae. Discuss abdominal aortic aneurysm 	❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. (Chapter 5, Page 541-544, 544-547).
Kidney	<ul style="list-style-type: none"> Discuss the site and extent of kidneys Differentiate right from left kidney Understand the bio-physiological aspects of kidney Discuss the renal capsule and its role in support of kidney. Describe the structure of cortex and medulla Describe peritoneal relationship of both kidneys. Describe visceral relationship of both kidneys 	❖ Clinical Oriented Anatomy by Keith L. Moore.8 TH Edition. (Chapter 5, Page 515-517,523-524).

	<ul style="list-style-type: none"> • Explain blood supply of both kidneys with emphasis on renal artery. • Discuss the venous drainage of both kidneys. • Discuss related clinicals; perinephric abscess, nephroptosis, renal cysts and renal colic 	
Ureter	<ul style="list-style-type: none"> • Discuss extent and course of ureter in abdomen and pelvis in males and females • Explain peritoneal reflections of ureter in both sexes. • Describe relations of ureter. • Describe the arterial, venous and lymphatic drainage of ureter. • Discuss the related clinicals; ureteric colic • Read a relevant research article • Use digital Library 	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 517-518,525).
Supra renal gland	<ul style="list-style-type: none"> • Describe the location & visceral relations of right and left supra renal glands • Understand the bio-physiological aspects of kidney • Discuss supra renal cortex and medulla • Discuss vessels and nerves of supra renal gland • Discuss the related clinicals • Read a relevant research article • Use digital Library 	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 519-523).
Urinary bladder	<ul style="list-style-type: none"> • Interpret size and extent of urinary bladder in different ages and states. • Discuss the peritoneal and visceral relationships of urinary bladder(bladder bed) • Understand the bio-physiological aspects of kidney • Discuss the trigone of urinary bladder • Elaborate nerve supply of urinary bladder • Discuss the related clinicals; urinary incontinence, suprapubic cystotomy and atonic bladder 	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 6, Page 591-595).
	<ul style="list-style-type: none"> • Describe different parts of male and female urethra. 	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 6,

Urethra	<ul style="list-style-type: none"> • Explain blood supply, innervation and lymphatics of urethra in both sexes • Discuss the clinically significant differences between male and female urethra • Read a relevant research article • Use digital Library 	Page 595).
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Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objective	References
Body fluid compartments, Volume & osmolarity of ECF & ICF.	<ul style="list-style-type: none"> • Fluid Intake/Output balance • Body fluid compartments • Constituents of ECF & ICF • Concept of Osmolarity, Osmolality, Osmosis and Osmotic pressure 	<ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition. Regulation of ECF composition and volume Section 07 (Chapter 38, Page 695) ❖ Physiology by Linda S. Costanzo 6th Edition. Renal Physiology (Chapter 06. Page 245) ❖ Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 04. Physiology of Body Fluids. (Chapter 26, Page 449-459) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 25, Page 305-313)
Physiology of Renal system, Glomerular filtration rate	<ul style="list-style-type: none"> • Functions of kidney. • Physiologic Anatomy of Kidney • Concept of Glomerular Filtration • Introduction to Glomerular filtration rate. 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Renal Physiology (Chapter 37, Page 671) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Kidneys (Chapter 19 Page 624-636) • Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 04. Physiology of Body Fluids. (Chapter 27, Page 460-469) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 26, Page 321-324) (Chapter 27, Page 331-332)
Abnormalities of fluid volume & regulation, Edema	<ul style="list-style-type: none"> • Volume and osmolarity in abnormal states • Abnormalities of fluid volume & Regulation • Hyponatremia and Hypernatremia • Edema and its Mechanism. • Fluid in potential spaces of the body 	<ul style="list-style-type: none"> • Physiology by Linda S. Costanzo 6th Edition. Renal Physiology (Chapter 06. Page 251) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Kidneys (Chapter 20 Page 672-677) • Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 04. Regulation of Volume and Osmolality of the Body Fluids. (Chapter 32, Page 530) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 25, Page 314-320)

<p>B. Regulation of GFR & RBF-I(Determinants of GFR & RBF)</p> <p>C. Regulation of GFR & RBF-II,Physiological control of GFR and</p>	<ul style="list-style-type: none"> • Glomerular filtration rate & Renal Blood flow • Determinants of GFR 	<p>❖ A.</p> <ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology.25TH Edition. Regulation of ECF composition and volume, Section 07 (Chapter 37, Page 674) ❖ Physiology by Linda S. Costanzo 6th Edition.Renal Physiology (Chapter 06. Page 257,261)
<p>RBF, Auto regulation of GFR and RBF/Macula densa feedback mechanism</p>	<ul style="list-style-type: none"> • Determinants of RBF • Physiological control of GFR and RBF. • Auto regulation of GFR and RBF. • Tubulo-glomerular Feedback Mechanism • Macula-densa Feedback Mechanism 	<p>❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 04. Physiology of Body Fluids. (Chapter 28,Page 473)</p> <p>❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 27, Page 331,333,337)</p> <p>❖ B.</p> <ul style="list-style-type: none"> ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 27, Page 337,342) ❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 04. Filtration and Blood Flow. (Chapter 28,Page 476,483)
<p>Tubular reabsorption & secretion along various parts of nephrons</p>	<ul style="list-style-type: none"> • Tubular reabsorption & secretion in • Proximal tubule • Loop of Henle • Distal tubule & collecting tubule. • Active and passive transport mechanisms 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Regulation of ECF composition and volume Section 07 (Chapter 37, Page 679) • Physiology by Linda S. Costanzo 6th Edition. Renal Physiology (Chapter 06. Page 267) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Kidneys (Chapter 19 Page 636,643) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 04. Physiology of Body Fluids. (Chapter 29,Page 487-497) . (Chapter 30,Page 498) . (Chapter 31,Page 508) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 28, Page 343,355)
<p>Regulation of tubular reabsorption</p>	<ul style="list-style-type: none"> • Concept of Glomerulo tubular Balance • Peritubular capillary and Renal interstitial fluid Physical forces. • Mechanism of Pressure natriuresis and Pressure diuresis 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Regulation of ECF composition and volume Section 07 (Chapter 39, Page 709) • Physiology by Linda S. Costanzo 6th Edition. Renal Physiology (Chapter 06. Page 276,298) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 28, Page 355-360)

<p>B. Clearance methods to quantify kidney function</p> <p>C. Micturition reflex & Abnormalities of micturition</p>	<ul style="list-style-type: none"> • Clearance Methods (Inulin clearance, Creatinine clearance, Para ammino hipuric acid clearance) • Filtration Fraction • Anatomy of bladder • Micturition and urine formation. • Control of Micturition and Micturition Reflex • Abnormalities of Micturition Reflex 	<p style="text-align: center;">❖ A.</p> <ul style="list-style-type: none"> ❖ Physiology by Linda S. Costanzo 6th Edition. Renal Physiology (Chapter 06. Page 255) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Kidneys (Chapter 19, Page 643- 647) ❖ Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 04. (Chapter 27, Page 469, 483) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 28, Page 360-364) <p style="text-align: center;">❖ B.</p> <ul style="list-style-type: none"> ❖ Ganong's Review of Medical Physiology. 25TH Edition. Regulation of ECF composition and volume Section 07 (Chapter 37, Page 691) ❖ Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. The Kidneys (Chapter 19, Page 648) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 26, Page 324-328)
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Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Amino Acids Pool, Protein Turnover, Nitrogen balance & Transport of Amino Acids	<ul style="list-style-type: none"> • Understand protein turn-over, amino acid pool and entry of amino acid into cell • Describe positive and negative nitrogen balance 	<ul style="list-style-type: none"> • Lippincott Biochemistry 8th edition (chapter 19 page - 271)
Urea cycle & its Disorders	<ul style="list-style-type: none"> • Describe the location, steps and regulation of Urea cycle • Describe Disorders of the urea cycle 	<ul style="list-style-type: none"> • Lippincott Biochemistry 8th edition (chapter 19 page - 279)
Arginine & Branched Chain Amino Acid Metabolism, Ammonia Toxicity	<ul style="list-style-type: none"> • Explain Metabolism of branched chain amino acids • Discuss related inherited disorders 	<ul style="list-style-type: none"> • Harper's illustrated biochemistry 32nd edition (Chapter 40 page 477)
Sodium & Chloride Metabolism	<ul style="list-style-type: none"> • Describe Daily requirements, sources and functions of sodium • Explain causes and effects of hyponatremia & hypernatremia • Describe Daily requirements, sources, functions & their deficiency and toxic effects on body 	<ul style="list-style-type: none"> • Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 46)

Histology Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
kidney	<ul style="list-style-type: none"> Identify the histological slide of kidney. Illustrate the histological structure of Kidney. Enlist two points of identification. Focus the slide 	P C2 C1 P	Skill Lab	OSPE
Ureter	<ul style="list-style-type: none"> Identify the histological slide of ureter Illustrate the histological structure of ureter. Enlist two points of identification. Focus the slide 	P C2 C1 P	Skill Lab	OSPE
Urinary bladder	<ul style="list-style-type: none"> Identify the histological slide of urinary bladder. Illustrate the histological structure of urinary bladder Enlist two points of identification. Focus the slide 	P C2 C1 P	Skill Lab	OSPE

Physiology Practicals Skill Laboratory (SKL)

Practical	At the End of This Skill Lab, Student Should Be Able to Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Specific gravity of Urine	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	P, A		
	• Precautions	C1		
	• Use of urinometer	C1		
	• Recall normal values of specific gravity	C1		

Biochemistry Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Urine analysis I	Examine urine for its color, odor, pH and specific gravity Perform tests on urine to detect its normal constituents	P	Skill Lab	OSPE
Urine analysis II	Perform tests to detect abnormal constituents of urine (proteins, ketone bodies, bile salts)	P	Skill Lab	OSPE
Urine report	Write and interpret urine report	P	Skill Lab	OSPE
Estimation of urea	Perform estimation of urea	P	Skill Lab	OSPE
Estimation of creatinine	Perform estimation of creatinine	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Basic and Clinical Sciences (Vertical Integration)

Case Based Learning (CBL)

Subject	Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain
Anatomy	• Renal Failure	Apply basic knowledge of subject to study clinical case.	C3
	• Ureteric Colic	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Acute Glomerulo Nephritis	Apply basic knowledge of subject to study clinical case.	C3
	• Anuria	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Metabolic Acidosis	Apply basic knowledge of subject to study clinical case.	C3
	• Ammonia Toxicity	Apply basic knowledge of subject to study clinical case.	C3

Large Group Interactive Sessions (LGIS)

Padiatrics

Topic	At the End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Nephrotic Syndrome	• Brief anatomy & physiology of kidney	C2	LGIS	MCQs
	• Definition of Nephrotic syndrome	C1		
	• Pathophysiology & etiology (primary & secondary)	C2		
	• Clinical features	C2		
	• Management	C2		
	• Complications & prognosis	C3		
Urinary tract infection	• Anatomy & physiology of urinary system	C3	LGIS	MCQs
	• Definition of UTI	C1		
	• Epidemiology	C1		
	• Etiological spectrum of causative organisms	C2		
	• Clinical features	C2		
	• Treatment & complications	C2		

Radiology & Artificial Intelligence

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Prenatal ultrasonography	• Interpret normal ultrasonography of renal system	C2	LGIS	MCQs
	• Discuss features of different congenital abnormalities of renal system	C2		

Community Medicine

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Biostatistics-1 Basic concepts and uses (Descriptive). Data and its types.	• Define biostatistics and correlate its importance in medical research.	C1	LGIS	MCQs
	• Understand data and its types	C2		
Biostatistics-2 Basic concepts and uses (Descriptive). Data and its types.	• Define biostatistics and correlate its importance in medical research.	C1	LGIS	MCQs
	• Understand data and its types	C2		

Obstetrics & Gynaecology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Physiological changes in the renal system in pregnancy	• The anatomic and functional changes in the renal system in pregnancy	C2	LGIS	MCQs
	• The changes in indices of renal function during pregnancy	C2		

Dermatology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Skin and renal disorders	• Hereditary syndromes with skin and renal involvement	C2	LGIS	MCQs
	• Skin manifestations of renal failure and dialysis	C2		
	• Skin manifestations of renal transplantation	C2		
	• Skin disorders that may affect the kidney and urinary tract	C2		

Biomedical Ethics and Professionalism

Topic	At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Islam & Teachings of Bioethics	<ul style="list-style-type: none"> • Conceptualize the Islamic teachings of medical ethics • Outline the main points in oath of Muslim doctor • Correlate the 4 principles of medical ethics with principles of Islamic medical ethics 	C2	LGIS	MCQs
Ethics of social media & advertising	<ul style="list-style-type: none"> • Delineate the principles of ethics involved in social media & advertising including; • Publishing or broadcasting information • Certificates, Reports and other documents • Teaching Photography and Consent 			
Ethical principles	<ul style="list-style-type: none"> • Elaborate General ethical 06 basic ethical principles: autonomy, beneficence, non-maleficence & justice • Explain the process of ensuring patient autonomy, beneficence, non-maleficence, respect & justice while informing/ deciding on a treatment modality 			

Integrated Undergraduate Research Curriculum (IUGRC)

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
How to Generate a Research Question	• How to generate a research question according to FINER Criteria	C3	LGIS-1	MCQs
	• Formulate the research question according to PICOT format – problem/population, intervention, comparison, outcome and time frame			
	• To understand how a properly formulated research question is related to an efficient literature review			
	• Development of research protocol including research objectives			

Family Medicine

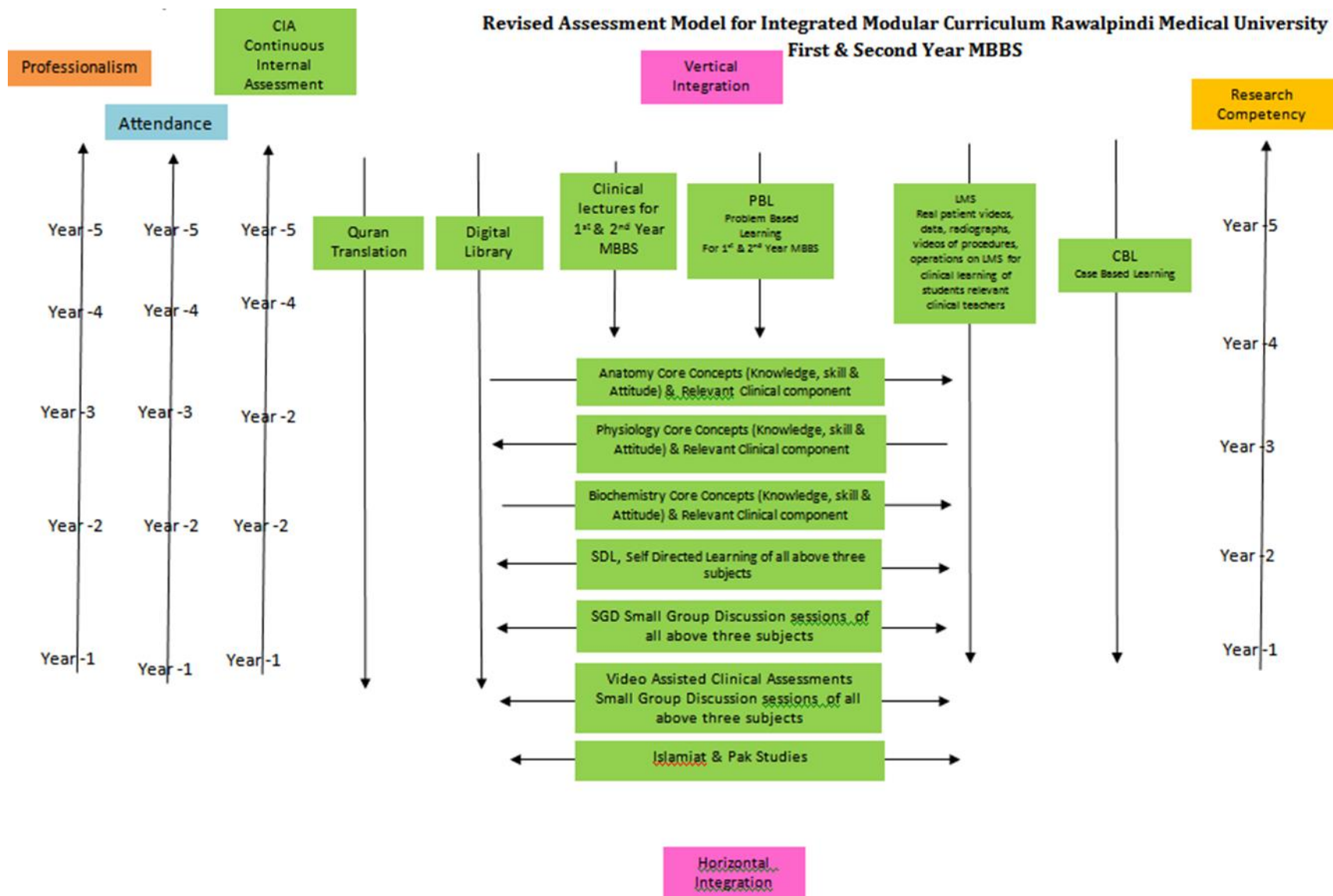
Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Renal Failure	• Describe presenting complains of patients with Renal failure	C3	LGIS-1	MCQs
	• Discuss complications of Renal failure			
	• Describe initial treatment of patients with Renal failure			
	• Know when to refer patient to consultant/ Hospital			

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in Renal Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Renal Module I

Block	Sr #	Module – 1 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

No. of Assessments of Anatomy for Second Year MBBS

Renal Module

Block	Sr #	Module – 1 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	29-03-2023 12:00pm- 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	08-03-2023 08:30am - 10:30am 2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	06-03-2023 & 07-03-2023 09:00am - 01:00pm 10 Minutes/student				
	6	Assessment of Clinical Lectures	Formative	10-03-23 09:30am- 10:00am 10 Minutes				

No. of Assessments of Physiology for Second Year MBBS
Renal Module

Block	Sr. #	Module – 1 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Date/Time/Duration	Summative Assessment Time	Formative Assessment Time		
Block - I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM -09:30PM 30 Minutes	2 Hours & 40 minutes	20 minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	18-03-2023 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	09-03-2023 08:30am -10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	06-03-2023 & 07-03-2023 09:00am -01:00pm 10 Minutes/student				
	5	Assessment of Clinical Lectures	Formative	10-03-23 09:30am-10:00am 10 Minutes				

No. of Assessments of Biochemistry for Second Year MBBS
Renal Module

Block	Sr. #	Module – 1 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	25-02-2023 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	18-03-2023 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	10-03-2023 08:30am- 10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10-03-2023 08:30am- 10:30am 10 Minutes				
	Total				3 Hours			5 Assessments

Learning Resources

Subject	Resources
Anatomy	A. Gross Anatomy <ol style="list-style-type: none"> Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. Clinically Oriented Anatomy by Keith Moore 9th edition. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III B. Histology <ol style="list-style-type: none"> B. Young J. W. Health Wheather's Functional Histology 6th edition. Medical Histology by Prof. Laiq Hussain 7th edition. C. Embryology <ol style="list-style-type: none"> Keith L. Moore. The Developing Human 11th edition. Langman's Medical Embryology 14th edition.
Physiology	A. Textbooks <ol style="list-style-type: none"> Textbook Of Medical Physiology by Guyton And Hall 14th edition. Ganong ' S Review of Medical Physiology 26th edition. B. Reference Books <ol style="list-style-type: none"> Human Physiology by Lauralee Sherwood 10th edition. Berne & Levy Physiology 7th edition. Best & Taylor Physiological Basis of Medical Practice 13th edition. Guyton & Hall Physiological Review 3rd edition.
Biochemistry	Textbooks <ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition. Lehninger Principle of Biochemistry 8th edition. Biochemistry by Devlin 7th edition.
Community Medicine	Textbooks <ol style="list-style-type: none"> Community Medicine by Parikh 25th edition. Community Medicine by M Illyas 8th edition. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	Textbooks <ol style="list-style-type: none"> Robbins & Cotran, Pathologic Basis of Disease, 10th edition. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	Textbooks <ol style="list-style-type: none"> Lippincot Illustrated Pharmacology 9th edition. Basic and Clinical Pharmacology by Katzung 5th edition.

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Renal Module Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

Renal Module Team

Module Name : Renal Module
 Duration of module : 05 Weeks
 Coordinator : Dr. Sheena Tariq
 Co-coordinator : Dr. Uzma Kiani
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Sheena Tariq (Senior Demonstrator of Physiology)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (DHPE) (Assistant Professor of Biochemistry)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Tariq Furqan (Senior Demonstrator of Anatomy)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Uzma Kiyani (Senior Demonstrator of Physiology)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Discipline wise Details of Modular Content

Block	Module	Embryology	Histology	Gross Anatomy
I	<ul style="list-style-type: none"> Anatomy 	Embryology <ul style="list-style-type: none"> Kidney Ureter Urinary Bladder Urethra 	Histology <ul style="list-style-type: none"> Kidney Ureter Urinary Bladder 	<ul style="list-style-type: none"> Posterior Abdominal Wall & Organs of Urinary System
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Amino Acid Pool Protein Turn Over Nitrogen Balance & transport of Amino Acid, Urea Cycle & Disorder Arginine & Branched Chain Amino Acid Metabolism Ammonia Toxicity 		
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Body Fluid Compartments, Volume & osmolarity of ECF NICF Physiology of Renal System, GFR Regulation of GFR & RBF Tubular Reabsorbtion & Scretion Micturition Reflex & Abnormalities Acid base balance 		
	<ul style="list-style-type: none"> Bioethics & Professionalism 	<ul style="list-style-type: none"> Islam & Teachings of Bioethics Ethics of social media & advertising Ethical principles 		
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> Prenatal ultrasonography Contrast Nephropathy 		
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> How To Generate a Research Question 		
	<ul style="list-style-type: none"> Family Medicine 	<ul style="list-style-type: none"> Renal Failure 		
	<ul style="list-style-type: none"> Vertical components 	<ul style="list-style-type: none"> The Holy Quran Translation Component IUGRC Biomedical Ethics Component 		
	<ul style="list-style-type: none"> Vertical Integration 	Clinically content relevant to Renal module <ul style="list-style-type: none"> Nephrotic syndrome. & Nephritic syndrome. (Medicine) Acute renal failure (Medicine) Potassium imbalance and its management (Medicine) 		

		<ul style="list-style-type: none">• CRF & Rehabilitation of patient with CRF(Medicine)• Management of Acid base disorders (Medicine)• Hydronephrosis / Pyonephrosis (Surgery)• Investigations of urinary tract (Surgery)• Renal tuberculosis (Surgery)• Renal calculi (Surgery)• Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence) (Obstetrics & Gynecology)• UTI (Peds)• Introduction to diuretics (Pharmacology)
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Categorization of Modular Content of Anatomy

Category A*	Category B**	Category C			
Special Embryology	Special Histology	Demonstrations / SGD	CBL	Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> Development of Kidney & Ureter Development of Urinary Bladder & urethra 	<ul style="list-style-type: none"> Histology of Kidney-I Histology of Kidney-II Histology of Urinary Bladder Histology of Ureter & Urethra 	<ul style="list-style-type: none"> Fascia & Muscles of Posterior Abdominal Wall Nerves of Posterior Abdominal Wall Vessels of Posterior Abdominal Wall Lumbar Vertebra Kidney & Ureter Suprarenal Gland Urethra Radiology & Surface Marking 	<ul style="list-style-type: none"> Renal failure Uretric stones 	<ul style="list-style-type: none"> Kidney Ureter Urinary Bladder 	<ul style="list-style-type: none"> Posterior Abdominal Wall Kidney Urinary Bladder Suprarenal Gland Urethra Lumbar Vertebra
Category A*: By Professors					
Category B**: By Associate & Assistant Professors					
Category C***: By Senior Demonstrators & Demonstrators					

Teaching Staff / Human Resource of Department of Anatomy

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
3.	Assistant professor of Anatomy department (AP)	01
4.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$2 * 06 = 12$ hours
2.	Small Group Discussions (SGD)	$2*3 + 1*9=15$ hours
4.	Practical / Skill Lab	$1.5 * 15 = 22.5$ hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 * 6 = 06$ hours
2.	Small Group Discussions (SGD)	$2*3 + 1*9=15$ hours
4.	Practical / Skill Lab	$1.5 * 3 = 4.5$ hours
5.	Self-Directed Learning (SDL)	$1 * 7 = 7$ hours

Categorization of Modular Content of Physiology

Category A*	Category B**	Category C***				
LGIS	LGIS	PBL	CBL	Practical's	SGD	SDL
Regulation of GFR & RBF – I, (Determinants of GFR and RBF (Prof Dr Samia Sarwar/Dr. Shmyla))	Excretion of dilute urine (Dr. Sidra)		Accute Glomerular Nephritis	Estimation of specific gravity of urine Examination of 9th, 10th, 11th & 12th cranial nerves Examination of 5 th cranial nerves	Formation of dilute & concentrated urine Acid base balance. Volume & osmolarity of ECF & ICF, Abnormalities of fluid volume & regulation (first week, 16-03-2023)	Body fluid compartments, Volume & osmolarity of ECF & ICF. Physiology of Renal system, Glomerular filtration rate Abnormalities of fluid volume & regulation, Edema A. Regulation of GFR & RBF-I (Determinants of GFR & RBF) B. Regulation of GFR & RBF-II, Physiological control of GFR and RBF, Autoregulation of GFR and RBF/Macula densa feedback mechanism Tubular reabsorption & secretion along various parts of nephrons Regulation of tubular reabsorption A. Clearance methods to quantify kidney function B. Micturition reflex & Abnormalities of micturition
Regulation of GFR & RBF – II, Physiological control of GFR and RBF and Autoregulation of GFR and RBF/ macula densa feedback mechanism (Prof Dr Samia Sarwar/Dr. Shmyla)	Excretion of concentrated urine (counter current multiplier) (Dr. Sidra)					
Physiology of Renal system and Glomerular filtration rate (Dr. Shmyla)	Excretion of concentrated urine (counter current exchanger) (Dr. Sidra)					
Tubular reabsorption & secretion along various parts of nephrons (Dr. Shmyla)	Introduction to physiology of acid base balance & buffer systems, Respiratory and renal regulation of acid base balance (Dr. Sidra)					
Regulation of tubular reabsorption (Dr. Shmyla)	Acid base disorders (Dr. Sidra)					
Clearance methods to quantify kidney function (Dr. Shmyla)	Body fluid compartments, Volume & osmolarity of ECF & ICF (Dr. Sheena)					
Micturition reflex & Abnormalities of micturition (Dr. Shmyla)	Abnormalities of fluid volume & regulation, Edema (Dr. Sheena)					
	Control of ECF osmolarity (Dr. Sheena)					
	Regulation of ECF K ⁺ concentration, Regulation of Ca ⁺⁺ , PO ₄ ³⁻ & Mg ²⁺ concentration (Dr. Sheena)					
	Integration of renal mechanism for control of ECF, Nervous & hormonal factors for renal body fluid feedback control (Dr.					

	Sheena)					
	Renal failure & hemodialysis (Dr. Sheena)					
Category A*: By Professors						
Category B**: By Associate & Assistant Professors						
Category C***: By Senior Demonstrators & Demonstrators						

Teaching Staff / Human Resource of Department of Physiology

Sr. #	Designation of Teaching Staff / HumanResource	Total number of teaching staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01 (DME)
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (Lectures)	2* 18 =36 hours
2.	Small Group Discussions (SGD)/CBL	1.5 hour x 14 =21 hours + 1 hour = 22 hours
3.	Problem Based Learning (PBL)	---
4.	Practical / Skill Lab	1.5 hour x 14 = 21 hours
5.	Self-Directed Learning (SDL)	1hour x 7 = 7 hours

Categorization of Modular Content of Department of Biochemistry:

Category A*	Category B**	Category C***				
LGIS	LGIS	PBL	CBL	Practical's	SGD	
Amino Acid Pool, Protein Turn Over, Nitrogen Balance	Ammonia Toxicity		Ammonia Toxicity	Analysis of Milk	Phenyl Alanine Metabolism	
Glycine & Phenyl Alanine Metabolism	Sodium & Chloride Metabolism		Metabolic Acidosis	Estimation of Urea & Creatinine	Sodium & Chloride Metabolism	
Chemical Reaction of Amino Acids, sources & Transport of Ammonia	Acid Based Balance-I				Urine Analysis-I	
Tyrosine Metabolism	Acid Based Balance-II					
Urea Cycle	Potassium Metabolism					
Glutamine Histidine & Polyamines Metabolism				Urine Analysis-II & Urine Report		
Arginine & Branched Chain Amino Acid Metabolism						

Category A*: By HOD and Assistant Professor

Category B:** By All (HOD, Assistant Professors, Senior Demonstrators)

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	02
2	Demonstrators of biochemistry department	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	$2 * 6 = 12$ hours	06
2.	Small Group Discussions (SGD)	$1.5 * 4 = 06$ hours	06
4.	Practical / Skill Lab	$1.5 * 04 = 06$ hours	06
5.	Self-Directed Learning (SDL)	$1 * 4 = 4$ hours	04

**Renal Module First Week
(13-03-2023 To 18-03-2023)**

DATE/DAY	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10-11:30	11:30am-12:20pm		12:20pm – 2:00pm	Home Assignments(2HRS)	
13-03-2023 MONDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)		B r e a k	BIOETHICS		DISSECTION/SGD	SDL Physiology Body fluid compartments& Edema	
		Body fluid compartments Volume & Osmolarity of ECF & ICF	Physiology of Renal system, Glomerular filtration rate	Embryology	Histology		Islam & Teachings of Bioethics		Fascia and Muscles of Posterior Abdominal wall		
		Dr. Sheena (Even)	Dr. Shmyla (Odd)	Pro. Dr. Ifra (Even)	Ass. Prof. Dr. Maria (Odd)		Dr. Sidra Hamid (Even)	Dr. Arsalan (Odd)			
14-03-2023 TUESDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)			BIOETHICS		DISSECTION/SGD	SDL Physiology Physiology of Renal system	
		Physiology of Renal system, Glomerular filtration rate	Body fluid compartments Volume & Osmolarity of ECF & ICF	Histology	Embryology		Ethics of social media & advertising		Nerves of Posterior Abdominal wall		
		Dr. Shmyla (Even)	Dr. Sheena (Odd)	Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)		Dr. Arsalan (Odd)	Dr. Sidra Hamid (Even)			
15-03-2023 WEDNESDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY(LGIS)			BIOCHEMISTRY (LGIS)		DISSECTION/SGD	SDL Biochemistry Amino Acids Pool, Protein Turnover, Nitrogen balance & Transport of Amino Acids	
		Abnormalities of fluid volume & regulation Edema	Regulation GFR & RBF-I (Determinats of GFR & RBF)	Embryology	Histology		Amino Acids Pool, Protein Turnover, Nitrogen balance & Transport of Amino Acids	Glycine & Phenylalanine Metabolism	Vessels of Posterior Abdominal Wall Lumbar Vertebra		
		Dr. Sheena (Even)	Prof. Dr. Samia Sarwar / Dr. Shmyla (Odd)	Prof. Dr. Ifra (Even)	Ass. Prof. Dr. Maria (Odd)		Dr. Uzma (Even)	Dr. Anoosh (Odd)			
16-03-2023 THURSDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		PATHOLOGY			BIOCHEMISTRY (LGIS)		DISSECTION/CBL	SDL Anatomy Posterior abdominal wall	
		Regulation GFR & RBF-I (Determinats of GFR & RBF)	Abnormalities of fluid volume & regulation Edema	Glomerular diseases			Glycine & Phenylalanine Metabolism	Amino Acids Pool, Protein Turnover, Nitrogen balance & Transport of Amino Acids	Kidney		
		Prof. Dr. Samia Sarwar / Dr. Shmyla (Even)	Dr. Sheena (Odd)	Dr. Huma (Even)	Dr. Mehreen (Odd)		Dr. Anoosh (Even)	Dr. Uzma (Odd)			
17-03-2023 FRIDAY	08:00am – 09:00am		PHYSIOLOGY (LGIS)		ANATOMY(LGIS)		BIOCHEMISTRY (LGIS)				
			09:00am – 10:00am		10:00am – 11:00am		11:00am -12:00noon				
	Practical &CBL/SGD Topics & venue mentioned at the end (Saturday batch)	Excretion of dilute urine	Regulation of GFR & RBF-II, Physiological control of GFR and RBF, Autoregulation ofGFR and RBF/Macula densa feedback mechanism	Histology	Embryology		Chemical Reactions of Amino Acids, Sources & Transport of Ammonia Tyrosine Metabolism				
			Dr. Sidra Hamid (Even)	Prof. Dr. Samia Sarwar/Dr. Shymla (Odd)	Ass. Prof. Dr. Maria (Even)		Prof. Dr. Ifra (Odd)	Dr. Uzma (Even)			Dr. Anoosh (Odd)
18-03-2023 SATURDAY	Inauguration of 50 th Anniversary Celebrations of RMU										

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Kidney (Anatomy/ Histology-practical) venue Histology LaboratorySerum estimation of Urea & Creatinine (Biochemistry practical) venue- Biochemistry LaboratoryEstimation of specific gravity of urine (Physiology –practical) Physiology Laboratory						<ul style="list-style-type: none">Biochemistry SGDs: Phenyl Alanine Metabolism (Venue: Lecture Hall No 2)Physiology CBL-Acute Glomerular nephritis (Venue: Lecture Hall No 5)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Sajjad Hussain	Lecture Hall No.03 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-onwards	Dr. Gaiti Ara	Dissection Hall	
Thursday	B	A	D	E	C					
Friday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romaisa	Dr. Nayab Zonish / Dr. Muhammad Usman
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Transport of Ammonia to Liver & in Circulation										
<ul style="list-style-type: none">Carbamoyl Phosphate Synthetase I & II										
<ul style="list-style-type: none">Sources of Ammonia										
<ul style="list-style-type: none">Hyperammonemia										
<ul style="list-style-type: none">Biochemical Effects of Na+, K+& Cl-										
<ul style="list-style-type: none">Alkaptonuria										
<ul style="list-style-type: none">Phenylketonuria										

Renal Module Second Week (20-03-2023 To 25-03-2023)

DATE/DAY	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-11:30am	11:30am-12:20pm		12:20pm – 2:00 pm		HomeAssignments(2 HRS)	
20-03-2023 MONDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		BIOETHICS		k a e r B	BIOCHEMISTRY (LGIS)		DISSECTION/CBL		SDL Physiology Volume & osmolarity of ECF& ICF, Abnormalities of fluid volume & regulation	
		Regulation of GFR & RBF-II, Physiological control of GFR and RBF, Autoregulation ofGFR and RBF/Macula densa feedbackmechanism	Excretion of dilute urine	Ethical principles			Urea cycle & its Disorders	Glutamine, Histidine, Threonine & Polyamines Metabolism	Ureter			
		Prof. Dr. Samia Sarwar/Dr. Shymla (Even)	Dr. Sidra Hamid (Odd)	Dr. Sidra Hamid (Even)	Dr. Arsalan (Odd)		Dr. Uzma (Even)	Dr. Anoosh (Odd)				
21-03-2023 TUESDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		MEDICINE			BIOCHEMISTRY (LGIS)		DISSECTION/SGD		SDL Evaluation	
		Excretion of Concentrated urine (Counter Current Multiplier)	Tubular Reabsorbtion & Scretion along Various parts of nephron	Nephrotic syndrome. & Nephritic syndrome			Glutamine, Histidine, Threonine & Polyamines Metabolism	Urea cycle & its Disorders	Urinary bladder			
		Dr. Sidra Hamid (Even)	Dr. Shmyla (Odd)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)		Dr. Anoosh (Even)	Dr. Uzma (Odd)				
22-03-2023 WEDNESDAY	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		SURGERY			Elections					SDL Biochemistry Urea cycle & its Disorders
		Tubular Reabsorbtion & Scretion along Various parts of nephron	Excretion of Concentrated urine (Counter Current Multiplier)	Hydronephrosis / Pyonephrosis								
		Dr. Shmyla (Even)	Dr. Sidra Hamid (Odd)	Dr. Muhammad Ali (Even)	Dr. Ahmed Sajjad (Odd)							
23-03-2023 THURSDAY	Pakistan day											
24-03-2023 FRIDAY	8:00 AM – 9:00 AM	9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM					SDL Anatomy Ureter	
	Practical &CBL/SGD Topics & venue mentioned at the end (Thurday Batches)	PHYSIOLOGY (LGIS)		OBSTETRIC & GYNAECOLOGY		BIOCHEMISTRY (LGIS)						
		Excretion of concentrated urine (Counter current exchanger)	Regulation of tubular reabsorbtion	Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence)		Ammonia Toxicity	Arginine & Branched Chain Amino Acid Metabolism					
25-03-2023 SATURDAY	8:00 AM – 9:00 AM	9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM				12:00PM – 1:00PM		SDL Urinary bladder
	Practical &CBL/SGD Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		BIOCHEMISTRY (LGIS)		QURAN TRANSLATION – I		DISSECTION/SGD				
		Regulation of tubular reabsorbtion	Excretion of concentrated urine (Counter current exchanger)	Arginine & Branched Chain Amino Acid Metabolism	Ammonia Toxicity	Imaniat-3	Ibadaat-3	Suprarenal Gland & Urethra				
		Dr. Shmyla (Even)	Dr. Sidra Hamid (Odd)									

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Ureter (Anatomy/ Histology-practical) venue Histology LaboratoryUrine Analysis-I (Biochemistry practical) venue- Biochemistry LaboratoryEstimation of 9th, 10th, 11th, & 12th Cranial Nervous (Physiology –practical) Physiology Laboratory						<ul style="list-style-type: none">Biochemistry CBL: Ammonia Toxicity (Venue: Lecture Hall No 2)Physiology SGD-Formation of Dilute & Concentrated Urine (Venue: Lecture Hall No 5)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Sajjad Hussain	Lecture Hall No.03 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-onwards	Dr. Gaiti Ara	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	Lecture Hall no.05 Physiology		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romaisa	Dr. Nayab Zonish / Dr. Muhammad Usman
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)		Dr. Maryam (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Conference Room (Basement)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01		Dr. Muhammad Usman		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Transport of Ammonia to Liver & in Circulation										
<ul style="list-style-type: none">Carbamoyl Phosphate Synthetase I & II										
<ul style="list-style-type: none">Sources of Ammonia										
<ul style="list-style-type: none">Hyperammonemia										
<ul style="list-style-type: none">Biochemical Effects of Na+, K+& Cl-										
<ul style="list-style-type: none">Alkaptonuria										
<ul style="list-style-type: none">Phenylketonuria										

Renal Module Thirdweek (27-03-2023 To 01-04-2023)

DATE/DAY	8:00 AM – 9:00 AM		9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM		12:00pm – 1:00 pm		Home Assignments(2HR S)
27-03-2023 MONDAY	Practical &CBL/SGD Topics & venue mentioned at the end		PHYSIOLOGY (LGIS)		SURGERY		PEADS		DISSECTION/SGD		SDL Physiology Excretion of dilute and Excretion of concentrated urine
			Control of ECF osmolarity	Clearence Method to Quantify kidney function	Investigations of urinary tract		UTI		Dissection/ Spotting		
			Dr. Sheena (Even)	Dr. Shmyla (Odd)	Dr. Faraz Basharat (Even)	Dr. Muhammad Ameen (Odd)	Dr. Jawaria zain (Even)	Dr. Amal Hashim (Odd)			
28-03-2023 TUESDAY	Practical &CBL/SGD Topics & venue mentioned at the end		PHYSIOLOGY (LGIS)		SURGERY		RADIOLOGY (LGIS)		BIOCHEMISTRY (LGIS)		SDL Physiology Clearance methods to quantify kidney function
			Clearence Method to Quantify kidney function	Control of ECF osmolarity	Renal tuberculosis		Prenatal ultrasonography		Acid Base Imbalance I	Sodium & Chloride Metabolis m	
			Dr. Shmyla (Even)	Dr. Sheena (Odd)	Dr. Muhammad Ali (Even)	Dr. Saadat Hashmi (Odd)	Dr. Saba Binte Kashmir (Even)	Dr. Anika (Odd)	Dr. Aneela (Even)	Dr Kashif (Odd)	
29-03-2023 WEDNESDAY	Practical &CBL/SGD Topics & venue mentioned at the end		PHYSIOLOGY (LGIS)		RESEARCH				DISSECTION/SGD		SDL Biochemistry Arginine & Branched Chain Amino Acid Metabolism, Ammonia Toxicity Online Clinical Evaluation
			Regulation of ECF K ⁺ &Regulation of ECF Ca ⁺⁺ , PO ₄ ⁻³ & Mg ⁺² concentration	Micturition Reflex & Abnormalities of Micturition	Research club Activity -I				Radiology & Surface marking		
			Dr. Sheena (Even)	Dr. Shmyla (Odd)	(Bacth 1-5)		(Batch 5-10)				
30-03-2023 THURSDAY	Practical &CBL/SGD Topics & venue mentioned at the end		PHYSIOLOGY (LGIS)		ANATOMY		BIOCHEMISTRY (LGIS)		MEDICINE		SDL Biochemistry Sodium & Chloride Metabolism
			Micturition Reflex & Abnormalities of Micturition	Regulation of ECF K ⁺ &Regulation of ECF Ca ⁺⁺ , PO ₄ ⁻³ & Mg ⁺² concentration	Histology	Histology	Sodium & Chloride Metabolism	Acid Base Imbalance I	Acute renal failure		
					Urethra & Ureter	Urinary Bladder					
		Dr. Shmyla (Even)	Dr. Sheena (Odd)	Prof. Dr. ifra (Even)	Asst. Prof. Dr. Maria (Odd)	Dr Kashif (Even)	Dr. Aneela (Odd)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)		
31-03-2023 FRIDAY	8:00 AM – 9:00 AM		9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM		SDL Anatomy Suprarenal gland & Urethra		
	RADIOLOGY		PHYSIOLOGY (LGIS)		MEDICINE		BIOCHEMISTRY (LGIS)				
	Contrast Nephropathy		Renal Machanism for control of ECF, Nervous & hormonal factors for body Fluid	Physiology of acid base balance respiratory & renal regulation of acid base balance	Potassium imbalance and its management		Acid Base Imbalance II	Potassium Metabolism			
	Dr. Hina Hafeez (Even)	Dr. Saba Binte Kashmir	Dr. Sheena (Even)	Dr. Sidra Hamid (Odd)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)	Dr. Aneela (Even)	Dr. Kashif (Odd)			
01-04-2023 SATURDAY	Practical &CBL/SGD Topics & venue mentioned at the end		PHYSIOLOGY (LGIS)		QURAN TRANSLATION – II		QURAN TRANSLATION – III		Dissection		SDL Anatomy Lumbar Vertebra
			Physiology of acid base balanced respiratory & renal regulation of acid base balance	Renal Machanism for control of ECF, Nervous & hormonal factors for body Fluid	Imaniat-3	Ibadaat-3	Ibadaat-4	Imaniat-4			
			Dr. Sidra Hamid (Even)	Dr. Sheena (Odd)	Mufti Naeem Sherazi (Even)	Dr. Fahd Anwar (Odd)	Dr. Fahd Anwar (Even)	Mufti Naeem Sherazi (Odd)			

For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Urinary Bladder (Anatomy/ Histology-practical) venue Histology LaboratoryUrine Analysis-II & Urine report (Biochemistry practical) venue- Biochemistry LaboratoryExamination of 5th cranial nerves (Physiology –practical) Physiology Laboratory						<ul style="list-style-type: none">Biochemistry CBL: Metabolic acidosis (Venue: Lecture Hall No 2)Physiology SGD- Acid Base Balance (Venue: Lecture Hall No 5)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-120	Dr. Sajjad Hussain	Lecture Hall No.03 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	121-240	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	241-onwards	Dr. Gaiti Ara	Dissection Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue			Biochemistry				Physiology	
Batch-A1	(01-35)	Lecture Hall no.05 Physiology			Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam us Sehar
Batch-A2	(36-70)	Lecture Hall #.04 (1 st Floor Anatomy)			Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Anatomy Museum (First Floor Anatomy)			Dr. Kamil	3.	Batch – C	141-210	Dr. Romaisa	Dr. Nayab Zonish / Dr. Muhammad Usman
Batch-B2	(106-140)	Lecture Hall no.03 (First Floor)			Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.05 (Basement)			Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir / Dr. Ismail
Batch-C2	(176-210)	Lecture Hall no.04 (Basement)			Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.02 (Basement)			Dr. Ali Raza (PBL) Dr. Ismail (SGD)					
Batch-D2	(246-280)	Conference Room (Basement)			Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	New Lecture Hall no.01			Dr. Muhammad Usman	Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.04			Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)					
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Biochemical Effects of Na+, K+& Cl-										
<ul style="list-style-type: none">Alkaptonuria										
<ul style="list-style-type: none">Phenylketonuria										
<ul style="list-style-type: none">Transport of Ammonia to Liver & in Circulation										
<ul style="list-style-type: none">Carbamoyl Phosphate Synthetase I & II										
<ul style="list-style-type: none">Sources of Ammonia										
<ul style="list-style-type: none">Hyperammonemia										

Renal Module Fourth Week

(03-04-2023 To 08-04-2023)

DATE/DAY	8:00 AM – 9:00 AM		9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM		12:20pm – 1:00 pm		Home Assignments(2H RS)
03-04-2023 MONDAY	MEDICINE		PHYSIOLOGY (LGIS)		SURGERY		FAMILY MEDICINE		ISLAMIYAT	ISLAMIYAT	
	CRF & Rehabilitation of patient with CRF		Renal failure & hemodialysis	Acid base disorder	Renal calculi		Renal Failure		Amar Bil Marof Nahi Anil Munkr	Amar Bil Marof Nahi Anil Munkr	
	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)	Dr. Sheena (Even)	Dr. Sidra Hamid (Odd)	Dr. Saadat Hashmi (Even)	Dr. Ahmed Sajjad (Odd)	Dr. Sidra Hamid (Even)	Dr Sadia (Odd)	Mufti Naem Sherai (Odd)	Mufti Naem Sherai (Even)	
04-04-2023 TUESDAY	BIOCHEMISTRY		PHYSIOLOGY (LGIS)		MEDICINE		PHARMACOLOGY		DISSECTION/SGD		SDL Physiology Exam Preparation
	Potassium Metabolism	Acid Base Imbalance II	Acid base disorder	Renal failure & hemodialysis Diuretics	Management of Acid base disorders		Introduction to diuretics		Dissection / Spotting		
	Dr. Kashif (Even)	Dr Aneela (Odd)	Dr. Sidra Hamid (Even)	Dr. Sheena (Odd)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)	Dr. Uzma (Even)	Dr. Haseeba (Odd)			
05-04-2023 WEDNESDAY	SDL										
06-04-2023 THURDAY	SDL										
07-04-2023 FRIDAY	Anatomy /Physiology Viva Voce										
08-04-2023 SATURDAY	Anatomy /Physiology Viva Voce										

Renal Module Fifth Week
(10-04-2023 To 15-04-2023)

DATE / DAY	8:00 AM – 9:00 AM	2:00 PM – 03:00 PM
10-04-2023 MONDAY	Anatomy Theory Paper & Gross OSPE	
11-04-2023 TUESDAY	Physiology Theory Paper & Video Assisted Quiz	
12-04-2023 WEDNESDAY	Biochemistry Theory Paper & Allieds	
13-04-2023 FRIDAY	Integrated OSPE	

SECTION-VI

Table of Specification (TOS) For Renal Module Examination for Second Year MBBS

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Integrated OSPE	Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3			
1.	Anatomy	25	15	5	5	5	25	1	2	2	50	15(Integrated) + 30(Gross)	145
2.	Physiology	30	18	9	3	4	20	1	1.5	1.5	50	18	118
3.	Biochemistry	12	6	5	1	1	15	-	0.5	0.5		10	37
Total Marks													300
Table of Specification for Clinical Subjects													
1.	Bioethics Professionalism	2											2
2.	Research, Artificial Intelligence & Innovation	5											5
3.	Pharmacology	2											2
4.	Pathology	3											3
5.	Medicine	2											2
6.	Surgery	3											3
7.	Obs & Gynaecology	2											2
8.	Family Medicine	1											1
Total												20	

Table of Specification for Integrated OSPE

Anatomy					
Sr. #	Topics	Knowledge	Skill	Attitude	Marks
Block 1 – GIT & Renal					
1	Deveploment of Gastrointestinal Tract	30%	50%	20%	3
2	Development of Renal System				3
3	Microscopic Anatomy of Gastrointestinal tract				3
5	Microscopic Anatomy of Renal System				3
6	Practical Copy				3
Physiology					
1	Examination of Semse of Taste	30%	50%	20%	3
2	Examination of Sense of Smell				3
3	Examination of Superficial Reflexes				3
4	Examination of Deep Reflexes				3
5	Examination of Specific gravity of Urine				3
6	Practical Note Book / Sketch Copy				3
Biochemistry					
1	Bile	100%			2
2	Introduction to Instruments				
3	Quamtitaive Estimation of Serum Alkaline Phosphotase (ALP) by Spectrophotometer	100%			2
4	Quantitative Estimation of Serum Alanine Transminase (ALT) by Spectrophotometer				
5	Urine Analysis		90%	10%	2
6	Urine Report				
7	Quantitative Estimation of Serum Urea	100%			2
8	Qurantitative Estimation of Serum Creatinine				
9	Practical Notebook		80%	20%	2

Table Of Specification for Gross Anatomy OSPE

Sr. #	Topics	Knowledge	Skill	Attitude	Marks
Block 2- Pelvis and Brain					
1	Bones of pelvis	30%	50%	20%	3
2	Structures of Male pelvis				3
3	Structures of Female pelvis				3
4	External genitalia				3
5	Radiology of Pelvis				3
6	Meningies				3
7	Brain Stem and cerebellum				3
8	Diencephalon and telencephalon				3
9	Cranial fossae				3
10	Radiology of Skull (cranial fossae)				3

Annexure-I

(Sample MCQ, SEQ Papers & OSPE)

RAWALPINDI MEDICAL UNIVERSITY
ANATOMY DEPARTMENT
2nd Year MBBS Module Exam (Renal)

1. A 12-year-old boy was presented to Emergency with severe pain in his right loin. Ultrasound examination revealed a stone lying 6 inches from the pelvi-ureteric junction. The most probable site of ureteric constriction is
 - a. Pelvic brim
 - b. Oblique passage through wall of bladder
 - c. Pelvi-ureteric junction
 - d. Lateral angle of trigone
 - e. Crossing of root of mesentery
2. Which of the following factors is taken into consideration while placing transplanted kidney in pelvis
 - a. Lack of inferior support in lumbar region
 - b. Non-availability of major blood vessels in pelvis
 - c. To decrease the size of ureter
 - d. Less traction to blood vessels
 - e. More space in pelvis
3. A 70-year-old post-menopausal woman presented to OPD with complaints of burning micturition. After investigation she was diagnosed as a case of cystitis as females do not possess
 - a. Internal urethral sphincter
 - b. External urethral sphincter
 - c. No adipose tissue
 - d. Ligamentous structures
 - e. Skeletal muscle
4. The least dilatable part of male urethra is
 - a. Prostatic
 - b. Membranous
 - c. Penile
 - d. Bulbous
 - e. Glans
5. The right kidney situated at the level of costo-vertebral angle is separated from the liver by
 - a. Diaphragm
 - b. Hepato-renal recess
 - c. Supra-renal gland
 - d. Gall bladder
 - e. Stomach

**RAWALPINDI MEDICAL UNIVERSITY
RENAL MODULE EXAM 2ND YEAR MBBS
ANATOMY SEQS**

Note: Attempt all questions. All questions carry equal marks. Draw diagram where necessary

1. A male newborn was delivered vaginally at 38 weeks. Pregnancy was uneventful, and no fetal anomalies were detected at prenatal ultrasound controls. The neonate presented at birth with exposed, everted bladder that was clearly visible immediately below umbilical stump, a completely dorsally opened urethra. The scrotum was normally developed, but caudally displaced
 - a. What is the most probable diagnosis? (1)
 - b. Give embryological basis of this congenital anomaly (4)
2. a. Draw and label histological structure of urinary bladder in relaxed and distended state. (3)
 - b. Briefly describe microscopic features of Filtration Apparatus of Kidney (2)

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF PHYSIOLOGY
SECOND YEAR MBBS EXAMINATION MCQS
(RENAL MODULE)

1. The enzyme secreted by kidneys for regulation of blood pressure is:
 - a. Angiotensinogen
 - b. Angiotensin I
 - c. Renin
 - d. Angiotensin II
 - e. Angiotensin converting enzyme
2. ^{125}I -albumin is used for the measurement of:
 - a. Total body water
 - b. Plasma volume
 - c. Extracellular fluid
 - d. Blood volume
 - e. Intracellular fluid
3. Peritubular capillary fluid reabsorption is increased by:
 - a. Increased blood pressure
 - b. Decreased filtration fraction
 - c. Increased efferent arteriolar resistance
 - d. Decreased angiotensin II
 - e. Increased renal blood flow
4. Value of Glomerular Filtration Rate is:
 - a. 1100 ml/min
 - b. 125 ml/min
 - c. 180 ml/min
 - e. 125 L/day
 - d. 22 percent of cardiac output
5. A 40-year-old obese woman presented to medical specialist with complaints of edema. She was on a weight losing diet since last 3 months. Her detailed plasma investigations revealed hypoalbuminemia. The major cause of her edema was:
 - a. Increased plasma colloid pressure
 - b. Increased capillary hydrostatic pressure
 - c. Decreased plasma colloid pressure
 - d. Decreased interstitial fluid hydrostatic pressure
 - e. Increased interstitial fluid hydrostatic pressure

RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOCHEMISTRY
2ND YEAR MBBS
RENAL MODULE

1. Deficiency of which one of the following enzymes is responsible for most toxic hyper ammonemia:

- a. Arginino succinase
- b. Arginase
- c. Alanine Transaminase
- d. Glutaminase
- e. Carbamoyl phosphate synthetase

3. Phenylalanine:

- a. Is the simplest amino acid
- b. Is non-essential amino acid
- c. Is normally acted upon by phenylalanine transaminase
- d. Is glycogenic as well as ketogenic
- e. By kyneurine pathway is converted into glucose and acetate

2. Following is true about Potassium:

- a. Is extra cellular cation
- b. Is not required for nerve transmission
- c. Is mainly excreted through sweat
- d. Level increase in renal failure
- e. Level is not regulated by aldosterone

4. Following is the cause of Respiratory acidosis:

- a. Respiratory center depression
- b. Fever
- c. High altitudes
- d. Salicylate poisoning
- e. Excess mechanical ventilation

SEQ

Q. a. Explain steps of urea cycle with enzymes. 03

b. Discuss causes of metabolic acidosis. 02

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF BIOMEDICAL ETHICS
2ND YEAR MBBS
RENAL MODULE

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.

- a. Bio-piracy
- b. Biosafety
- c. Bioethics
- d. Bio-patents
- e. Bio-logistic

3. Following is not code of ethics.

- a. Integrity
- b. Objectivity
- c. Confidentiality
- d. Behaviour
- e. Autonomy

5. -----Principle requiring that physicians provide, positive benefits

- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity

2. The right of patients having self-decision is called.

- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity

4. -----in the context of medical ethics, if it's fair and balanced

- a. Justice
- b. Autonomy
- c. Beneficence
- d. Veracity
- e. Fidelity

OSPE BLOCK - I
DEPARTMENT OF ANATOMY

Station No. 1

Time Allowed: 1 Min 30secs

Histology sketch copy will be assessed for

- a. Complete index (1)
- b. Complete and signed diagrams (1)
- c. 2 ID points mentioned with each diagram (1)

Station No. 2

Time Allowed: 1 Min 30secs

- a. Identify slide A (1)
- b. Identify slide B (1)
- c. Give one histological feature to distinguish between colon and rectum (1)

OSPE BLOCK - I
DEPARTMENT OF PHYSIOLOGY

Unobserved Station

Time Allowed: 2 minutes

**Task: **

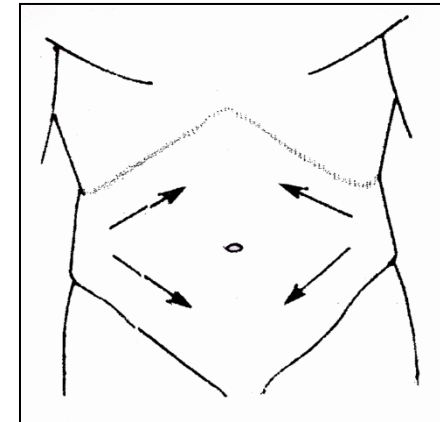
Carefully read and answer the following questions:

1. Name the reflex being performed in the given figure.
2. Give two causes of absence of the given reflex
3. Name the instrument used for performing this reflex?

1

1

1



OSPE BLOCK - I
DEPARTMENT OF BIOCHEMISTRY

Station No. 1

Time Allowed: 2 Mins

Observed station

Perform Benedict's Test on given urine sample. 03

Station No. 2

Time Allowed: 2 Mins

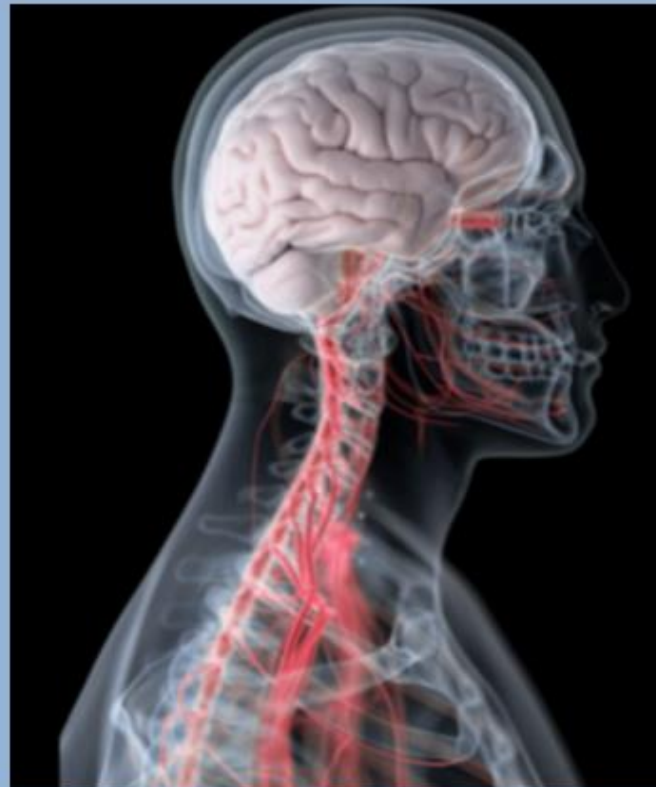
Observed station

Perform Rothera's test on urine sample. 03



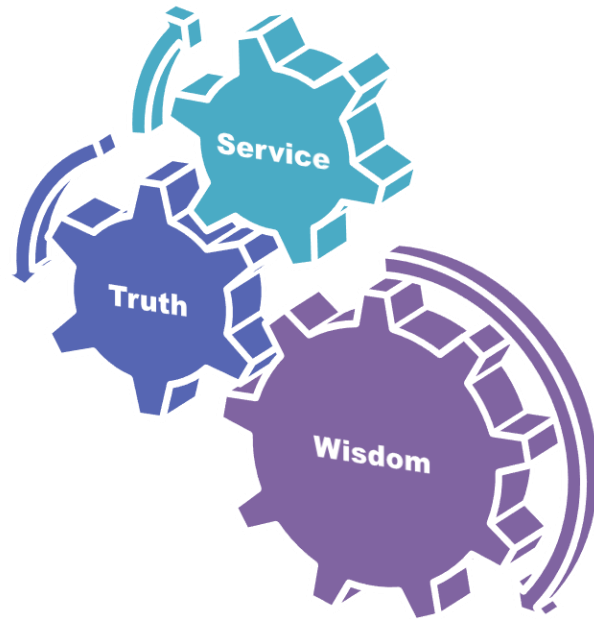
CNS Module

Study Guide
Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

CNS Module

Discipline Wise Details of Modular Contents

Subjects	Embryology	Histology	General & Gross Anatomy
<ul style="list-style-type: none"> Anatomy 	Embryology/Development <ul style="list-style-type: none"> Early CNS Development Spinal Cord Hindbrain & Cerebellum Midbrain Forebrain Peripheral Nervous System 	Histology <ul style="list-style-type: none"> Ganglia Peripheral Nerves Spinal Cord Cerebellum Cerebrum 	<ul style="list-style-type: none"> General Anatomy of Nervous System General Anatomy of Autonomic Nervous System Anterior, Middle & Posterior cranial fossae Meninges, Dural venous sinuses, and intracranial hemorrhages Spinal cord & Tracts Brain stem (Medulla oblongata, Pons, cerebellum & Midbrain) Diencephalon Cerebrum CSF and Ventricular System Cranial nerves Basal ganglia Limbic system & Reticular formation Blood Supply of Brain Radiological Imaging of CNS
<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Fatty acid metabolism Cholesterol Metabolism Ketone bodies metabolism Lipoproteins and Phospholipids 		
<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Organization of nervous system, Mechanism of synaptic transmission Classification of sensory receptors, Properties of sensory receptors Properties of synaptic transmission Physiology of pain, Dual pathway for transmission of pain, Analgesia System and Thermal sensations Sensory pathways for transmitting somatic signals Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function Somatosensory cortex & lesions of Somatosensory cortex Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation CSF, Blood brain barrier, Blood CSF Barrier, Lumbar puncture Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres Limbic system, Functions of hypothalamus 		

	<ul style="list-style-type: none"> • Speech and aphasia • Learning and memory • Reticular activating system and sleep • EEG and epilepsy • Introduction to motor nervous system & Reflex action, Conditioned reflexes & Properties of reflex action, Control of spinal cord reflexes by higher centers • Introduction to cerebellum, Neuronal circuits of cerebellum, and its motor functions • Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity
• Research Club Activity	• Data entry and coding in SPSS File
• Bioethics & Professionalism	<ul style="list-style-type: none"> • Ethical dilemmas in healthcare practice involving breach in principle of autonomy • Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence • Ethical dilemmas practice involving breach in principle of justice
• Radiology & Artificial Intelligence	<ul style="list-style-type: none"> • Skull radiograph • CT Scan & MRI
• Family Medicine	• Approach to a patient with headache
• Behavioral Sciences	<ul style="list-style-type: none"> • Emotions • Memory
• Vertical components	• The Holy Quran Translation Component
• Vertical Integration	<p>Clinically content relevant to CNS module</p> <ul style="list-style-type: none"> • Introduction to CNS (pharmacology) • Patterns of injury in nervous system (Pathology) • Meningitis (Pathology) • Meningitis (Pediatrics) • Spinal injury and head injury (Surgery) • Management of hydrocephalus (Surgery) • Brain abscess (Surgery) • Polytrauma patient (Surgery) • Spinal cord and peripheral nervous system (Medicine) • Encephalitis (Medicine) • Cerebellar disorders (Medicine) • Epilepsy and other convulsive disorders (Medicine) • Stroke (Medicine) • Seizures during pregnancy (eclampsia/ epilepsy) (Gynecology & Obs) • Cerebral palsy, Polio (Pediatrics)

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Annexure I382

(Sample MCQ, SEQ & OSPE Papers).....382

1. Oxidation of fatty acid decrease in:387

CNS Module Team

Module Name : CNS Module
 Duration of module : 06 Weeks
 Coordinator : Dr. Arsalan Manzoor Mughal
 Co-coordinator : Dr. Gaiti Ara
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Arsalan Manzoor Mughal
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Gaiti Ara (APWMO)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Shazia Nosheen (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar	DME Implementation Team		
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Module IV – CNS Module

Rationale: The human nervous system is the most complex and versatile achievement of the process of evolution. The nervous system of all animals functions to detect changes in the external and internal environment and to bring about appropriate responses in the muscles, organs and glands.

The anatomical, physiological, biochemical and molecular foundation of some of these aspects of neural function are well understood, while others continue to occupy the professional lives of many thousands of researchers in both the basic and clinical sciences.

The nervous system is often damaged by inherited or developmental abnormalities by disease processes and by traumatic injury. The prevention, diagnosis and management of neurological disorders are therefore of immense socioeconomic importance.

This module is expected to build the student's basic knowledge about the normal structure, organization, functions and development of nervous system. This knowledge, skills and attitudes acquired will serve as a fabric on which the student will weave further knowledge about the etiology, pathology and pathogenesis of diseases of nervous system and the principles of their management.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- Describe the development, structure, functions and biochemical processes of the nervous system.
- Briefly describe the injuries and diseases of the nervous system such as Alzheimer's disease, Parkinson's Disease, etc.
- Classify the main drug groups act on the nervous system.
- Identify the medical conditions related to nervous system such as stroke, cerebellar disorders, meningitis etc.
- Identify the surgical conditions related to the nervous system such as head injury brain tumors and abscesses.
- Identify obstetrical conditions related to nervous system such as preeclampsia.
- Identify pediatric conditions related to nervous system such as meningitis, cerebral palsy and polio.
- Identify parts of the CNS on radiographs CT scans and MRIs.
- Identify ENT and ophthalmological conditions such as acoustic neuroma, chalazion and strabismus.
- Describe aspects of behavioral sciences such as Emotions and Memory.

- Used technology based Medical Education including Artificial Intelligence.
- Appreciate concept and importance of Biomedical Ethics, & Research.

Skills

- Demonstrate dissection and identification of various parts of the nervous system.
- Identify, draw and label histological slides of the nervous system.
- Perform examination of sensory system, motor system, special senses and cranial nerves.
- Demonstrate effective skill for performing estimation of cholesterol, triglycerides and HDL.
- Demonstrate awareness of ethical, legal and social implication of issues related to bioethics

Attitude

- Demonstrate professional attitude, team building spirit and good communication specially in small group discussions.

This module will run in 6 weeks duration. Instructional strategies are given in the time table and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning
- Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar’s Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

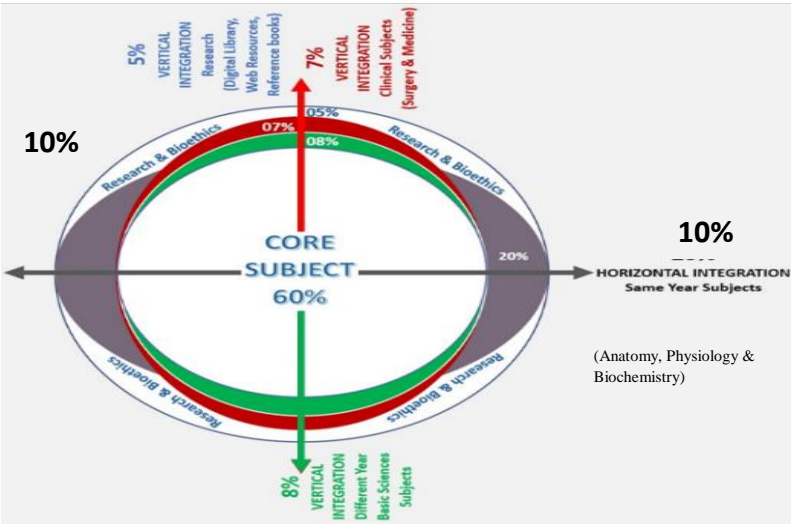


Figure 1. Prof Umar’s Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It’s a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthesize & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organize Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- Small Group Discussions
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- Self-Directed Topic, Learning Objectives & References
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- Skill Laboratory
 - Anatomy
 - Physiology
 - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topic	At The End Of The Session Student Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
General Anatomy Nervous System	• Discuss the major divisions of nervous system	C2	LGIS	MCQs SEQs VIVA
	• Differentiate between neurons and neuroglia	C2		
	• List the neuroglia and their functions	C1		
	• Describe myelination of nerve fibers	C2		
	• Describe the structure of a peripheral nerve and reflex action	C2		
	• Describe degeneration and regeneration of nerves	C2		
Embryology Early development of Skull & Central Nervous System	• Describe the process of development of neurocranium and viscerocranium	C2	LGIS	MCQs SEQs VIVA
	• Describe formation of neural tube, neuropores and their closure	C2		
	• Describe histogenesis and Cytodifferentiation within the neural tube.	C2		
	• Describe the brain flexures and their derivatives	C2		
	• Describe role of neuroblasts forming efferent and afferent rows.	C2		
Embryology Development of spinal cord	• Describe the significance of ventricular, mantle and marginal layers of developing spinal cord.	C2	LGIS	MCQs SEQs VIVA
	• Enumerate derivatives of alar and basal plates in developing spinal cord.	C1		
	• Describe the process of myelination of nerve fibers.	C2		
	• Describe role of neural crest cells in development of spinal ganglia.	C2		
	• Explain positional changes of spinal cord.	C2		
	• Discuss congenital anomalies due to neural tube defects and abnormal histogenesis.	C3		
General Anatomy Autonomic Nervous System	• Enlist the components of peripheral and autonomic system.	C1	LGIS	MCQs SEQs VIVA
	• Tabulate differences between sympathetic and parasympathetic nervous systems	C2		
	• Describe effects of sympathetic and parasympathetic nervous systems on various parts of the body	C2		
	• Discuss the anatomical basis of autonomic injuries such as Horner's syndrome, Urinary bladder dysfunction, rectal distention, Erectile dysfunction are argyll Robertson pupil.	C3		

Histology Meninges, Choroid Plexus, Peripheral Nervous system and ganglia	• Describe the histological structure of meninges and choroid plexus	C2	LGIS	MCQs SEQs VIVA
	• Discuss the histological structure of Myelinated and unmyelinated nerve fibers	C2		
	• Discuss the histological structure of sensory and autonomic ganglia	C2		
	• Discuss the principles of neuroplasticity and regeneration	C2		
Embryology Development of Rhombencephalon	• Describe the development of Myelencephalon.	C2	LGIS	MCQs SEQs VIVA
	• Describe the arrangement of neuroblasts in metencephalon	C2		
	• Describe the development of metencephalon.	C2		
	• Describe the arrangement of neuroblasts in metencephalon	C2		
	• Describe the development of cerebellum	C2		
Histology Spinal Cord and Cerebellum	• Describe the histological structure of spinal cord	C2	LGIS	MCQs SEQs VIVA
	• Describe the histological structure of cerebellum	C2		
	• Discuss cells in each layer along with its histological morphology	C2		
Development Mesencephalon and Prosencephalon	• Describe the developed of mesencephalon	C2		
	• Describe the arrangements of neuroblasts in mesencephalon	C2		
	• Describe the developed of mesencephalon	C2		
	• Describe the arrangements of neuroblasts in mesencephalon	C2		
	• Describe the development of pituitary gland	C2		
	• Discuss the anatomical basis of pharyngeal hypophysis and craniopharyngiomas	C3		
	• Discuss the anatomical basis of birth defects such as encephalocele, microencephaly, microcephaly, Chiari malformation.	C3		
Histology Cerebrum	• Describe the histological structure of cerebrum	C2	LGIS	MCQs SEQs VIVA
Embryology Development of peripheral and autonomic nervous system	• Describe the development cranial nerves	C2	LGIS	MCQs SEQs VIVA
	• Describe the development of spinal nerves	C2		
	• Describe the development of sympathetic nervous system	C2		
	• Describe the development of parasympathetic nervous system	C2		

Physiology Large Group Interactive Session (LGIS)

Topic	At The End Of This LGIS, Second Year MBBS Students Should Be Able To:	Learning Objectives	Teaching Strategy	Assessment Tools
Organization of Nervous System Mechanism of synaptic transmission	• Describe the general organization of nervous system	C1	LGIS	MCQ SEQ VIVA
	• Describe major levels of CNS functions	C1		
	• Briefly explain nerve fiber structure, classification & properties	C2		
	• Describe labeled line principle	C1		
	• Define synapse	C1		
	• Enumerate & compare types of synapses	C2		
	• Describe process of synaptic transmission	C1		
	• Enumerate the important neurotransmitters of nervous system	C1		
Classification of sensory receptors Properties of sensory receptors	• Enumerate & explain different types of sensory receptors according to function	C1	LGIS	MCQ SEQ VIVA
	• Enumerate & explain different types of sensory receptors according to location	C2		
	• Enlist various properties of sensory receptors	C1		
	• Describe mechanism of signal transduction & generation of receptor potential	C1		
	• Describe mechanism of adaptation of different types of receptors	C1		
	• Describe the properties of sensory receptors	C1		
	• Describe the types and characteristics of tactile receptors	C1		
Properties of synaptic transmission	• Briefly explain the electrical events during neuronal excitation and inhibition	C2	LGIS	MCQ SEQ VIVA
	• Explain temporal and spatial summation	C1		
	• Enlist & explain various characteristics of synaptic transmission	C1		
Physiology of pain Dual pathway for transmission of pain Analgesia System	• Define pain	C1	LGIS	MCQ SEQ VIVA
	• Enumerate different types of pain	C2		
	• Tabulate the differences between two types of pain	C1		
	• Describe characteristics of pain receptors	C1		
	• Discuss the mechanism of stimulation of pain receptors	C2		
	• Compare and contrast neospinothalamic & paleo spinothalamic tract	C2		
	• Define referred pain	C1		

Thermal Sensations	• Explain the mechanism of referred pain	C2		
	• Give examples of referred pain	C1		
	• Describe visceral pain and its causes	C1		
	• Define headache	C1		
	• Enlist the types of headache & their causes	C1		
	• Explain the analgesia system	C2		
	• Describe thermal receptors	C1		
	• Explain mechanism of excitation of thermal receptors	C2		
	• Describe transmission of thermal signals in nervous system	C1		
Sensory pathways for transmitting somatic signals	• Classify somatic senses	C2	LGIS	MCQ SEQ VIVA
	• Describe the sensory pathways for transmission of somatic sensations to central nervous system	C1		
	• Enumerate sensations carried by dorsal column system and anterolateral system	C1		
	• Describe the characteristics of transmission in the dorsal column medial lemniscal system and anterolateral system	C1		
	• Compare and contrast dorsal column medial lemniscal system and anterolateral system	C2		
Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function	• Describe general organization of autonomic nervous system	C1	LGIS	MCQ SEQ VIVA
	• Enumerate the functions of autonomic nervous system	C1		
	• Describe sympathetic and parasympathetic nervous system	C1		
	• Enumerate & explain their receptors, neurotransmitters & physiological effects	C1		
	• Describe physiological anatomy & effects of adrenal medulla	C1		
Somatosensory cortex & lesions of somatosensory cortex	• Explain cortical mapping & association cortex	C2	LGIS	MCQ SEQ VIVA
	• Describe lesions of somatosensory areas	C1		
	• Summarize role of thalamus in somatic sensations	C1		
	• Interpret the importance of dermatomes	C3		
Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation	• Briefly explain physiological actions of ANS, vasomotor tone, vagal tone & sympathetic stress response	C2	LGIS	MCQ SEQ VIVA
	• Draw a table showing autonomic effects on various body organs	C1		
	• Briefly describe the pharmacology of autonomic nervous system	C1		

CSF, Blood Brain Barrier, Blood CSF Barrier, Lumber Puncture	• Describe briefly the physiological anatomy of cerebral blood flow	C1	LGIS	MCQ SEQ VIVA
	• Explain cerebrospinal fluid system	C2		
	• Describe the CSF pressure, its measurement by lumbar puncture, & hydrocephalus	C1		
	• Explain blood CSF barrier & BBB	C2		
	• Describe brain edema	C1		
Concept of Association areas, dominant and non-dominant cerebral hemispheres	• Draw association areas of brain	C1	LGIS	MCQ SEQ VIVA
	• Describe association areas of brain regarding their physiological role	C1		
	• Explain briefly the clinical features, if the association areas become damaged	C2		
	• Describe concept of dominant hemisphere	C1		
	• Enlist role of parieto-occipito temporal cortex in non-dominant hemisphere	C1		
Limbic system Functions of hypothalamus	• Describe the concept of limbic system	C1	LGIS	MCQ SEQ VIVA
	• Describe physiological anatomy of limbic system	C1		
	• Enumerate and explain the roles of hippocampus, amygdala and limbic cortex	C1		
	• Describe physiological anatomy of hypothalamus	C1		
	• Enlist functions of hypothalamus	C1		
	• Explain role of hypothalamus in: <ul style="list-style-type: none"> ○ Vegetative function ○ Endocrine function Behavioral function ○ Reward and punishment function 	C2		
Speech and aphasia	• Describe sensory and motor aspects of communication	C1	LGIS	MCQ SEQ VIVA
	• Define Wernicke's aphasia, Motor aphasia & Global aphasia	C1		
	• Explain Wernicke's aphasia, Motor aphasia & Global aphasia	C2		
	• Describe function of corpus callosum & anterior commissure in transferring information between two cerebral hemispheres	C1		
Learning and memory	• Define memory & classify its various types	C1	LGIS	MCQ SEQ VIVA
	• Describe role of synaptic inhibition and synaptic facilitation in memory	C1		
	• Explain mechanism of short term, intermediate and long-term memory	C2		
	• Describe mechanism of consolidation of memory	C1		
	• Enumerate specific parts of brain involved in memory	C2		
	• Explain the role of each part	C2		

Reticular activating system and sleep	• Describe activating driving system of the brain	C1	LGIS	MCQ SEQ VIVA
	• Explain the reticular activating system	C2		
	• Discuss the control of cerebral activity by signals from brain stem	C2		
	• Explain neurohormonal system of the brain	C2		
	• Define sleep and enumerate types of sleep	C1		
	• Compare and contrast between two types of sleep	C2		
	• Describe the basic theories of sleep in detail	C1		
	• Explain physiological effects of sleep	C2		
	• Describe sleep and wakefulness cycle	C1		
EEG and epilepsy	• Describe brain waves	C1	LGIS	MCQ SEQ VIVA
	• Enumerate different types of brain wave	C2		
	• Explain the origin of different brain waves	C2		
	• Describe EEG	C1		
	• Define epilepsy	C1		
	• Enumerate various types of epilepsy	C1		
	• Explain various types of epilepsy	C2		
	• Describe role of nor-epinephrine, serotonin and	C1		
	• dopamine in psychotic disorders	C1		
	• Describe the causes, symptoms & treatment of depression & bipolar disorder	C1		
	• Discuss causes, types, symptoms and treatment of schizophrenia	C2		
	• Define Alzheimer's disease. Mention its causes, clinical features, incidence and treatment	C1		
Introduction to motor nervous system & Reflex action Conditioned reflexes & properties Properties of reflex action Control of spinal cord reflexes by higher centers	• Outline brief introduction of motor nervous system	C1	LGIS	MCQ SEQ VIVA
	• Give concept of cortical & subcortical motor control	C1		
	• Briefly explain UMN, LMN, anterior motor neurons & interneurons	C2		
	• Define reflex action	C1		
	• Define and draw reflex arc	C1		
	• Enumerate components of reflex arc	C1		
	• Classify the reflexes	C2		
	• Define conditioned reflex	C1		
	• Enlist and describe properties of conditioned reflexes	C1		
	• Give examples of conditioned reflex	C1		

	• Enlist and Explain properties of reflex action	C1,C2		
	• Compare & contrast spinal animal with decerebrate animal	C2		
	• Describe organization of spinal cord for motor functions	C1		
	• Explain the concept of cortical & subcortical control.	C2		
	• Define UMN & LMN			
Introduction to cerebellum Neuronal circuits of cerebellum Cerebellum and its motor functions	• Describe physiological anatomy of cerebellum	C1	LGIS	MCQ SEQ VIVA
	• Classify the functional parts of cerebellum & mention their functions	C2		
	• Describe neuronal circuits of cerebellum in detail	C1		
	• Enumerate the afferent and efferent pathways	C1		
	• Describe the functional unit of cerebellar cortex & deep cerebellar nuclei	C1		
	• Explain the role of purkinje cell, Deep nuclear cells and inhibitory cells of cerebellum in overall functions of cerebellum	C2		
	• Explain role of climbing fibers	C2		
	• Discuss the turn-on and turn-off mechanism	C2		
	• Enlist and explain motor functions of cerebellum	C1		
	• Explain the role of vestibulocerebellum, spinocerebellum & neocerebellum in overall motor control by cerebellum	C2		
Muscle spindle & Golgi tendon organ Role of muscle spindle and Golgi tendon organ in voluntary motor activity	• Describe muscle spindle & Golgi tendon organ in detail	C1	LGIS	MCQ SEQ VIVA
	• Explain the receptor function of the Muscle Spindle & Golgi tendon organ	C2		
	• Draw muscle spindle and Golgi tendon organ showing the sensory and motor innervation	C1		
	• Explain the dynamic and static response of muscle spindle & Golgi tendon organ	C2		
	• Briefly describe muscle stretch reflex	C1		
	• Draw the neuronal circuitry of the stretch reflex	C1		
	• Explain the static and dynamic components of stretch reflex	C2		
	• Discuss the clinical applications of stretch reflex	C2		
	• Explain negative stretch reflex	C2		
	• Explain lengthening reaction and its significance	C2		
	• Describe role of muscle spindle and Golgi tendon organ in voluntary muscle activity	C1		

	<ul style="list-style-type: none"> • Explain the role of alpha gamma co activation 	C2		
Manifestations of cerebellar disease	<ul style="list-style-type: none"> • Enlist and explain clinical abnormalities of cerebellum 	C2	LGIS	MCQ SEQ VIVA
Polysynaptic reflexes Transection of spinal cord Role of brain stem in controlling motor functions Lesions of motor system	<ul style="list-style-type: none"> • Enlist polysynaptic reflexes 	C1	LGIS	MCQ SEQ VIVA
	<ul style="list-style-type: none"> • Describe the polysynaptic reflexes 	C1		
	<ul style="list-style-type: none"> • Explain mechanism of reciprocal inhibition and reciprocal innervation 	C2		
	<ul style="list-style-type: none"> • Enlist and describe reflexes of posture and locomotion 	C1		
	<ul style="list-style-type: none"> • Explain scratch reflex 	C2		
	<ul style="list-style-type: none"> • Enumerate the spinal cord reflexes that cause muscle spasm 	C1		
	<ul style="list-style-type: none"> • Enlist autonomic reflexes in the spinal cord 	C1		
	<ul style="list-style-type: none"> • Briefly describe transection of spinal cord 	C1		
	<ul style="list-style-type: none"> • Explain stages of complete transection 	C2		
	<ul style="list-style-type: none"> • Briefly explain stages of complications in complete transection of spinal cord 	C2		
	<ul style="list-style-type: none"> • Describe hemi section of spinal cord 	C1		
	<ul style="list-style-type: none"> • Explain brown-sequard syndrome 	C1		
	<ul style="list-style-type: none"> • Enumerate and explain role of brainstem in controlling motor function 	C1,C2		
	<ul style="list-style-type: none"> • Explain role of pontine & medullary reticular nuclei 	C2		
	<ul style="list-style-type: none"> • Briefly write role of vestibular nuclei in antigravity muscle control 	C1		
	<ul style="list-style-type: none"> • Summarize decerebrate rigidity 	C1		
	<ul style="list-style-type: none"> • Enlist the effects of damage to specialized areas of motor cortex 	C1		
	<ul style="list-style-type: none"> • Differentiate UMN Lesion and LMN Lesion 	C2		
	<ul style="list-style-type: none"> • Explain decorticate rigidity 	C2		
	<ul style="list-style-type: none"> • Briefly explain the pathophysiology of syringomyelia, tabs- dorsalis & poliomyelitis 	C2		
Motor cortex & physiological importance of neocortex Corticospinal or pyramidal tract Extra pyramidal system Basal Ganglia & Lesions	<ul style="list-style-type: none"> • Briefly describe motor areas in cortex 	C1	LGIS	MCQ SEQ VIVA
	<ul style="list-style-type: none"> • Draw motor & somatic association areas of motor cortex 	C1		
	<ul style="list-style-type: none"> • Explain functions of motor & somatic association areas 	C2		
	<ul style="list-style-type: none"> • Explain allocortex & neocortex 	C2		
	<ul style="list-style-type: none"> • Describe medial and lateral descending pathways 	C1	LGIS	MCQ SEQ VIVA
	<ul style="list-style-type: none"> • Explain transmission of signals from motor cortex to muscle 	C2		
	<ul style="list-style-type: none"> • Draw course of pyramidal tract 	C1		
	<ul style="list-style-type: none"> • Enlist the functions of pyramidal tract 	C1		
	<ul style="list-style-type: none"> • Mention the effects of lesions in Corticospinal tract 	C1		

	• Briefly describe extra pyramidal descending tracts	C1		
	• Describe rigidity and spasticity	C1		
	• Describe location and function of red nucleus	C1		
	• Describe physiological anatomy of basal ganglia	C1		
	• Draw neuronal circuits of basal ganglia	C1		
	• Explain the role of neuronal circuits in functioning of basal ganglia	C2		
	• Enlist and explain the physiological role of neurotransmitters in basal ganglia system	C1		
	• Enumerate the clinical abnormalities caused by damage to basal ganglia	C1		
	• Briefly explain Parkinson disease regarding its causes, signs and symptoms & treatment	C2		
	• Explain Huntington's Chorea regarding its causes, signs and symptoms	C2		

Biochemistry Large Group Interactive Session (LGIS)

Topic	At The End Of Lecture Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Triglyceride Metabolism, Fatty acid transport	• Describe synthesis & breakdown of TAGs and factors affecting it	C2	LGIS	MCQs SAQs Viva
	• Explain entry of fatty acid into mitochondria (carnitine shuttle)	C2		
Oxidation of fatty acid	• Describe steps, enzymes, energy calculations of β - oxidation of saturated fatty acid (Odd + Even)	C2	LGIS	MCQs SAQs Viva
Oxidation of fatty acid	• Discuss other types of oxidations and related disorders	C2	LGIS	MCQs SAQs Viva
Fatty acid synthesis	• Explain the steps, regulation and related diseases of fatty acid synthesis	C2	LGIS	MCQs SAQs Viva
Cholesterol Synthesis	• Describe the steps, regulation and related disorders of Cholesterol Synthesis	C2	LGIS	MCQs SAQs Viva

Plasma Cholesterol level	• Recall normal Plasma Cholesterol level and factors controlling it	C1	LGIS	MCQs SAQs Viva
Ketone bodies metabolism	• Explain the synthesis and breakdown of Ketone bodies with related diseases (ketoacidosis)	C2	LGIS	MCQs SAQs Viva
Biosynthesis of Glycerophospholipid	• Describe the steps of biosynthesis of Glycerophospholipids with its regulation and clinical significance	C2	LGIS	MCQs SAQs Viva
Biosynthesis of sphingophospholipids	• Explain the steps of biosynthesis of sphingophospholipids with its regulation and clinical significance	C2	LGIS	MCQs SAQs Viva
Introduction to Lipoproteins	• Discuss the functions and roll of Lipoproteins & apolipoprotein	C2	LGIS	MCQs SAQs Viva
LDL& HDL	• Explain the composition, functions and clinical significance of LDL& HDL	C2	LGIS	MCQs SAQs Viva
	• Illustrate the mechanism of reverse cholesterol transport	C3		
Disorders of lipoprotein metabolism	• Classify and explain the disorders of lipoprotein metabolism • (hyper & hypo lipoproteinemia)	C2	LGIS	MCQs SAQs Viva
Fatty liver & Adipose tissues	• Interpret conditions leading to Fatty liver	C3	LGIS	MCQs SAQs Viva
	• Describe metabolism of adipose tissue & Brown fat	C2		
Disorders of lipoprotein metabolism	• Classify and explain the disorders of lipoprotein metabolism • (hyper & hypo lipoproteinemia)	C2	LGIS	MCQs SAQs Viva

Anatomy Small Group Discussion (SGDs)

Topic	At The End Of Lecture Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Anterior & Middle cranial fossae	• Identify and describe the boundaries of anterior and middle cranial fossae	C2	Skills lab	OSPE VIVA
	• Discuss anatomical features present in anterior and middle cranial fossa	C2		
	• Locate foramina and describe the structures passing through them	C2		
Posterior cranial fossa	• Identify and describe the boundaries of posterior cranial fossa	C2	Skills lab	OSPE VIVA
	• Discuss anatomical features present in posterior cranial fossa	C2		
	• Locate foramina and describe the structures passing through them	C2		
Meninges, Dural venous sinuses, and intracranial hemorrhages	• Identify and describe meninges and their reflections on specimens and models	C2	Skills lab	OSPE VIVA
	• Describe the attachments and relations of dural venous sinuses of brain with the help of models and specimens	C2		
	• Discuss the clinical importance of facial vein connection with dural venous sinuses.	C3		
	• Differentiate between various types of intracranial hemorrhages	C3	Skills lab	OSPE VIVA
	• Differentiate between different types of headaches	C3		
Spinal cord	• Describe the internal and external structure of spinal cord	C2	Skills lab	OSPE VIVA
	• Compare the arrangement of white and gray matter in different regions of the spinal cord	C2		
	• Enumerate the major ascending and descending tracts of spinal cords	C1		
	• Illustrate the arrangements of ascending and descending tracts in the spinal cords	C2		
Ascending tracts and their clinicals	• List the ascending tracts of the spinal cord	C1	Skills lab	OSPE VIVA
	• Tabulate the sensation, receptor, first to third order neurons, pathways and destinations	C2		
	• Describe and illustrate the pathways of lateral spinothalamic tract, anterior spinothalamic tract, anterior spinocerebellar tract and posterior spinocerebellar tracts	C2		

	<ul style="list-style-type: none"> Describe and illustrate the pathways of spinotectal tract, spinoreticular tract and spino-olivary tracts 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of the signs and symptoms in lesions of the ascending tracts 	C3		
Descending tracts and their clinicals	<ul style="list-style-type: none"> List the descending tracts of the spinal cord 	C1	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Tabulate the sensation, receptor, first to third order neurons, pathways and destinations of pyramidal and extrapyramidal tracts 	C2		
	<ul style="list-style-type: none"> Describe and illustrate the pathways of corticospinal tracts 	C2		
	<ul style="list-style-type: none"> Describe and illustrate the pathways of extrapyramidal tracts 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of the signs and symptoms in lesions of upper and lower motor neuron lesions 	C3		
Lesions of Spinal Cord	<ul style="list-style-type: none"> Explain anatomical basis of signs and symptoms of anterior and posterior nerve root lesions 	C3	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Explain anatomical basis of signs and symptoms of complete cord transection syndrome, central cord syndrome, syringomyelia, anterior cord syndrome, Brown-Sequard Syndrome, Poliomyelitis and amyotrophic lateral sclerosis 	C3		
Medulla oblongata	<ul style="list-style-type: none"> Identify and describe gross features of medulla and identify them on gross specimen/model. 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Identify and describe internal structure of medulla on cross sectional diagrams. 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis and clinical features of raised pressure in posterior cranial fossa, Arnold Chiari malformation, lateral and medial medullary syndrome. 	C2		
Pons & the Fourth ventricle	<ul style="list-style-type: none"> Identify and describe the gross features of Pons on a given specimen/model 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Identify and describe internal structure of pons on cross sectional diagrams. 	C2		
	<ul style="list-style-type: none"> Describe the boundaries and relations of 4th ventricle 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of clinical features of tumors, hemorrhage and infarctions of pons 	C3		
Midbrain & Cerebral aqueduct	<ul style="list-style-type: none"> Identify and describe the gross features of Pons on a given specimen/model 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Identify and describe internal structure of pons on cross sectional diagrams. 	C2		
	<ul style="list-style-type: none"> Describe the boundaries and relations of 4th ventricle 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of trauma, cerebral aqueduct stenosis and vascular lesions of midbrain. 	C3		
Cerebellum	<ul style="list-style-type: none"> Identify and describe the gross features of cerebellum 	C1		OSPE
	<ul style="list-style-type: none"> Describe internal structure of gray and white matter of cerebellar cortex 	C2		

	<ul style="list-style-type: none"> Describe the cerebellar cortical mechanisms 	C1	Skills lab	VIVA
	<ul style="list-style-type: none"> Describe afferent and efferent fibers of cerebellum 	C2		
	<ul style="list-style-type: none"> Discuss the functions of cerebellum 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of signs and symptoms of cerebellar diseases such as hypotonia, gait alteration, ataxia, dysdiadochokinesia, disturbances in reflexes, disturbances in ocular movement, disorders of speech 	C3		
	<ul style="list-style-type: none"> Describe the anatomical basis of signs and symptoms of cerebellar syndromes such as vermis syndrome and cerebellar hemisphere syndrome 	C3		
Thalamus, Epithalamus & Subthalamus	<ul style="list-style-type: none"> Identify and describe the gross structure of thalamus, epithalamus and subthalamus 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Enlist nuclei of thalamus, epithalamus & subthalamus and describe their functions 	C1		
	<ul style="list-style-type: none"> Describe the anatomical basis for the lesions of thalamus, epithalamus and subthalamus such as thalamic pain and thalamic hand 	C3		
Hypothalamus and 3 rd Ventricle	<ul style="list-style-type: none"> Enlist nuclei of thalamus, epithalamus & subthalamus and describe their functions 	C1	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Identify and describe the functions of tuber cinereum and mamillary bodies 	C2		
	<ul style="list-style-type: none"> Describe the various afferent and efferent connections of hypothalamic nuclei 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis for the lesions of hypothalamus and hypothalamic syndromes 	C3		
	<ul style="list-style-type: none"> Describe the boundaries and relations of the 3rd ventricle 	C2		
Cortical areas, Layers and Lesions of Cerebrum	<ul style="list-style-type: none"> Identify and describe the gross features of cerebrum 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Identify the describe the lobes and subdivisions of cerebrum 	C2		
	<ul style="list-style-type: none"> Identify the sulci and gyri of cerebral cortex and describe their functions 	C2		
	<ul style="list-style-type: none"> Identify and describe the commissural, association and projection fibers present in the white matter of the brain. 	C2		
	<ul style="list-style-type: none"> Discuss the anatomical basis of lesions of internal capsule and alzheimer's disease 	C3		
	<ul style="list-style-type: none"> Discuss the anatomical basis of cerebral cortical lesions of the motor cortex, frontal eye field, motor & sensory speech areas, prefrontal cortex, sensory cortex and visual areas 	C3		
	<ul style="list-style-type: none"> Discuss the anatomical basis of schizophrenia and frontal lobectomy 	C3		

	<ul style="list-style-type: none"> Discuss the basis cerebral dominance, consciousness, persistent vegetative state, sleep and epilepsy. 	C3		
Lateral Ventricle & CSF	<ul style="list-style-type: none"> Describe the relations and boundaries of lateral ventricle 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Describe the formation of choroid plexus in ventricles 	C2		
	<ul style="list-style-type: none"> Explain the function, production, circulation, and absorption of cerebrospinal fluid 	C2		
	<ul style="list-style-type: none"> Explain the causes of overproduction and blockage of CSF 	C2		
	<ul style="list-style-type: none"> Discuss the anatomical basis of various types of hydrocephalus and papilledema. 	C3		
	<ul style="list-style-type: none"> Discuss the formation and clinical significance of blood brain barrier, blood CSF barrier and CSF Brain interface. 	C3		
Cranial nerves I,II,III,IV,VI	<ul style="list-style-type: none"> Identify the nuclei and connections of CN I,II,III,IV,VI 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Trace the pathway and perform reflexes associated with of CN I,II,III,IV,VI 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of lesions of visual pathway and ophthalmoplegias 	C3		
Cranial nerves V,VII	<ul style="list-style-type: none"> Identify the nuclei and connections of CN V,VII 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Trace the pathway and perform reflexes associated with of CN V,VII 	C2		
	<ul style="list-style-type: none"> Describe the anatomical basis of upper and lower motor neuron lesion of CN V and trigeminal neuralgia 	C3		
Cranial nerves VIII-XII	<ul style="list-style-type: none"> Identify the nuclei and connections of CN VIII-XII 	C2	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Trace the pathway and perform reflexes associated with of CN VIII-XII 	C2		
	<ul style="list-style-type: none"> Discuss the anatomical basis of vertigo, nystagmus, deafness, tinnitus, taste and gag reflex 	C3		
	<ul style="list-style-type: none"> Discuss the anatomical basis of paralysis of muscles supplied by accessory and hypoglossal nerves 	C3		
Basal ganglia	<ul style="list-style-type: none"> Enlist components of basal ganglia 	C1	Skills lab	OSPE VIVA
	<ul style="list-style-type: none"> Discuss functions of basal ganglia 	C2		
	<ul style="list-style-type: none"> Describe the connections of basal ganglia 	C2		
	<ul style="list-style-type: none"> Discuss the anatomical basis of hypo and hyperkinetic disorders such as chorea, hemiballismus, Parkinson's disease and athetosis. 	C3		
	<ul style="list-style-type: none"> Enlist components and connections of limbic system 	C1		
	<ul style="list-style-type: none"> Discuss functions of limbic system 	C2		

Limbic system & Reticular formation	• Describe the connections of limbic system	C2	Skills lab	OSPE VIVA
	• Enlist components of reticular system	C1		
	• Discuss functions of reticular system	C2		
	• Describe the connections of reticular system	C1		
	• Discuss the anatomical basis of loss of consciousness, schizophrenia, Kluver-Bucy syndrome and temporal lobe dysfunction	C3		
Blood Supply of Brain and clinicals	• Describe the arterial supply of brain and spinal cord from internal carotid artery and vertebrobasilar systems	C2	Skills lab	OSPE VIVA
	• Describe the circle of Willis along with its clinical significance	C2		
	• Describe the venous drainage of brain and spinal cord	C2		
	• Discuss the anatomical basis of signs and symptoms of cerebral vessel occlusions and spinal cord ischemias.	C3		
Radiological Imaging of CNS	<ul style="list-style-type: none"> • Identify and describe the appearance of different parts of brain in <ul style="list-style-type: none"> ○ Normal radiographs ○ MRI ○ CT scan 	C2	Skills lab	OSPE VIVA

Physiology Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Triglycerides & F.A. oxidation	<ul style="list-style-type: none"> • Explain the functions & uses of triglycerides and steps of oxidation of Fatty acids 	C2	SGD	MCQs SAQs Viva
Fatty acid synthesis & cholesterol metabolism	<ul style="list-style-type: none"> • Describe the steps of fatty acid synthesis, cholesterol, their functions& clinical significance 	C2	SGD	MCQs SAQs Viva
Ketone bodies & Phospholipids	<ul style="list-style-type: none"> • Describe the synthesis & breakdown of ketone bodies and factors affecting them. 	C2	SGD	MCQs SAQs Viva
	<ul style="list-style-type: none"> • Describe the phospholipids synthesis & their functions 	C2		
Lipoprotein (HDL)	<ul style="list-style-type: none"> • Explain HDL synthesis, its functions & clinical significance 	C2	SGD	MCQs SAQs

				Viva
Lipoprotein (VLDL, LDL)	<ul style="list-style-type: none"> Explain synthesis, functions & clinical significance of VLDL, LDL 	C2	SGD	MCQs SAQs Viva

Biochemistry Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Triglycerides & F.A. oxidation	<ul style="list-style-type: none"> Explain the functions & uses of triglycerides and steps of oxidation of Fatty acids 	C2	SGD	MCQs SAQs Viva
Fatty acid synthesis & cholesterol metabolism	<ul style="list-style-type: none"> Describe the steps of fatty acid synthesis, cholesterol, their functions& clinical significance 	C2	SGD	MCQs SAQs Viva
Ketone bodies & Phospholipids	<ul style="list-style-type: none"> Describe the synthesis & breakdown of ketone bodies and factors affecting them. 	C2	SGD	MCQs SAQs Viva
	<ul style="list-style-type: none"> Describe the phospholipids synthesis & their functions 	C2		
Lipoprotein (HDL)	<ul style="list-style-type: none"> Explain HDL synthesis, its functions & clinical significance 	C2	SGD	MCQs SAQs Viva
Lipoprotein (VLDL, LDL)	<ul style="list-style-type: none"> Explain synthesis, functions & clinical significance of VLDL, LDL 	C2	SGD	MCQs SAQs Viva

Anatomy Self-Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Anterior And middle Cranial Fossa	<ul style="list-style-type: none"> Identify and describe the boundaries of anterior and middle cranial fossae Discuss anatomical features present in anterior and middle cranial fossa Locate foramina and describe the structures passing through them 	<ul style="list-style-type: none"> Clinically Oriented Anatomy, 9th Edition, pg no. 840-861 https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://link.springer.com/article/10.1007/s00701-013-1937-0
Posterior cranial fossa Dural venous sinuses and intracranial hemorrhages	<ul style="list-style-type: none"> Identify and describe meninges and their reflections on specimens and models Describe the attachments and relations of dural venous sinuses of brain with the help of models and specimens Discuss the clinical importance of facial vein connection with dural venous sinuses. Differentiate between various types of intracranial hemorrhages Differentiate between different types of headaches 	<ul style="list-style-type: none"> Clinically Oriented Anatomy, 9th Edition, pg no. 840-861, 884-885, 895 https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://www.tandfonline.com/doi/abs/10.3109/02688699308995089
Meninges & Spinal cord	<ul style="list-style-type: none"> Describe the internal and external structure of spinal cord Compare the arrangement of white and gray matter in different regions of the spinal cord Enumerate the major ascending and descending tracts of spinal cords Illustrate the arrangements of ascending and descending tracts in the spinal cord 	<ul style="list-style-type: none"> Clinically Oriented Anatomy, 9th Edition, pg no. 132-139, 883, 890-891 https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://link.springer.com/chapter/10.1007/978-981-15-7771-0_3
	<ul style="list-style-type: none"> List the ascending tracts of the spinal cord 	<ul style="list-style-type: none"> Snell's Clinical Neuroanatomy 8th Edition, pg no. 131-182

Ascending tracts & Descending tracts	<ul style="list-style-type: none"> • Tabulate the sensation, receptor, first to third order neurons, pathways and destinations • Describe and illustrate the pathways of lateral spinothalamic tract, anterior spinothalamic tract, anterior spinocerebellar tract and posterior spinocerebellar tracts • Describe and illustrate the pathways of spinotectal tract, spinoreticular tract and spino-olivary tracts • Describe the anatomical basis of the signs and symptoms in lesions of the ascending tracts 	<ul style="list-style-type: none"> • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9zhttps://link.springer.com/chapter/10.1007/978-1-4684-7688-0_7
Medulla Oblongata, Pons & Cerebellum	<ul style="list-style-type: none"> • Identify and describe gross features of medulla and identify them on gross specimen/model. • Identify and describe internal structure of medulla on cross sectional diagrams. • Identify and describe the gross features of Pons on a given specimen/model • Identify and describe internal structure of pons on cross sectional diagrams. • Identify and describe the gross features of cerebellum • Describe internal structure of gray and white matter of cerebellar cortex • Describe the cerebellar cortical mechanisms 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 185-247 • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9zhttps://link.springer.com/chapter/10.1007/978-1-61779-779-8_13
Midbrain and Diencephalon	<ul style="list-style-type: none"> • Identify and describe the gross features of Pons on a given specimen/model • Identify and describe internal structure of pons on cross sectional diagrams. • Describe the boundaries and relations of 4th ventricle • Describe the anatomical basis of trauma, cerebral aqueduct stenosis and vascular lesions of midbrain. 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 209, 363-372 • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9zhttps://link.springer.com/chapter/10.1007/978-3-319-60187-8_8
Cerebrum & Ventricular system	<ul style="list-style-type: none"> • Identify and describe the gross structure of thalamus, epithalamus and subthalamus • Enlist nuclei of thalamus, epithalamus & subthalamus and describe their functions • Identify and describe the functions of tuber cinereum and mamillary bodies • Describe the relations and boundaries of ventricles • Describe the formation of choroid plexus in ventricles 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 249-277, 436-462 • https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9zhttps://link.springer.com/article/10.1007/BF00344224https://www.tandfonline.com/doi/full/10.1080/10255840701492118

	<ul style="list-style-type: none"> • Explain the function, production, circulation, and absorption of cerebrospinal fluid • Explain the causes of overproduction and blockage of CSF 	
Canial Nerves 1-7	<ul style="list-style-type: none"> • Identify the nuclei and connections of CN 1,2,3,4,& 6 • Trace the pathway and perform reflexes associated with of CN 1,2,3,4,& 6 • Describe the anatomical basis of lesions of visual pathway and ophthalmoplegias • Identify the nuclei and connections of CN 5 & 7 • Trace the pathway and perform reflexes associated with of CN 5 & 7 • Describe the anatomical basis of upper and lower motor neuron lesion of CN 5 and trigeminal neuralgia 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 323-361 • https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9z • https://link.springer.com/referenceworkentry/10.1007/978-3-540-29678-2_1315
Cranial Nerves 8-12, Basal Ganglia, Limbic system and Reticular Formation	<ul style="list-style-type: none"> • Identify the nuclei and connections of CN 8-12 • Trace the pathway and perform reflexes associated with of CN 8-12 • Discuss the anatomical basis of vertigo, nystagmus, deafness, tinnitus, taste and gag reflex • Discuss the anatomical basis of paralysis of muscles supplied by accessory and hypoglossal nerves • Enlist components and connections of limbic system • Discuss functions of limbic system • Describe the connections of limbic system • Enlist components of reticular system • Discuss functions of reticular system • Describe the connections of reticular system • Discuss the anatomical basis of loss of consciousness, schizophrenia, Kluver-Bucy syndrome and temporal lobe dysfunction 	<ul style="list-style-type: none"> • Clinically Oriented Anatomy 9th Edition, pg no. 299-308, 310- 321, 323-361. • https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9z • https://link.springer.com/referenceworkentry/10.1007/978-3-540-29678-2_1315 • https://link.springer.com/book/10.1007/978-1-4615-1235-6

Physiology Self-Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
	<ul style="list-style-type: none"> • Classify somatic senses • Describe the sensory pathways for transmission of somatic sensations to central nervous system. 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Central and Peripheral Neurophysiology Section 02 (Chapter 08, Page 168)

Pathways for transmitting somatic signals	<ul style="list-style-type: none"> Enumerate sensations carried by dorsal column system and anterolateral system Describe the characteristics of transmission in the dorsal column medial lemniscal system and anterolateral system Compare and contrast dorsal column medial lemniscal system and anterolateral system 	<ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition. Neurophysiology (Chapter 03. Page 82) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 48, Page 601,609) https://youtu.be/432AD7JZnKE https://www.osmosis.org/learn/Somatosensory_pathways
Somatosensory cortex & lesions of Somatosensory cortex	<ul style="list-style-type: none"> Explain cortical mapping & association cortex Describe lesions of somatosensory areas Summarize role of thalamus in somatic sensations Interpret the importance of dermatomes 	<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition.(Chapter 48,Page 603) https://nba.uth.tmc.edu/neuroscience/m/s2/chapter04.html https://teachmeanatomy.info/neuroanatomy/pathways/ascending-tracts-sensory/
Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function	<ul style="list-style-type: none"> Describe general organization of autonomic nervous system Enumerate the functions of autonomic nervous system Describe sympathetic and parasympathetic nervous system Enumerate & explain their receptors, neurotransmitters & physiological effects Describe physiological anatomy & effects of adrenal medulla 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. (Chapter 13, Page 255,259) Physiology by Linda S. Costanzo 6th Edition. Autonomic Nervous System(Chapter 02. Page 47,59) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.The Central Nervous System (Chapter 11 Page 392) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 61, Page 763,765) https://www.kenhub.com/en/library/anatomy/autonomic-nervous-system https://youtu.be/j9pUItHAAhs 7 https://youtu.be/7pGKa-1tSJw https://youtu.be/gBOAYgMxq-Q
Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation	<ul style="list-style-type: none"> Briefly explain physiological actions of ANS, vasomotor tone, vagal tone & sympathetic stress response Draw a table showing autonomic effects on various body organs Briefly describe the pharmacology of autonomic nervous system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. (Chapter 13, Page 264) Physiology by Linda S. Costanzo 6th Edition. Autonomic Nervous System(Chapter 02. Page 55) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.The Central Nervous System (Chapter 11 Page 397)

		<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 61, Page 768) https://youtu.be/7pGKa-1tSJw https://www.kenhub.com/en/library/anatomy/autonomic-nervous-system https://www.diffen.com/difference/Parasympathetic_nervous_system_vs_Sympathetic_nervous_system
Blood brain barrier, Blood CSF Barrier, Lumber puncture	<ul style="list-style-type: none"> Describe briefly the physiological anatomy of cerebral blood flow Explain cerebrospinal fluid system Describe the CSF pressure, its measurement by lumbar puncture, & hydrocephalus Explain blood CSF barrier & BBB Describe brain edema 	<ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition. Neurophysiology (Chapter 03. Page 113) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 62, Page 777-784) https://youtu.be/f9xi1Rf5m9w https://www.sciencedirect.com/topics/neuroscience/blood-cerebrospinal-fluid-barrier
Limbic system, Functions of hypothalamus	<ul style="list-style-type: none"> Describe the concept of limbic system 	<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition https://youtu.be/h3K9RfGw8sI https://www.endocrineweb.com/endocrinology/overview-hypothalamus
Learning and memory	<ul style="list-style-type: none"> Define memory & classify its various types Describe role of synaptic inhibition and synaptic facilitation in memory Explain mechanism of short term, intermediate and long-term memory Describe mechanism of consolidation of memory Enumerate specific parts of brain involved in memory Explain the role of each part 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 15, Page 283) Physiology by Linda S. Costanzo 6th Edition.(Chapter 03. Page 112) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.The Central Nervous System (Chapter 09 Page 332) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 58, Page 735) https://youtu.be/EqdsQDM5Fys https://www.sciencedirect.com/topics/psychology/learning-and-memory
Concept of Association areas,	<ul style="list-style-type: none"> Draw association areas of brain Describe association areas of brain regarding their physiological role Explain briefly the clinical features, if the association areas become damaged 	<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 58, Page 727) https://my.clevelandclinic.org/health/articles/23073-

Concept of Dominant and non-dominant cerebral hemispheres	<ul style="list-style-type: none"> Describe concept of dominant hemisphere Enlist role of parietooccipito temporal cortex in non-dominant hemisphere 	cerebral-cortex https://youtu.be/2Z425-CHY1c
Speech and aphasia	<ul style="list-style-type: none"> Describe sensory and motor aspects of communication Define Wernicke's aphasia, Motor aphasia & Global aphasia Explain Wernicke's aphasia, Motor aphasia & Global aphasia Describe function of corpus callosum & anterior commissure in transferring information between two cerebral hemispheres 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. (Chapter 15, Page 290,293) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 70, Page 1211) https://www.sciencedirect.com/science/article/abs/pii/S0021992422000892 https://www.stroke.org.uk/what-is-aphasia/types-of-aphasia
EEG and epilepsy	<ul style="list-style-type: none"> Describe brain waves Enumerate different types of brain wave Explain the origin of different brain waves Describe EEG Define epilepsy Enumerate various types of epilepsy Explain various types of epilepsy Describe role of norepinephrine, serotonin and dopamine in psychotic disorders Describe the causes, symptoms & treatment of depression & bipolar disorder Discuss causes, types, symptoms and treatment of Schizophrenia Define Alzheimer's disease. Mention its causes, clinical features, incidence and treatment 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 14, Page 275) Physiology by Linda S. Costanzo 6th Edition.(Chapter 03. Page 42) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 70, Page 1209) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 60, Page 756) https://www.webmd.com/epilepsy/guide/types-epilepsy https://youtu.be/T7MKIPYiL48
Reticular activating system and sleep	<ul style="list-style-type: none"> Describe activating driving system of the brain Explain the reticular activating system Discuss the control of cerebral activity by signals from brain stem Explain neurohormonal system of the brain Define sleep and enumerate types of sleep Compare and contrast between two types of sleep Describe the basic theories of sleep in detail Explain physiological effects of sleep Describe sleep and wakefulness cycle 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 14, Page 269,272,278) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10 Page 344) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 70, Page 12031208) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 60, Page 753) https://youtu.be/TdGQvWAZ0Cs

		<ul style="list-style-type: none"> • https://www.physio-pedia.com/Reticular Formation
<p>Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity</p>	<ul style="list-style-type: none"> • Describe muscle spindle & Golgi tendon organ in detail • Explain the receptor function of the Muscle Spindle & Golgi tendon organ • Draw muscle spindle and Golgi tendon organ showing the sensory and motor innervation • Explain the dynamic and static response of muscle spindle & Golgi tendon organ • Briefly describe muscle stretch reflex • Draw the neuronal circuitry of the stretch reflex • Explain the static and dynamic components of stretch reflex • Discuss the clinical applications of stretch reflex • Explain negative stretch reflex • Explain lengthening reaction and its significance • Describe role of muscle spindle and Golgi tendon organ in voluntary muscle activity • Explain the role of alpha gamma co activation 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 12, Page 229,234) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 68, Page 476) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 55, Page 686,691) • https://www.osmosis.org/learn/Muscle_spindles_and_golgi_tendon_organs https://youtu.be/CzeAcc39Cyo
<p>Motor cortex & physiological importance of neocortex, Corticospinal or pyramidal tract, Extra pyramidal system</p>	<ul style="list-style-type: none"> • Briefly describe motor areas in cortex • Draw motor & somatic association areas of motor cortex • Explain functions of motor & somatic association areas • Explain allocortex & neocortex • Describe medial and lateral descending pathways • Explain transmission of signals from motor cortex to muscle • Draw course of pyramidal tract • Enlist the functions of pyramidal tract • Mention the effects of lesions in Corticospinal tract • Briefly describe extra pyramidal descending tracts • Describe rigidity and spasticity • Describe location and function of red nucleus 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 12, Page 237,240) • Physiology by Linda S. Costanzo 6th Edition.(Chapter 03. Page 110) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 56, Page 697) • https://www.physio-pedia.com/Extraparamidal_and_Pyramidal_Tracts https://youtu.be/B88BNYWVkWE

Basal Ganglia & Lesions	<ul style="list-style-type: none"> Describe physiological anatomy of basal ganglia Draw neuronal circuits of basal ganglia Explain the role of neuronal circuits in functioning of basal ganglia Enlist and explain the physiological role of neurotransmitters in basal ganglia system Enumerate the clinical abnormalities caused by damage to basal ganglia Briefly explain Parkinson disease regarding its causes, signs and symptoms & treatment Explain Huntington's Chorea regarding its causes, signs and symptoms 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 12, Page 243) Physiology by Linda S. Costanzo 6th Edition.(Chapter 03. Page 110) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 69, Page 1194) Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 57, Page 720) https://youtu.be/hxvep2Y8ShI https://www.sciencedirect.com/science/article/pii/S2214751923000026 https://teachmeanatomy.info/neuroanatomy/structures/basal-ganglia/
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Biochemistry Self-Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Chylomicron metabolism	<ul style="list-style-type: none"> Describe synthesis of chylomicron, its breakdown and factors affecting it 	<ul style="list-style-type: none"> Lippincott Biochemistry Chapter. 18 page 253 https://www.ncbi.nlm.nih.gov/books/NBK305896/
HDL & LDL metabolism	<ul style="list-style-type: none"> Explain composition functions and clinical significance of LDL & HDL Illustrate mechanism of revise cholesterol synthesis 	<ul style="list-style-type: none"> Lippincott Biochemistry Chapter. 18 page 253 https://www.alilamedicalmedia.com/-/g...
Fatty acid oxidation	<ul style="list-style-type: none"> Describe steps enzymes energy calculation of Beta oxidation of saturated fatty acid 	<ul style="list-style-type: none"> Lippincott Biochemistry Chapter. 16 page 213 https://ninjanerd.org

Synthesis &Interconversion of Ketone Bodies, Regulation of Ketogenesis, Ketolysis	<ul style="list-style-type: none"> • Explain synthesis and breakdown of ketone bodies and related disorders 	<ul style="list-style-type: none"> • Lippincott Biochemistry Chapter. 27 page 411 • https://youtu.be/GuSqOsm3QV8
Synthesis of Cholesterol and its regulation	<ul style="list-style-type: none"> • Describe steps regulation and related disorders of cholesterol synthesis 	<ul style="list-style-type: none"> • Lippincott Biochemistry Chapter. 18 page 244 • https://youtu.be/y9zsDFdMvZY

Histology Practicals Skill Laboratory (SKL)

Practical	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Ganglia	• Identify the microscopic features of ganglia	P	Skills lab	OSPE VIVA
	• Illustrate histological picture of ganglia	C2		
	• List two points of identification	C1		
Peripheral nerve	• Identify the microscopic features of peripheral nerve on given histological slide	P	Skills lab	OSPE VIVA
	• Illustrate histological picture of peripheral nerve	C2		
	• List two points of identification	C1		
Spinal cord	• Identify histological slide of spinal cord	P	Skills lab	OSPE VIVA
	• Illustrate histological picture of spinal cord	C2		
	• List two points of identification	C1		
Cerebellum	• Identify the microscopic features of cerebellum	P	Skills lab	OSPE VIVA
	• Illustrate histological picture of cerebellum	C2		
	• List two points of identification	C1		

Physiology Practicals Skill Laboratory (SKL)

Practical	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Examination of sensory nervous system	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A, P		
	• Precautions	P		
	• Recall sensations transmitted by sensory pathways	C1		
	• Recall the effects of lesions of these pathways	C1		
	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		

Examination of motor nervous system	• Procedure	A,P		
	• Precautions	P		
	• Recall descending pathways & their functions	C1		
	• Recall effects of lesions of these pathways	C1		
Examination of cerebellar System	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Recall functions of cerebellum & effects of lesions of cerebellum/	C3		
Ophthalmoscopy	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Clinical Correlation	C1		
Determination of Eye field	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Clinical Correlation	C3		
Recording of body temperature	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Record oral, axillary & rectal temperature	C1		
	• Recall abnormalities of body temperature	C1		
Examination of superficial & deep reflexes	• Apparatus identification	C1	Skill lab	OSPE
	• Principle	C1		
	• Procedure	A,P		
	• Precautions	P		
	• Recall reflex arc	C1		

	<ul style="list-style-type: none"> Recall effects of UMNL & LMNL on reflexes 	C1		
Examination of 3 rd , 4 th & 6 th cranial nerves	<ul style="list-style-type: none"> Apparatus identification 	C1	Skill lab	OSPE
	<ul style="list-style-type: none"> Principle 	C1		
	<ul style="list-style-type: none"> Procedure 	A,P		
	<ul style="list-style-type: none"> Precautions 	P		
	<ul style="list-style-type: none"> Recall functions & pathways of various cranial nerves 	C1		
	<ul style="list-style-type: none"> Recall effects of lesions of cranial nerves 	C1		
Examination of 5 th , & 7 th cranial nerves / Examination of 8 th , 9 th , 10, 11 th , 12 th cranial nerves	<ul style="list-style-type: none"> Apparatus identification 	C1	Skill lab	OSPE
	<ul style="list-style-type: none"> Principle 	C1		
	<ul style="list-style-type: none"> Procedure 	A,P		
	<ul style="list-style-type: none"> Precautions 	P		
	<ul style="list-style-type: none"> Recall functions & pathways of various cranial nerves 	C1		
	<ul style="list-style-type: none"> Recall effects of lesions of cranial nerves 	C1		

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Estimation of cholesterol	Perform cholesterol estimation	P	Skill Lab	OSPE
Estimation of Triglyceride	Perform triglyceride estimation	P	Skill Lab	OSPE
Estimation of HDL	Perform HDL estimation	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Case Based Learning Objectives (CBL)

Subject	Topic	At the End Of Lecture Students Should Be Able To	Learning Domain
Anatomy	• Cystic Astrocytoma of cerebellum	Apply basic knowledge of subject to study clinical case.	C3
	• Stroke	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• CVA	Apply basic knowledge of subject to study clinical case.	C3
	• Gullain Barr syndrome	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• IHD	Apply basic knowledge of subject to study clinical case.	C3
	• Respiratory Distress Syndrome	Apply basic knowledge of subject to study clinical case.	C3

Vertical Integration LGIS Pathology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Patterns of injury in nervous system	• Describe edema ,herniation and hydrocephalous	C2	LGIS	MCQ'S
	• Classify cerebrovascular diseases	C2		
	• Explain CNS trauma	C2		
	• Identify Congenital malformation	C1		
Diseases of myelin and neurodegenerative diseases	Students should be able to • describe the pathophysiology and histomorphology of Alzheimer's disease, Parkinson's Disease, Huntington's disease and Multiple sclerosis	C2	LGIS	MCQ'S
Meningitis	• Classify types of meningitis	C2	LGIS	MCQ'S
	• Enlist causes of meningitis	C1		
	• Describe lab diagnosis of meningitis	C2		
	• Enlist complication of meningitis	C2		

Pharmacology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to CNS Pharmacology	• List the major neurotransmitters in the CNS	C1	LGIS	MCQ
	• List the major classes of receptors for each of the primary neurotransmitters and their associated relevant disorders	C1		
	• Identify the special considerations associated with CNS drug delivery	C1		
	• Cite main drug groups acting on the CNS	C1		

Medicine

Topic	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Stroke	• Discuss pathophysiology, Blood supply of brain (Anterior and posterior Circulation), which part of brain supplied by various arteries, Physiology of brain pathways (Corticospinal and Corticobulbar pathways), Types of Stroke, clinical features, management	C1 C2	LGIS	MCQs
Spinal Cord and Peripheral Nervous system	• Various types of pathways and cells, Peripheral Nerves and neuromuscular junction, difference between upper and lower motor neurons, various types of Plegias (Paraplegia, Hemiplegia, Quadriplegia), Various types of neuropathies and myasthenia Gravis and discuss pathophysiology	C1 C2	LGIS	MCQs
Cerebellar Disorders	• Brain parts involved in Movement and Co-ordination, how movements are brought about, possible lesions and discuss pathophysiology, types of disorders, clinical features, management	C1 C2	LGIS	MCQs
Meningitis	• Define and discuss pathophysiology and discuss symptoms and signs	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe the management	C2		
Epilepsy and other convulsive disorders	• Define and discuss pathophysiology	C1	LGIS	MCQs
	• Discuss the causes	C2		

	<ul style="list-style-type: none"> Describe the management 	C2		
Encephalitis	<ul style="list-style-type: none"> Define and discuss and discuss pathophysiology, symptoms and signs 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> Discuss the causes 	C2		
	<ul style="list-style-type: none"> Describe the management 	C2		

Surgery

Topic	At The End Of This LGIS, Second Year MBBS Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Brain tumors	<ul style="list-style-type: none"> Classify Brain Tumors 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> Outline clinical features of brain tumors. Approach towards a SOL brain 	C1		
Brain abscess	<ul style="list-style-type: none"> Define Brain Abscess 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> Outline clinical features of brain abscess 	C1		
Head injury	<ul style="list-style-type: none"> Define head injury 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> Mechanism of Head injury 	C1		
	<ul style="list-style-type: none"> Clinical features of head injury 	C1		
	<ul style="list-style-type: none"> Glassgow coma Scale 	C1		
Poly trauma Patient	<ul style="list-style-type: none"> Define polytrauma 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> Describe triage 	C1		
	<ul style="list-style-type: none"> ATLS Protocol 	C1		

Obstetrics & Gynecology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Seizures during pregnancy(eclampsia/e pilepsy)	• Enumerate common neurological disorders during pregnancy (eclampsia, epilepsy)	C1	LGIS	MCQs
	• Understand neurological changes leading to eclampsia and epilepsy	C1		
	• Understand the effects of epilepsy and anti-epileptic drugs on mother and fetus	C1		
	• Comprehend the principles of management of epilepsy during pregnancy	C1		

Pediatrics

Topic	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Meningitis	Scenario of a patient with fever & fits		LGIS	MCQs
	• Define meningitis.	C1		
	• Discuss Epidemiology & Pathophysiology	C1		
	• Discuss Etiological organisms at different ages	C1		
	• Discuss Clinical features	C1		
	• Discuss Diagnosis & Management	C1		
	• Discuss Complications & prognosis	C1		
	• Discuss Prevention of meningitis	C1		
Cerebral Palsy	• Scenario of a Cerebral Palsy patient		LGIS	MCQs
	• Student will be able to know			
	• Discuss Brief anatomy of brain	C2		
	• Definition of cerebral palsy	C1		
	• Discuss Epidemiology	C2		
	• Discuss Etiology	C2		
	• Discuss Pathophysiology	C2		
	• Discuss Clinical presentation & anatomic classification of Cerebral Palsy	C2		

Polio	• Discuss Associated problems	C2	LGIS	MCQs
	• Discuss Management & Prevention	C2		
	• Scenario of a patient with acute flaccid paralysis	C1		
	• Student will be able to know	C1		
	• AFP definition	C1		
	• Discuss Etiology & Epidemiology of Polio	C2		
	• Discuss Pathogenesis	C2		
	• Discuss Clinical features	C2		
	• Discuss Management	C2		
	• Discuss Complications & sequel	C2		
	• Prevention – vaccination	C1		

Radiology

Practical	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Skull radio graph	• Interpret Normal Skull Radiograph	C1	LGIS	MCQs
	• Discuss fractures and other diseases with their clinical significance	C2		
CT- scan brain	• Interpret normal anatomical structures	C2	LGIS	MCQs
MRI & CT Scan	• List some indications for contrast enhanced MRI and CT	C1	LGIS	MCQs
CT scan	• Discriminate between a subdural and epidural hematoma at CT (4) Describe imaging signs of a subarachnoid hemorrhage	C2	LGIS	MCQs

ENT

Topic	At The End Of This LGIS, Second Year MBBS Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Acoustic neuroma	• Recognize signs and symptoms of acoustic neuroma	C1	LGIS	MCQs

Ophthalmology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Chalazion	<ul style="list-style-type: none"> Discuss in detail the clinical features and management 	C2	LGIS	MCQs
Strabismus	<ul style="list-style-type: none"> Discuss in detail the clinical features and management 	C2	LGIS	MCQs

Behavioral sciences

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Emotions	<ul style="list-style-type: none"> To be able to define emotions. 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> To understand the neuroanatomy and neurochemistry of emotion way to deal with emotion 	C2		
Memory	<ul style="list-style-type: none"> To be able to outline the types of memory. 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> To be able to explain the areas in brain responsible for memory storage and Retrieval 	C2		

Longitudinal Themes

Biomedical Ethics

Topics	At the end of session students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Ethical dilemmas in healthcare practice involving breach in principle of autonomy	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of autonomy. Explain what procedures adopted to maintain patient autonomy. Identify situations in which doctor may have to take decisions in the best interest of the patients 	C3 C2 C1	Short video demonstration on violation of Ethical principle of autonomy from suit CBEC Video resources	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks. (Internal Assessment) Assignment to be uploaded on LMS
Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence Explain what procedures adopted to maintain the principle of beneficence and non-maleficence in challenging situations Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of beneficence and non-maleficence 	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students deliberations and reflections Reflective writing	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks (Internal Assessment) Assignment to be uploaded on LMS
Ethical dilemmas practice involving breach in principle of justice	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of justice Explain what procedures adopted to maintain the principle of justice in challenging situations Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of justice 	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students deliberations and reflections Reflective writing	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks (Internal Assessment) Assignment to be uploaded on LMS

Integrated Undergraduate Research Curriculum (IUGRC)

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Data entry and coding in SPSS File	<ul style="list-style-type: none"> How to generate a research question according to FINER Criteria 	C3	LGIS-1	MCQs
	<ul style="list-style-type: none"> Formulate the research question according to PICOT format – problem/population, intervention, comparison, outcome and time frame 			
	<ul style="list-style-type: none"> To understand how a properly formulated research question is related to an efficient literature review 			
	<ul style="list-style-type: none"> Development of research protocol including research objectives 			

Family Medicine

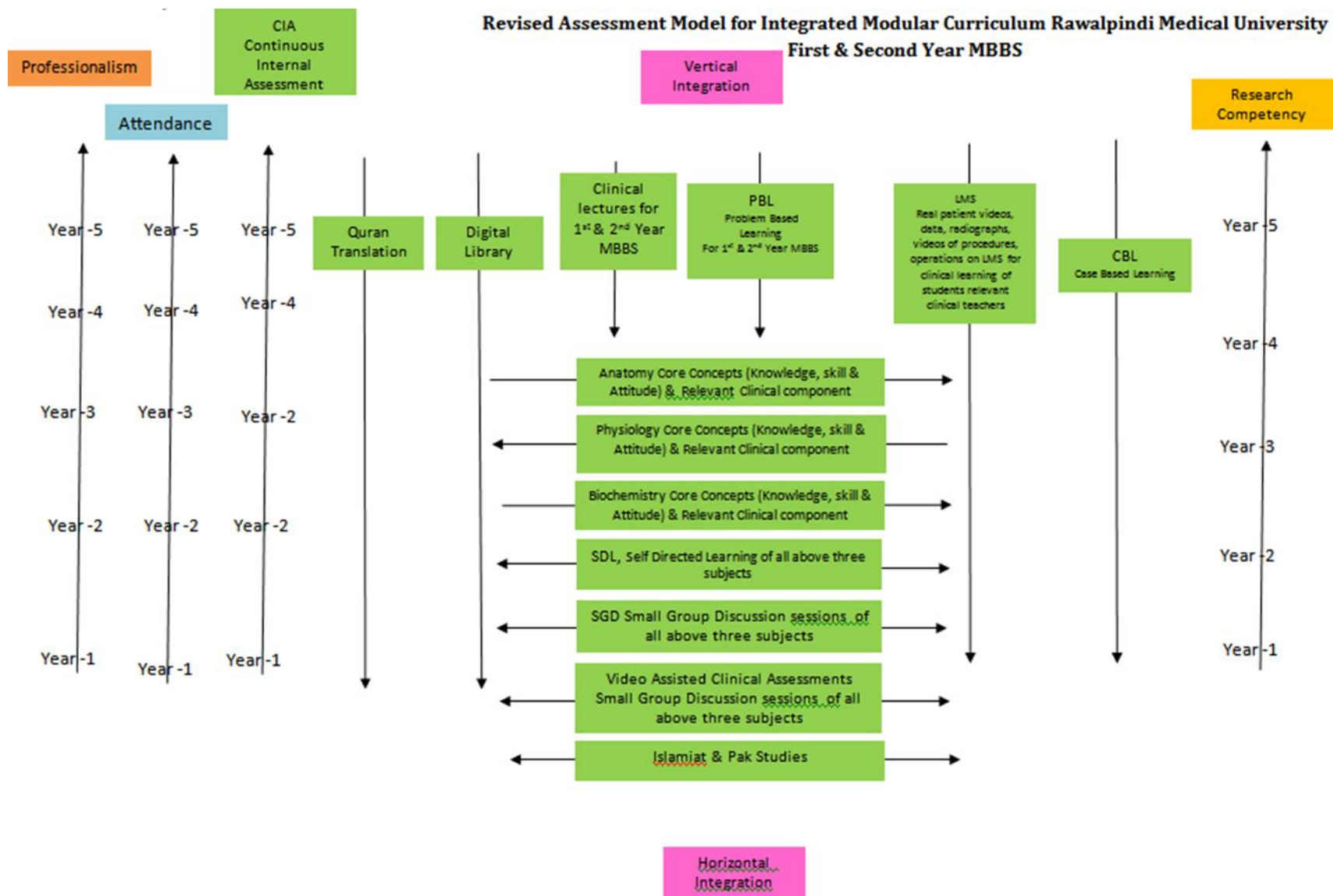
Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Approach to a patient with headache	<ul style="list-style-type: none"> Describe presenting complains of patients with Headache 	C3	LGIS-1	MCQs
	<ul style="list-style-type: none"> Discuss complications of Headache 			
	<ul style="list-style-type: none"> Describe initial treatment of patients with Headache 			
	<ul style="list-style-type: none"> Know when to refer patient to consultant/ Hospital 			

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in CNS Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in CNS Module

Block	Sr #	Module CNS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy,Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	<p>A. Neuroanatomy</p> <ol style="list-style-type: none"> 1. Snell's Clinical Neuroanatomy by Rayan Splittgerber 9th Edition. <p>B. Gross Anatomy</p> <ol style="list-style-type: none"> 2. Gray's Anatomy By Prof. Susan Standring 42th Edition, Elsevier. 3. Clinical Anatomy For Medical Students By Richard S.Snell 10th Edition. 4. Clinically Oriented Anatomy By Keith Moore 9th Edition. 5. Cunningham's Manual Of Practical Anatomy By G.J. Romanes, 16th Edition, Vol-I, Ii And Iii <p>C. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th Edition. 2. Medical Histology By Prof. Laiq Hussain 7th Edition. <p>D. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th Edition. 2. Langman's Medical Embryology 14th Edition. <p>E. YouTube Links</p> <ol style="list-style-type: none"> 6. https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9z 7. https://www.youtube.com/watch?v=Z3fLmpepJfg&list=PLmzZnYRTmRK8BTd1iJtzry0WhOYkpca0g 8. https://www.youtube.com/watch?v=q8NtmDrb_qo&pp=ygULY25zIGFuYXRvbXk%3D 9. https://www.youtube.com/watch?v=ADAOsuaOSCk&list=PLTF9h-T1TcJgx3OFachdjHPMX6VE4VDS1 <p>F. HEC Digital Library Links</p> <ol style="list-style-type: none"> 10. https://link.springer.com/chapter/10.1007/978-981-15-7771-0_3 11. https://link.springer.com/chapter/10.1007/978-1-4684-7688-0_7 12. https://link.springer.com/chapter/10.1007/978-1-61779-779-8_13 13. https://link.springer.com/chapter/10.1007/978-3-319-60187-8_8 14. https://link.springer.com/article/10.1007/s00701-013-1937-0 15. https://link.springer.com/article/10.1007/BF00344224 <p>G. Journal Links</p> <ol style="list-style-type: none"> 1. https://www.tandfonline.com/doi/abs/10.3109/02688699308995089 2. https://www.tandfonline.com/doi/full/10.1080/10255840701492118 3. https://link.springer.com/referenceworkentry/10.1007/978-3-540-29678-2_1315 1. https://link.springer.com/book/10.1007/978-1-4615-1235-6

Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook Of Medical Physiology by Guyton And Hall.14th edition 2. Ganong’s Review of Medical Physiology.25TH Edition <p>B. Reference books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Berne & Levy Physiology 7th edition. <p>C. Internet References</p> <ol style="list-style-type: none"> 1. https://www.ncbi.nlm.nih.gov/books/NBK539861/ 2. https://teachmephysiology.com/nervous-system/sensory-system/pain-pathways/ 3. https://www.osmosis.org/learn/Somatosensory_pathways 4. https://www.kenhub.com/en/library/anatomy/autonomic-nervous-system 5. https://www.diffen.com/difference/Parasympathetic_nervous_system_vs_Sympathetic_nervous_system <p>D. HEC Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/topics/neuroscience/synaptic-transmission 2. https://nba.uth.tmc.edu/neuroscience/m/s2/chapter04.html 3. https://www.sciencedirect.com/topics/neuroscience/blood-cerebrospinal-fluid-barrier 4. https://www.sciencedirect.com/science/article/abs/pii/S0021992422000892 <p>E. Youtube links</p> <ol style="list-style-type: none"> 1. https://youtu.be/AG7Ev2hJGFk 2. https://youtu.be/cZwb8zqAPXc 3. https://youtu.be/5c8maFAhqIc 4. https://youtu.be/432AD7JZnKE 5. https://youtu.be/j9pUItHAAhs 6. https://youtu.be/7pGKa-1tSJw 7. https://youtu.be/gBOAYgMxq-Q 8. https://youtu.be/DPHoTicFfLs <p>F. Journal of Physiology</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/abs/pii/S0021992422000892 2. https://www.sciencedirect.com/topics/psychology/learning-and-memory 3. https://www.physio-pedia.com/Reticular_Formation 4. https://www.sciencedirect.com/science/article/pii/S2214751923000026
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Biochemistry	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lehninger Principle of Biochemistry 8th edition. 3. Biochemistry by Devlin 7th edition. <p>B. Website</p> <ol style="list-style-type: none"> 1. https://www.alilamedicalmedia.com/-/g... 2. https://ninjanerd.org <p>C. Youtube</p> <ul style="list-style-type: none"> • https://youtu.be/GuSqOsm3QV8 • https://youtu.be/y9zsDFdMvZY <p>D. HEC Library and Journals</p> <p>https://www.ncbi.nlm.nih.gov/books/NBK305896/</p>
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SECTION - V

Time Table

Clinically Oriented Integrated Modular Curriculum for Second Year MBBS

CNS Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

CNS Module Team

Module Name : CNS Module
 Duration of module : 06 Weeks
 Coordinator : Dr. Arsalan Manzoor Mughal
 Co-coordinator : Dr. Gaiti Ara
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Arsalan Manzoor Mughal
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Gaiti Ara (APWMO)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Shazia Nosheen (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar	DME Implementation Team		
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Discipline wise Details of Modular Contents

Subjects	Embryology	Histology	General & Gross Anatomy
<ul style="list-style-type: none"> Anatomy 	Embryology/Development <ul style="list-style-type: none"> Early CNS Development Spinal Cord Hindbrain & Cerebellum Midbrain Forebrain Peripheral Nervous System 	Histology <ul style="list-style-type: none"> Ganglia Peripheral Nerves Spinal Cord Cerebellum Cerebrum 	<ul style="list-style-type: none"> General Anatomy of Nervous System General Anatomy of Autonomic Nervous System Anterior, Middle & Posterior cranial fossae Meninges, Dural venous sinuses, and intracranial hemorrhages Spinal cord & Tracts Brain stem (Medulla oblongata, Pons, cerebellum & Midbrain) Diencephalon Cerebrum CSF and Ventricular System Cranial nerves Basal ganglia Limbic system & Reticular formation Blood Supply of Brain Radiological Imaging of CNS
<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Fatty acid metabolism Cholesterol Metabolism Ketone bodies metabolism Lipoproteins and Phospholipids 		
<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Organization of nervous system, Mechanism of synaptic transmission Classification of sensory receptors, Properties of sensory receptors Properties of synaptic transmission Physiology of pain, Dual pathway for transmission of pain, Analgesia System and Thermal sensations Sensory pathways for transmitting somatic signals Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function Somatosensory cortex & lesions of Somatosensory cortex Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation CSF, Blood brain barrier, Blood CSF Barrier, Lumber puncture Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres Limbic system, Functions of hypothalamus 		

	<ul style="list-style-type: none"> • Speech and aphasia • Learning and memory • Reticular activating system and sleep • EEG and epilepsy • Introduction to motor nervous system & Reflex action, Conditioned reflexes & Properties of reflex action, Control of spinal cord reflexes by higher centers • Introduction to cerebellum, Neuronal circuits of cerebellum, and its motor functions • Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity
• Research Club Activity	• Data entry and coding in SPSS File
• Bioethics & Professionalism	<ul style="list-style-type: none"> • Ethical dilemmas in healthcare practice involving breach in principle of autonomy • Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence • Ethical dilemmas practice involving breach in principle of justice
• Radiology & Artificial Intelligence	<ul style="list-style-type: none"> • Skull radiograph • CT Scan & MRI
• Family Medicine	• Approach to a patient with headache
• Behavioral Sciences	<ul style="list-style-type: none"> • Emotions • Memory
• Vertical components	• The Holy Quran Translation Component
• Vertical Integration	<p>Clinically content relevant to CNS module</p> <ul style="list-style-type: none"> • Introduction to CNS (pharmacology) • Patterns of injury in nervous system (Pathology) • Meningitis (Pathology) • Meningitis (Pediatrics) • Spinal injury and head injury (Surgery) • Management of hydrocephalus (Surgery) • Brain abscess (Surgery) • Polytrauma patient (Surgery) • Spinal cord and peripheral nervous system (Medicine) • Encephalitis (Medicine) • Cerebellar disorders (Medicine) • Epilepsy and other convulsive disorders (Medicine) • Stroke (Medicine) • Seizures during pregnancy (eclampsia/ epilepsy) (Gynecology & Obs) • Cerebral palsy, Polio (Pediatrics)

Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
Special Embryology	Special Histology	Demonstrations / SGD	CBL	Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> • Early CNS Development • Spinal Cord • Hindbrain & Cerebellum • Midbrain • Forebrain • Peripheral Nervous System 	<ul style="list-style-type: none"> • Ganglia • Peripheral Nerves • Spinal Cord • Cerebellum • Cerebrum 	<ul style="list-style-type: none"> • General Anatomy of Nervous System • General Anatomy of Autonomic Nervous System • Anterior, Middle & Posterior cranial fossae • Meninges, Dural venous sinuses, and intracranial hemorrhages • Spinal cord & Tracts • Brain stem (Medulla oblongata, Pons, cerebellum & Midbrain) • Diencephalon • Cerebrum • CSF and Ventricular System • Cranial nerves • Basal ganglia • Limbic system & Reticular formation • Blood Supply of Brain • Radiological Imaging of CNS 	<ul style="list-style-type: none"> • Cystic Astrocytoma of cerebellum • Stroke 	<ul style="list-style-type: none"> • Ganglia • Peripheral Nerves • Spinal Cord • Cerebellum • Cerebrum 	<ul style="list-style-type: none"> • Anterior, Middle & Posterior cranial fossae • Meninges, Dural venous sinuses, and intracranial hemorrhages • Spinal cord & Tracts • Brain stem (Medulla oblongata, Pons, cerebellum & Midbrain) • Diencephalon • Cerebrum • CSF and Ventricular System • Cranial nerves • Basal ganglia • Limbic system & Reticular formation • Blood Supply of Brain • Radiological Imaging of CNS

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	03
3.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$9 \times 2 = 18$ hours
2.	Small Group Discussions (SGD)	$22 \times 1 = 22$ hours
3.	Practical / Skill Lab	$1 \times 5 = 5$ hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 \times 9 = 9$ hours
2.	Small Group Discussions (SGD)	$2 \times 22 = 44$ hours
3.	Practical / Skill Lab	$1.5 \times 5 = 7.5$ hours
4.	Self-Directed Learning (SDL)	$2 \times 10 = 20$ hours

Physiology

Category A & B*		Category C***			
LGIS	PBL	CBL	Practical's	SGD	SDL
<ul style="list-style-type: none"> Organization of nervous system, Mechanism of synaptic transmission Classification of sensory receptors, Properties of sensory receptors Properties of synaptic transmission Physiology of pain, Dual pathway for transmission of pain, Analgesia System and Thermal sensations Sensory pathways for transmitting somatic signals Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function Somatosensory cortex & lesions of Somatosensory cortex Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation CSF, Blood brain barrier, Blood CSF Barrier, Lumber puncture Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres Limbic system, Functions of hypothalamus Speech and aphasia Learning and memory Reticular activating system and sleep EEG and epilepsy Introduction to motor nervous system & Reflex action, Conditioned reflexes & Properties of 		<ol style="list-style-type: none"> CVA Gullain Barr syndrome 	<ol style="list-style-type: none"> Examination of sensory nervous system Examination of Motor System Examination of Cerebellar System Opthalmoscopy Determination of field of vision 	<ol style="list-style-type: none"> Synapse & sensory Receptors Autonomic Nervous System Motor nervous system , muscle spindle and Golgi tendon organ Motor Nervous System Basal Ganglia & limbic system Analgesia system Cerebellum 	On Campus: <ol style="list-style-type: none"> Sensory pathways for transmitting somatic signals Somatosensory cortex & lesions of Somatosensory cortex Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation CSF, Blood brain barrier, Blood CSF Barrier, Lumber puncture Limbic system, Functions of hypothalamus Learning and memory Concept of Association areas, Concept of Dominant and nondominant cerebral hemispheres Speech and aphasia EEG and epilepsy Reticular activating system and sleep Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity Motor cortex & physiological importance of neocortex, Corticospinal or pyramidal tract,

reflex action,Control of spinal cord reflexes by higher centers • Introduction to cerebellum, Neuronal circuits of cerebellum, • and its motor functions • Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity • Manifestations of cerebellar disease • Polysynaptic reflexes & Transection of spinal cord, • Role of brain stem in controlling motor functions & Lesions of motor system • Motor cortex & physiological importance of neocortex, Corticospinal or pyramidal tract, Extra pyramidal system • Basal Ganglia & Lesions					Extra pyramidal system 19. Basal Ganglia & Lesions
					Off Campus: 1. Organization of nervous system 2. Classification of sensory receptors 3. Sensory pathways for transmitting somatic signals 4. Physiology of pain, Dual 5. pathway for 6. transmission of pain, 7. CSF, Blood brain barrier, Blood CSF Barrier, 8. Lumber puncture 9. Muscle spindle & 10. Golgi tendon organ, 11. Hypothalamus 12. Properties of reflex 13. action,Control of spinal cord 14. reflexes by higher centers 15. Reticular activating system 16. and sleep, EEG and epilepsy 17. Introduction to cerebellum, 18. Neuronal circuits of cerebellum 19. Basal Ganglia & Lesions

- Category A*: By Professors
- Category B**: By Associate & Assistant Professors
- Category C***: By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

Sr. #	Designation Of Teaching Staff / HumanResource	Total number ofteaching staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LECTURES)	1 x 22= 22 x 1 hour = 22 hours
2.	Small Group Discussions (SGD)/CBL	25 x 1.5 hour = 37.5+2= 39.5 hours
3.	Problem Based Learning (PBL)	---
4.	Practical / Skill Lab	25 x 1.5 hour = 37.5 hours
5.	Self-Directed Learning (SDL)	oncampus 14 x 1 hour = 14 hours off campus 11x1 = 11 hours

Biochemistry

Category A & B	Category C***			
LGIS	PBL	CBL	Practical's	SGD
<ul style="list-style-type: none">• Triglyceride Metabolism, Fatty acid transport• Oxidation of fatty acid• Oxidation of fatty acid• Fatty acid synthesis• Cholesterol Synthesis• Plasma Cholesterol level• Ketone bodies metabolism• Biosynthesis of Glycerophospholipid• Biosynthesis of sphingophospholipids• Introduction to Lipoproteins• LDL& HDL• Disorders of lipoprotein metabolism• Fatty liver & Adipose tissues• Disorders of lipoprotein metabolism		<ul style="list-style-type: none">• IHD• Respiratory Distress Syndrome	<ul style="list-style-type: none">• Estimation of cholesterol• Estimation of Triglyceride• Estimation of HDL	<ul style="list-style-type: none">• Triglycerides & F.A. oxidation• Fatty acid synthesis & cholesterol metabolism• Ketone bodies & Phospholipids• Lipoprotein (HDL)• Lipoprotein (VLDL, LDL)
Category A*: By HOD and Assistant Professor				
Category B**: By All (HOD, Assistant Professors, Senior Demonstrators)				
Category C***: (By All Demonstrators)				

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	06

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	$2 * 5 = 10$ hours	05
2.	Small Group Discussions (SGD)	$2.5 * 3 = 7.5$ hours	7.5
3.	Problem Based Learning (PBL)	$2*1= 2$ hours	2
4.	Practical / Skill Lab	$2.5 * 3 = 7.5$ hours	7.5
5.	Self-Directed Learning (SDL)	-----	04

CNS Module (First Week)
(05-06-2023 To 10-06-2023)

Date/Days	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)	
05-06-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Pharmacology		Break	SGD / Dissection	SDL Physiology Organization of nervous system, Mechanism of synaptic transmission	
			Organization of nervous system, Mechanism of synaptic transmission	Classification of sensory receptors &Properties of sensory receptors	General Anatomy Nervoussystem	Embryology Early development of CNS	Introduction to CNS pharmacology			Anterior and Middle Cranial Fossa		
			Dr. Shmyla (Even)	Prof..Dr. Samia / Dr. Kamil(Odd)	Prof. Dr. Ifra Saeed(Even)	Asst. Prof. Dr. Arsalan Manzoor(Odd)	Dr. Omaima Asif (even)	Dr Arsheen (odd)				
06-06-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Pathology			SGD / Dissection	SDL Physiology Classification of sensory receptors	
			Classification of sensory receptors &Properties of sensory receptors	Organization of nervous system, Mechanism of synaptic transmission	Embryology Early development of CNS	General anatomy Nervous system	Patterns of injury in nervous system			Posterior cranial fossa		
			Prof. Dr. Sami Sarwar/ Dr. Kamil (Even)	Dr. Shmyla (Odd)	Asst. Prof.Dr. Arsalan Manzoor(Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Nida Fatima (even)	DrKiran Ahmad (odd)				
07-06-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Behavioral Sciences		Anatomy (LGIS)		Biochemistry (LGIS)			Break	SGD / Dissection	SDL Biochemistry Chylomicron Metabolism
			Metacognition		Embryology Development of Spinal Cord	General Anatomy Autonomic Nervous System	Triglyceride Metabolism Transport	Introduction to Lipoproteins, chylomicrons, VLDL Metabolism			Meninges , Dural venous sinuses and intracranial hemorrhages	
			Dr. Zarnain Umar(even)	Dr. SadiaYasir(odd)	Asst. Prof .Dr. Arsalan Manzoor(Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)				
08-06-2023 Thursday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Biochemistry (LGIS)				SGD / Dissection	SDL Anatomy Posterior cranial fossa Dural venous sinuses and intracranial hemorrhages
			Properties of synaptic transmission	Physiology of Pain, dual Pathway for Transmission of pain, Analgesia system and thermal sensation	General anatomy Autonomic Nervous system	Embryology Development of Spinal Cord	Introduction to Lipoproteins, chylomicrons, VLDL Metabolism	Triglyceride Metabolism Transport			Spinal Cord	
			DrShmyla (Even)	Prof..Dr. Samia / Dr. Kamil (Odd)	Prof. Dr. Ifra Saeed (Even)	Asst. Prof. Dr. Arsalan Manzoor(Odd)	Dr. Isma (Even)	Dr. Aneela (Odd)				
09-06-2023 Friday	8:00am-9:00am		9:00am-10:00am		10:00am-11:00am		11:00am-12:00pm					
	Pediatrics		Physiology (LGIS)		Quran Translation		Quran Translation					
	Meningitis		Physiology of Pain, dual Pathway for Transmission of pain, Analgesia system and thermal sensation	Properties of synaptic transmission	Imaniyaat-5		Imaniyaat-6					
	Dr. Mamoona Qudrat(Even)	Dr. Tanzeela Rani(Odd)	Prof..Dr. Samia / Dr. Kamil (Even)	Dr.Shmyla (Odd)	Mufti Naeem Sherazi		Mufti NaeemSherazi(Even)					
10-06-2023 Saturday	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm		12:00pm – 2:00pm	
	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Pathology		Physiology SDL No. 1		Break		SGD / Dissection	SDL Amatomy Anterior And middle Cranial Fossa
			Sensory Pathways for transmitting Somatic Signals	Introduction to ANS ,Basic Characteristics of Sympathetic & Parasympathetic System	Meningitis		Sensory Pathways for Transmitting somatic Signals			Ascending Tracts and their clinicals		
			Dr.Fahd (Even)	Dr.Uzma (Odd)	Dr. Nida Fatima (even)	Dr. Kiran Ahmad (odd)	Dr. Fahd (Even)	Dr. Usman (Odd)				

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Peripheral Nerve (Anatomy Histology Practical) Venue-Histology laboratoryColor test for Sterols (Biochemistry practical)(Physiology Practical) Examination of sensory nervous system Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Synapse & sensory Receptors (Venue: Lecture Hall No 5)Biochemistry SGD: Triglyceride Metabolism (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	91-180	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 01	
Wednesday	E	D	B	C	A	C	181- 270	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 04	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sadia Baqir	Lecture Hall No.03 Anatomy Lecture Hall	
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romessa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Triglyceride Metabolism, Fatty acid Transport										
<ul style="list-style-type: none">Fatty Acid Oxidation I										

CNS Module (Second Week)

(12-06-2023 To 17-06-2023)

Date/Day		8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm - 12:20pm	12:00pm – 2:00pm		Home Assignments(2HRS)			
12-06-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Biochemistry (LGIS)		Physiology SDL No. 2				Break	SGD / Dissection		SDL Physiology Sensory pathways for transmitting somatic signals-II		
			Introduction to ANS ,Basic Characteristics of Sympathetic & Parasympathetic	Sensory Pathways for transmitting Somatic Signals	LDL, HDL metabolism	Fatty Acid Oxidation I	Somato Sensory Cortex & its Lesiouns					Descending Tracts and their clinicals				
			Dr. Uzma (Even)	Dr. Fahd (Odd)	Dr.Isma (Even)	Dr. Aneela (Odd)	Dr. Fahd (Even)	Dr. Ali Zain (Odd)								
13-06-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Biochemistry (LGIS)					SGD / Dissection		SDL Physiology Physiology of pain Dual pathway for transmission of pain		
			Somatosensory cortex and lesions of somatosensory cortex	Excitatory and inhibitory effects of sympathetic and parasympathetic stimulation	Histology Of spinal cord and peripheral nerve	Embryology Development of Rhombencephalon	Fatty acid oxidation I	LDL, HDL metabolism								
			Dr. Fahd (Even)	Dr. Uzma (Odd)	Asst. Prof. Dr. Maria Tasleem (Even)	Asst. Prof. Dr.Arsalan Manzoo(Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)								
14-06-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Surgery					SGD / Dissection		SDL Biochemistry HDL & LDL Metabolism		
			Excitatory and inhibitory effects of sympathetic and parasympathetic stimulation	Somatosensory cortex and lesions of somatosensory cortex	Embryology Development of Rhombencephalon	Histology Of spinal cord and peripheral nerve	Spinal injury and Head injury					Medulla Oblongata				
			Dr. Uzma (Even)	Dr. Fahd (Odd)	Asst. Prof. Dr. Arsalan Manzoor (Even)	Asst. Prof. Dr. Maria Tasleem (Odd)	Dr. Soban Sarwar Gondal(Even)	Dr. Usman Malik (Odd)								
15-06-2023 Thursday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Research Club Activity		Biochemistry (LGIS)					SGD / Dissection		SDL Anatomy Meninges, Spinal ,cord		
			Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres	CSF, Blood Brain Barrier Blood CSF Barrier, Lumbar puncher			Hyperlipidemia And Fatty Liver	Fatty acid oxidation II								
			Dr. Shazia (Even)	Dr. Maryam (odd)	Reseach team 2		Dr. Isma (Even)	Dr. Aneela (Odd)								
16-06-2023 Friday	8:00am-900am		9:00am-10:00am		10:00am-11:00am		11:00am-12:00pm									
	Medicine		Physiology (LGIS)		Radiology		SGD/DISSECTION									
	Spinal cord and peripheral nervous system		CSF, Blood Brain Barrier Blood CSF Barrier, Lumbar puncher	Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres	Skull Radiograph		Midbrain									
	Dr Javeria Malik(Even)	Dr Riffat (even)	Dr .Maryam (Even)	Dr. Shazia (odd)	Dr Riffat (even)	Dr Saba (Odd)										
Date/Day		8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm - 12:20pm	12:00pm – 2:00pm					
17-06-2023 Saturday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (SGD)		Anatomy (LGIS)		Obs & Gynae				Break	Pakstudies/Isl				SDL Anatomy Ascending tracts & Descending tracts
			Analgesia system		Histology of cerebellum	Embryology Development of Mesencephalon & Prosencephalon	Seizures during pregnancy(eclampsia/epilepsy)					musawat	Tehreek-e- Pakistan (1940-1947)	Tehreek-e-Pakistan (1940-1947)	musaw at	
			PBL Team - 2										QariAmanUllah (Odd)	QariAman Ullah (Even)	Mufti Naem (Odd)	
			Asst. Prof. Dr. Maria Tasleem (Even)	Asst. Prof. Dr. Arsalan Manzoor (Odd)	Dr Ismat Batool (Even)	Dr Sadia Waheed (Odd)		Mufti Naem (Odd)	QariAmanUllah (Odd)	QariAman Ullah (Even)		Mufti Naem (Odd)				

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">(Anatomy Histology Practical) Peripheral Nerve Venue-Histology laboratory(Biochemistry Practical) Detection of Cholesterol Crystals(Physiology Practical) Examination of Motor System Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Autonomic Nervous System (Venue: Lecture Hall No 5)Biochemistry SGD: Fatty Acid Oxidation (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	Batch – A	01-70	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	Batch –B	71-140	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 01	
Wednesday	E	D	B	C	A	Batch – C	141-210	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 04	
Thursday	B	A	D	E	C	Batch –D	211-280	Dr. Sadia Baqir	Lecture Hall No.03 Anatomy Lecture Hall	
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	New Lecture Hall complex no.01			Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04			Dr. Shazia Nosheen	2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)			Dr. Kamil	3.	Batch – C	141-210	Dr. Romessa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Conference room (Basement)			Dr. Iqra Ayub (PGT Physiology)	4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04 (Basement)			Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05 (Basement)			Dr. Maryam (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)			Dr. Ali Raza (PBL) Dr. Ismail (SGD)					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)			Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)			Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology			Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)					
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Hyperlipidemia And Fatty Liver										

CNS Module (Third Week)
(19-06-2023 TO 24-06-2023)

Date/Day	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 12:20pm	12:00pm – 2:00pm		Home Assignments(2HRS)
19-06-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Anatomy (LGIS)		Physiology SDL No. 3		Break	SGD / Dissection		SDL Physiology CSF, BBB, Blood CSF Barrier, LP
			Speech and aphasia	Limbic system, Functions of hypothalamus	Embryology Development of Mesencephalon & Prosencephalon	Histology of cerebellum	CSF, BBB, Blood CSF Barrier, Lumbar puncher					
			Dr. Shazia (Even)	Dr. Maryam (Odd)	Asst. Prof. Dr. Arsalan Manzoor (Even)	Asst. Prof. Dr. Maria Tasleem (Odd)	Dr. Maryam (Even)	Dr. Iqra (odd)				
20-06-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Biochemistry (LGIS)		Physiology SDL No. 4			SGD / Dissection		SDL Physiology Muscle spindle & Golgi tendon organ
			Limbic system, Functions of hypothalamus	Speech and aphasia	Hyperlipidemia & Fatty Liver	Fatty acid Oxidation-II	Introduction to ANS					
			Dr. Maryam (Even)	Dr. Shazia (Odd)	Dr. Isma (Even)	Dr. Aneela (Odd)	Dr. Uzma (Even)	Dr. Najam us Sehar (Odd)				
21-06-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Biochemistry (LGIS)		Physiology SDL No. 5			SGD / Dissection		SDL Biochemistry Fatty acid oxidation
			Learning & Memory	Reticular Activating System & Sleep	Fatty acid synthesis	Cholesterol synthesis and regulation, hypercholesterolemia	Limbic System & function of Hypothalamus					
			Dr. Maryam (Even)	Dr. Fahd (Odd)	Dr Aneela (Even)	Dr. Isma (Odd)	Dr. Maryam (Even)	Dr. Iqra (Odd)				
22-06-2023 Thursday	Practical & CBL/SGD Topics & Venue Mentioned at the end		Physiology (LGIS)		Biochemistry (LGIS)		Medicine (LGIS)			SGD / Dissection		SDL Anatomy Medulla Oblongata & Pons & Cerebellum
			Reticular Activating System & Sleep	Learning & Memory	Cholesterol synthesis and regulation, hypercholesterolemia	Fatty acid synthesis	Cerebellar disorders					
			Dr. Fahd (Even)	Dr. Maryam (Odd)	Dr. Aneela (Even)	Dr Isma (Odd)	Dr Javieria Malik(Even)	Dr Faran Maqbool(Odd)				
23-06-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00– 11:00AM		11:00AM – 12:00PM					
	Biochemistry (LGIS)		Physiology (LGIS)		SGD / Dissection							
	Metabolism of Glycerophospholipids and siphonophore lipid	Ketone body metabolism	EEG & Epilepsy	Introduction to Moto Nervous System & reflex action, Conditional Reflexes & Its Properties, Control of Spinal cord Reflexes by Higher Centers	Dissection							
	Dr. Isma (Even)	Dr. Aneela (Odd)	Dr. Maryam (Even)	Dr Sidra (Odd)								
Date/Day	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am - 12:00pm		12:00pm – 12:20pm	12:00pm – 12:20pm		
24-06-2023 Saturday	Practical & CBL/SGD		Physiology (LGIS)		Surgery		Medicine		B	Isl & Pakst	Isl & Pakst	SDLAnatomy Diencephalon

	Topics & Venue Mentioned at the end											*Online SDL Evaluation
		EEG & Epilepsy	Introduction to Moto Nervous System & reflex action, Conditional Reflexes & Its Properties, Control of Spinal cord Reflexes by Higher Centers	Management of hydrocephalus		Epilepsy and other convulsive disorders			Khwateen k hakook	Qayam e Pakistan , ibtidaim ushkilaat	Qayam e Pakistan, ibtidaimus hkilaat	Khwateen k hakook
		Dr Sidra (Even)	Dr. Maryam (Odd)	Dr. Fraz Mehmood (Even)	Dr. Ammad ul Haq (Odd)	Dr Javeria Malik (Even)	Dr Faran Maqbool (Odd)		Mufti NaemSherai (Even)	QariAm anUllah (Odd)	QariAman Ullah(Even)	Mufti NaemSherai (Odd)

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">(Anatomy Histology Practical) Spinal Cord Venue-Histology laboratory(Biochemistry Practical) Estimation of serum TAGS(Physiology Practical) Examination of Cerebellar System Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGDs: Motor nervous system, muscle spindle and Golgi tendon organ (Venue: Lecture Hall No 5)Biochemistry CBL: Respiratory Distress syndrome (Venue: Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	Batch – A	01-70	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	Batch –B	71-140	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 01	
Wednesday	E	D	B	C	A	Batch – C	141-210	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 04	
Thursday	B	A	D	E	C	Batch –D	211-280	Dr. Sadia Baqir	Lecture Hall No.03 Anatomy Lecture Hall	
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romessa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Conference room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05 (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Fatty acid synthesis										
<ul style="list-style-type: none">Ketone body metabolism										

26th June,2023 To 22nd July, 2023

Summer Vacations &
Eid Ul Azha Holidays

CNS Module (Fourth Week)

(24-07-2023 To 29-07-2023)

Date/Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)		
24-07-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology SDL No. 6		Anatomy (LGIS)		PBL Session-II	Break	SGD / Dissection	SDL Physiology Hypothalamus
		EEG & Epilepsy		Histology of Cerebrum	Embryology Development of Peripheral and Autonomic Nervous System	PBL Team		Lateral ventricle, Ventricular system, CSF and Blood Brain Barrier	
		Dr Maryam (Even)	Dr. Iqra (Odd)	Asst. Prof. Dr.Maria Tasleem (Even)	Asst. Prof. Dr.Arsalan Manzoor (Odd)				
25-07-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology SDL No 7		Anatomy (LGIS)		Medicine		SGD / Dissection	SDL Physiology Properties of reflex action, Control of spinal cord reflexes by higher centers
		Reticular Activating System & Sleep		Embryology Development of Peripheral and Autonomic Nervous System	Histology of Cerebrum	Encephalists		Cranial nerves-I,II,II,IV,VI	
		Dr Fahd (Even)	Dr. Ali Zain (Odd)	Asst. Prof. Dr. Arsalan Manzoor(Even)	Asst. Prof. Dr. Maria Tasleem(Odd)	Dr Javeria Malik (Even)	Dr Faran Maqbool(Odd)		
26-07-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology SDL No 8		Biochemistry SDL		Radiology	SGD / Dissection	SDL Biochemistry Synthesis &Interconversion of Ketone Bodies (diagrammatically) Regulation of Ketogenesis Ketolysis	
		Motor Cortex & Physiological Importance of Neocortex, Cortico Spinal or pyramidal Tract Extra Pyramidal System		Glycerophospholipids & Sphingolipids	CT Scan and MRI (Brain and Spinal Cord)		Cranial nerves-V,VII		
		Dr Maryam (Even)	Dr Iqra (Odd)		Dr Anum Zahoor (even)	Dr Faisal (odd)			
27-07-2023 THURSDAY	Practical & CBL/SGD Topics & Venue Mentioned at the end	Practical & CBL/SGD Topics & Venue Mentioned at the end. Thursday Schedule	SGD / Dissection			Break	Physiology SDL No.9		SDL anatomy Cranial Nerves 1-7
			Cranial Nerves VIII-XII				Learning & Memory		
							Dr Nayab (Even)	Dr. Iqra (Odd)	
28-07-2023 FRIDAY	Ashura Holidays								
29-07-2023 SATURDAY									

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">(Anatomy Histology Practical) Cerebellum Venue-Histology laboratory(Biochemistry Practical) Estimation of Serum HDL(Physiology Practical) Ophthalmoscopy Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Motor Nervous System (Venue: Lecture Hall No 5)Biochemistry CBL: Ischemic Heart disease (Venue :Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	Batch – A	01-70	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	Batch –B	71-140	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 01	
Wednesday	E	D	B	C	A	Batch – C	141-210	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 04	
Thursday	B	A	D	E	C	Batch –D	211-280	Dr. Sadia Baqir	Lecture Hall No.03 Anatomy Lecture Hall	
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romessa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Conference room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05 (Basement)		Dr. Maryam (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)						
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
• Synthesis &Interconversion of Ketone Bodies (diagrammatically)										
• Synthesis of Cholesterol (diagrammatically)										
• Regulation of Ketogenesis										
• Ketolases										
• Regulation of Cholesterol Synthesis										
• Regulation of HMGCOA										

CNS Module (Fifth Week)
(31-07-2023 TO 05-08-2023)

DATE/DAY	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)
31-07-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)		Medicine		Family Medicine	
		EEG & Epilepsy	Introduction to Moto Nervous System & reflex action, Conditional Reflexes & Its Properties, Control of Spinal cord Reflexes by Higher Centers	Stroke		Approach to a patient with neuronal disease	
		Dr Sidra (Even)	Dr. Maryam (Odd)	Dr Javeria Malik(Even)	Dr Faran Maqbool (Odd)	Dr. Sadia	
01-08-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)		Physiology (LGIS)		Behavioral Sciences	
		Introduction to Cerebellum, Neuronal Circuits of Cerebellum & Its Motor functions	Muscle Spindle & Golgi Tendon organ, role of muscle spindle & Golgi tendon organ in voluntary motor activity	Muscle Spindle & Golgi Tendon organ, role of muscle spindle & Golgi tendon organ in voluntary motor activity	Introduction to Cerebellum, Neuronal Circuits of Cerebellum & Its Motor functions	Memory & Emotions	
		Dr. Shmyla (Even)	Dr. Sidra (Odd)	Dr. Sidra (Even)	Dr. Shmyla (Odd)	Dr. M. Azeem Rao (Even))	Dr. Zarnain Umar (Odd)
02-08-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)		Physiology (LGIS)		Surgery	
		Manifestations of Cerebellar Disease	Poly synaptic reflexes & transaction of spinal cord, role of brain stem in controlling motor function & lesions of motor system	Poly synaptic reflexes & transaction of spinal cord, role of brain stem in controlling motor function & lesions	Manifestations of Cerebellar Disease	Poly trauma patient	
		Dr Shymla (Even)	Dr. Sidra (Odd)	Dr. Sidra (Even)	Dr Shymla (Odd)	Dr. Fraz Mehmood (Even)	Dr. Ali Tasaddaq (Odd)
03-08-2023 Thursday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)		Biochemistry (LGIS)		Physiology (LGIS)	
		Basal Ganglia & Lesions	Motor Cortex & Physiological importance of Neocortex, Cortico Spinal or Pyramidal tracked, Extra pyramidal Systems	Metabolism of Glycerophospholipids and sphingophospholipid		Motor Cortex & Physiological importance of Neocortex, Cortico Spinal or Pyramidal tracked, Extra pyramidal Systems	Basal Ganglia & Lesions
		Dr. Uzma (Even)	Dr Maryam (Odd)	Dr. Isma (Even)	Dr. Aneela (Odd)	Dr Maryam (Even)	Dr. Uzma (Odd)
04-08-2023 Friday	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM	
	Practical & CBL/SGD Topics & Venue Mentioned at the end	SGD/ Dissection		Quran Translation IV		Quran Translation V	
		Dissection		Momalat-I		Momalat-II	
				Mufti Naeem Sherazi		Mufti Naeem Sherazi	
05-08-2023 Saturday	SDL						

Break

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">(Anatomy Histology Practical) Cerebrum. Venue-Histology laboratory(Biochemistry Practical) Lipid Solubility & Acrolein test(Physiology Practical) Determination of field of vision Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Basal Ganglia & limbic system (Venue: Lecture Hall No 5)Biochemistry SGD: Ketone body metabolism (Venue :Lecture Hall No 2)				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	Batch – A	01-70	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	Batch –B	71-140	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 01	
Wednesday	E	D	B	C	A	Batch – C	141-210	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 04	
Thursday	B	A	D	E	C	Batch –D	211-280	Dr. Sadia Baqir	Lecture Hall No.03 Anatomy Lecture Hall	
Venue For Second Year Batches For PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02 (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romessa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Conference room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04 (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05 (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL) Dr. Ismail (SGD)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						

Next week will be assessment week. The detail of assessment week will be shared once finalized.

CNS Module (Sixth Week)
(07-08-2023 to 12-08-2023)

Date / Day	8:00 AM – 9:00 AM	12:00-02:00pm
07-08-2023 Monday	Anatomy Regional Assessment (Roll No 1-180) Physiology Viva Voce (Roll No 181-onwards) (08:00am To 02:00pm)	
08-08-2023 Tuesday	Physiology Viva Voce (Roll No 1-180) Anatomy Regional Assessment (Roll No 181-onwards) (08:00am To 02:00pm)	
9-08-2023 Wednesday	Anatomy Theory/ Gross OSPE	
10-08-2023 Thursday	Physiology Theory/ Video Assisted Quiz	
11-08-2023 Friday	Biochemistry Written- Clinical & Quran Translation	
12-08-2023 Saturday	Integrated OSPE	

Note: Detailed notice regarding content, time and venue will be issued accordingly

Note: Timetable Subject to change according to the current circumstances.

SECTION-VI

Table of Specification (TOS) For CNS Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Integrated OSPE	Total Marks
						No. of items	Marks						
			C1	C2	C3			C1	C2	C3			
1.	Anatomy	25	15	5	5	5	25	1	2	2	50	15(Integrated) + 30(Gross)	145
2.	Physiology	40	24	12	4	4	20	1	2	1	50	18	128
3.	Biochemistry	12	6	5	1	2	15	0.5	1.5	-	-	06	28
4.	Bioethics Professionalism	3	-	2	1	-	-	-	-	-	-		3
5.	Research, Artificial Intelligence & Innovation	2	-	1	1	-	-	-	-	-	-		2
6.	Pathology	2	-	1	1	-	-	-	-	-	-		2
7.	Medicine	2	-	1	1	-	-	-	-	-	-		2
8.	Surgery	2	-	1	1	-	-	-	-	-	-		2
9.	Obs & Gynecology	3	-	1	2	-	-	-	-	-	-		3
10.	Community Medicine	2	-	1	1	-	-	-	-	-	-		2
11.	Pediatrics	2		1	1								2
12.	Family Medicine	1		1									1
Grand Total													320

Table of Specification for Integrated OSPE

Anatomy					
Sr. #	Topics	Knowledge	Skill	Attitude	Marks
Block II – Reproduction & CNS					
1	Development of Reproductive System	30%	50%	20%	3
2	Development of Nervous System				3
3	Microscopic anatomy of Reproductive System				3
5	Microscopic anatomy of Nervous System				3
Physiology					
1	Examination of sensory system	30%	50%	20%	3
2	Examination of motor system				3
3	Examination of cerebellar functions				3
4	Examination of cranial nerves				3
5	Performance of pregnancy test				3
6	Practical note book / sketch copy				3
Biochemistry					
1	Quantitative estimation of Serum Uric Acid	100%			2
2	Quantitative estimation of Serum Cholesterol				
3	Quantitative estimation of Serum HDL Cholesterol	100%	90%	10%	2
4	Quantitative estimation of Serum LDL Cholesterol				
5	Quantitative estimation of Serum Triglycerides (TAG)	100%	80%	20%	2
6	Practical notebook				

Table of Specification for Gross Anatomy OSPE

Sr. #	Topics	Knowledge	Skill	Attitude	Marks
Block II- Pelvis and CNS					
1	Bones of pelvis	30%	50%	20%	3
2	Structures of Male pelvis				3
3	Structures of Female pelvis				3
4	External genitalia				3
5	Radiology of Pelvis				3
6	Meninges				3
7	Brain Stem and cerebellum				3
8	Diencephalon and telencephalon				3
9	Cranial fossae				3
10	Radiology of Skull (cranial fossae)				3

Annexure I

(Sample MCQ, SEQ & OSPE Papers)

RAWALPINDI MEDICAL UNIVERSITY, RWP
ANATOMY DEPARTMENT
2nd Year MBBS Module Exam (CNS)

1. A patient was unable to maintain his balance with feet & heel close together. He was also unable to detect sensations of vibration when vibrating tuning fork was placed on joints of lower limb. Which of the following spinal cord tract is likely to be effected?
 - a. Rubrospinal
 - b. Corticospinal
 - c. Fasciculus gracilis
 - d. Fasciculus cuneatus
 - e. Lateral spinothalamic
3. A 75-year-old female suffered a stroke that produced loss of pain and temperature sensations from the left side of her face (along her forehead, cheek, and jaw). She had no other sensory or motor losses. Her physician advised MRI of brain to rule out the cause. Which structure is most likely to be suffered?
 - a. Left medial lemniscus
 - b. Right spinal trigeminal nucleus
 - c. Left spinothalamic tract
 - d. Right spinothalamic tract
 - e. Left spinal trigeminal nucleus
5. Internal capsule is a white matter structure situated in each cerebral hemisphere. Which one of the following passes through the sublenticular part of internal capsule?
 - a. Optic Radiation
 - b. Auditory Radiation
 - c. Temporopontine fibres
 - d. Anterior Thalamic radiation
 - e. Corticonuclear fibres
2. A diagnosed case of hypertension presented with weakness of left lower limb and difficulty in movements. On examination he also had impaired sensations of two point discrimination and vibration. On protrusion of the tongue it deviated to right side. Depending on the knowledge of Neuroanatomy which part is affected?
 - a. Midbrain
 - b. Pons
 - c. Medulla oblongata
 - d. Cerebellum
 - e. Hypothalamus
4. Computed tomography (CT) scan showed an area of hemorrhage in the region of the calcarine fissure. To determine the most likely neurologic deficit produced by this hematoma, which test should be performed?
 - a. Rapid independent finger movements
 - b. Visual fields
 - c. Cognitive functions in word definition
 - d. Tongue movements
 - e. Muscle tone and coordination

RAWALPINDI MEDICAL UNIVERSITY
CNS MODULE EXAM 2ND YEAR MBBS
ANATOMY SEQS

Note: Attempt all questions. All questions carry equal marks. Draw diagram where necessary

1. a. A 45-year-old man was brought to OPD. His family explained that he had been experiencing progressive weakness and difficulty in walking. They also mentioned that he had a respiratory infection a few weeks ago. After examination and tests he was diagnosed as a case of Guillain Barre Syndrome affecting peripheral nervous system. Draw the histological section of structure affected in this condition. (3)
b. Enlist the cells present in different layers of cerebrum. (2)
2. a. Tabulate the adult derivatives from walls and cavities of primary and secondary brain vesicles. (2.5)
b. A 25-year-old male, presented with intractable headache, dizziness, and coordination difficulties. MRI confirmed cerebellar tonsillar herniation due to congenital malformation. Describe its embryological basis? What complication can arise in this case? (2.5)

RAWALPINDI MEDICAL UNIVERSITY
CNS MODULE 2ND YEAR MBBS
PHYSIOLOGY MCQS

1. Neurotransmitter concerned with slow chronic pain is:
 - a. glutamate
 - b. acetyl choline
 - c. GABA
 - d. substance P
 - e. calcitonin gene-related peptide
3. A 62-year-old male is evaluated by a neurologist after a stroke. The doctor observed defect in sequencing & coordination of motor activities. The organ damaged is:
 - a. Cerebellum
 - b. Medulla
 - c. Cortical motor strip
 - d. Pons
 - e. Eighth cranial nerve
5. When the awake person's attention is directed to some specific type of mental activity, the alpha waves in EEG are replaced by:
 - a. Theta waves
 - b. Delta waves
 - c. Beta waves
 - d. Gamma waves
 - e. Epsilon waves
2. The movement that is integrated at spinal cord level is:
 - a. Turning of head
 - b. Turning of eyes
 - c. Walking
 - d. Writing
 - e. Jumping
4. When the awake person's attention is directed to some specific type of mental activity, the alpha waves in EEG are replaced by:
 - a. Theta waves
 - b. Delta waves
 - c. Beta waves
 - d. Gamma waves
 - e. Epsilon waves

RAWALPINDI MEDICAL UNIVERSITY
CNS MODULE 2ND YEAR MBBS
PHYSIOLOGY SEQS

- Q.1 a) Compare dorsal column medial lemniscal system and antrolateral system for transmission of sensory nervous system? **(3)**
b) Describe the role of golgi tendon organ in inverse stretch reflex. **(2)**
- Q.2 . a) Give the physiological basis of sleep. **(2)**
b) What is turn on and turn off phenomenon. Why knee jerk becomes pendular in lesion of cerebellum. **(3)**

RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOCHEMISTRY
2ND YEAR MBBS
CNS MODULE

1. Oxidation of fatty acid decrease in:

- a. Starvation
- b. Diabetes mellitus
- c. Decreased intake of carbohydrate in diet
- d. Well fed state
- e. Excessive carnitine

3. Inherited defect in enzymes of β oxidation cause:

- a. Hyperglycemia
- b. Ketoacidosis
- c. Hypoglycemia
- d. Fatty liver
- e. Methylmalonic aciduria

2. 3- hydroxybutyrate:

- a. Synthesis is increased after high carbohydrate diet
- b. Synthesis is dependent on NADPH
- c. Is increased in ketoacidosis
- d. Is mainly excreted from lungs during respiration
- e. Is directly converted to acetone.

4. The committed step in the biosynthesis of cholesterol from acetyl CoA is:

- a. Formation of acetoacetyl CoA from acetyl CoA
- b. Formation of mevalonate from HMG – CoA
- c. Formation of HMG-CoA from acetyl – CoA and acetoacetyl – CoA
- d. Formation of squalene by squalene synthase
- e. Formation of lanosterol by cyclization of squalene

SEQ

Q. a. Describe the metabolism of chylomicrons. 03

b. Discuss causes of carnitine deficiency. 02

RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOETHICS
2ND YEAR MBBS
CNS MODULE

1. ---Includes rules of conduct that may be used to regulate our activities concerning the biological world.
 - a. Bio-piracy
 - b. Biosafety
 - c. Bioethics
 - d. Bio-patents
 - e. Bio-logistic
2. The right of patients having self-decision is called.
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
3. Following is not code of ethics.
 - a. Integrity
 - b. Objectivity
 - c. Confidentiality
 - d. Behaviour
 - e. Autonomy
4. -----in the context of medical ethics, if it's fair and balanced
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
5. -----Principle requiring that physicians provide, positive benefits
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity

RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI
DEPARTMENT OF ANATOMY
2nd Year MBBS OSPE Block-II

Station No. 1

Time Allowed: 2 Min

Histology sketch copy will be assessed for

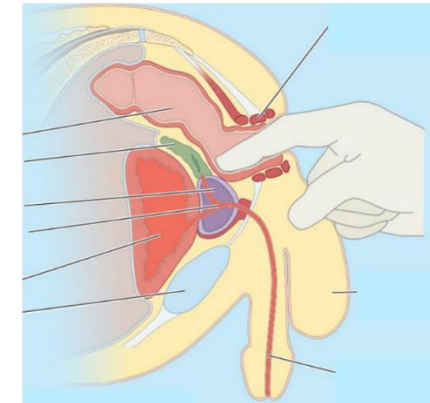
- a. Complete index (1)
- b. Complete and signed diagrams (1)
- c. 2 ID points mentioned with each diagram (1)
- d. Punctuality (1)
- e. Neatness (1)

Station No. 2

Time Allowed: 2 Min

- a. Identify **Red** (1)
- b. Identify **Yellow** (1)
- c. Identify **Green** (1)
- d. Look at the picture given below and answer the following questions

- IV a. What is this examination called? (1)
- b. Which structure is examined by this technique? (1)



RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI
DEPARTMENT OF PHYSIOLOGY
2nd Year MBBS OSPE Block-II

Station No. Time Allowed: 2 Minutes

MRI of a patient suggests thrombosis of superior cerebellar artery,

- a. Enlist some signs & symptoms exhibited. (2)
- b. Will he experience any motor deficit? (0.5)
- c. Grade his reflexes (0.5)

Station No. Time Allowed: 2 Minutes

- a. Which cranial nerve assessed with the given instrument. (0.5)
- b. Give afferent & efferent of gag reflex. (0.5)
- c. How will you assess XII nerve? (2)

RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI
DEPARTMENT OF BIOCHEMISTRY
2nd Year MBBS OSPE Block-II

Station No. 1

Time Allowed: 2 Mins

Observed Station

Pipette out 100 microliters from given solution 03

Station No. 2

Time Allowed: 2 Mins

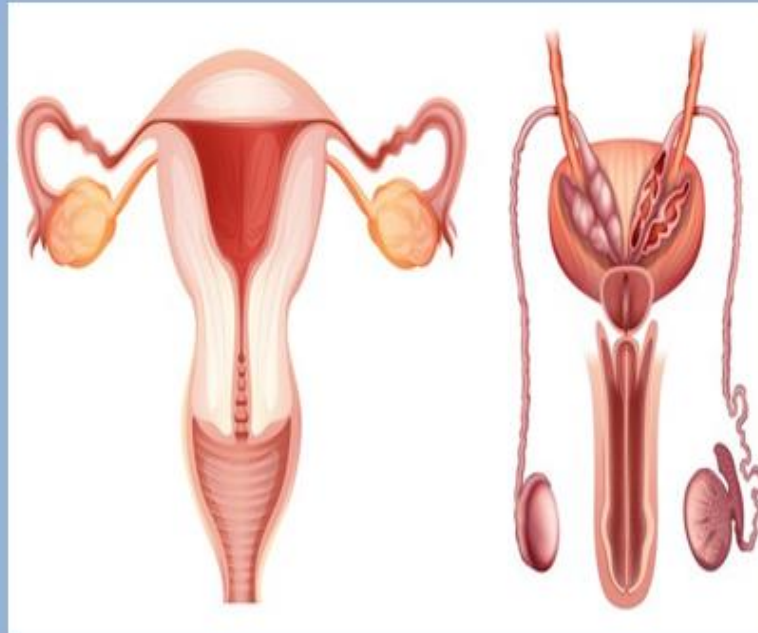
Observed Station

Observe the slide under the microscope. Give one identifying feature. 03



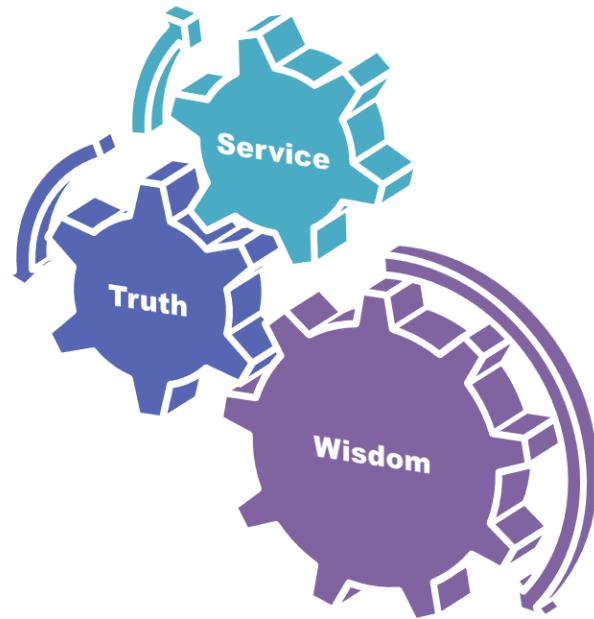
Reproduction Module

Study Guide Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

Reproduction Module

Discipline Wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Gross Anatomy
1	• Anatomy	Embryology/Development <ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine tubes • Ovary & Vagina 	Histology <ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine Tubes • Ovary & Vagina 	<ul style="list-style-type: none"> • Sacrum • Bony Pelvis & Joints of Pelvis • Pelvic Fascia, Pelvic Diaphragm, & Pelvic Peritoneum • Male External Genitalia, Scrotum, & Testis • Prostate Vas Deferens, Seminal Vesicles & Ejaculatory Ducts • Female External Genitalia, Ovaries, Fallopian Tubes • Uterus, Cervix & Vagina • Ischioanal Fossa • Urogenital Diaphragm • Perineum, Superficial Perineal Pouch and its contents • Deep Perineal Pouch and its contents • Blood Supply & Lymphatic Drainage of Pelvis & Perineum • Sacral and Coccygeal Plexus • Radiology, Surface Marking
	• Biochemistry	<ul style="list-style-type: none"> • Digestion of nucleic acid & biosynthesis of purines • Purine catabolism and related disorders • Pyrimidine metabolism • Regulation of gene expression • Male Gonadal Hormones • Female Gonadal Hormones 		
	• Physiology	<ul style="list-style-type: none"> • Physiological anatomy of male reproductive system & spermatogenesis • Physiological anatomy female reproductive system • Semen, capacitation & acrosome reaction • Monthly Ovarian Cycle, ovulation • Male sex hormones, Abnormalities of male sexual function and spermatogenesis • Monthly Endometrial Cycle and Menstruation • Response of mother's body to pregnancy and parturition • Female sex hormones (oestrogen and progesterone) • Lactation, Milk composition, breast feeding 		

		<ul style="list-style-type: none"> • Puberty, menarche, menopause, postmenopausal symptoms & anovulatory cycles, Abnormalities of secretion by ovaries • Growth & functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child • Fertilization of ovum, transport, implantation, Functions of placenta • Hormonal factors in pregnancy, Special functional problems in neonate. Prematurity and its problems
	<ul style="list-style-type: none"> • Bioethics & Professionalism 	<ul style="list-style-type: none"> • Ethical dilemmas Involving breach in Autonomy • Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence • Ethical dilemmas practice involving breach in principle of justice
	<ul style="list-style-type: none"> • Research Club Activity 	<ul style="list-style-type: none"> • Orientation to SPSS software • How to make variables
	<ul style="list-style-type: none"> • Vertical components 	<ul style="list-style-type: none"> • The Holy Quran Translation Component
	<ul style="list-style-type: none"> • Vertical Integration 	<p>Clinically Content Relevant To Reproduction Module</p> <ul style="list-style-type: none"> • Male Hypogonadism Acute Scrotum (Surgery) • Undescended Testes (Surgery) • Sexually Transmitted Diseases/ BPH/Prostatitis (Pathology) • BPH/Prostatitis / Sexually Transmitted Diseases (Pathology) • Polycystic Ovaries (Pathology) • Menstrual Irregularities (Gynae & Obs) • Acquired Immunodeficiency Syndromes/ Sexually Transmitted Diseases (Community Medicine)

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Reproduction Module Team

Module Name	:	Reproduction Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Isma Riaz
Co-coordinator	:	Dr. Nayab Ramzan
Reviewed by	:	Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Isma Riaz (Senior Demonstrator of Biochemistry)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Gaiti Ara (APWMO)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Nayab Ramzan (Senior Demonstrator of Biochemistry)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Kamil Tahir (Senior Demonstrator of Physiology)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Module III – Reproduction Module

Rationale: Reproductive system plays an important role in person life although it does not contribute to homeostasis and is not essential for the survival of individual e.g. the manner in which people relate as sexual beings contributes in significant ways to psychosocial behavior and has an important influence on how people view themselves and how they interact with others. Reproductive function also has profound effect on society. The universal organization of societies into family units provide a stable environment that is conducive for perpetuating our species.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- This module is expected to build students basic knowledge about normal structure, organization, functions and development of reproductive system.
- Used technology based Medical Education including **Artificial Intelligence**
- Appreciate concept and importance of
 - **Family Medicine**
 - **Biomedical Ethics**
 - **Research**

Skills

- Demonstrate effective skill for performing and interpreting various laboratory tests like pregnancy test.
- Demonstrate awareness of ethical, legal and social implication of issues related to bioethics

Attitude

- Demonstrate **professional attitude, team building spirit and good communication** specially in small group discussions.

This module will run in 4 weeks duration. Instructional strategies are given in the time table and learning objectives are given in the study guides. Study guides will be uploaded on the university website. Good luck!

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning
- Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar’s Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

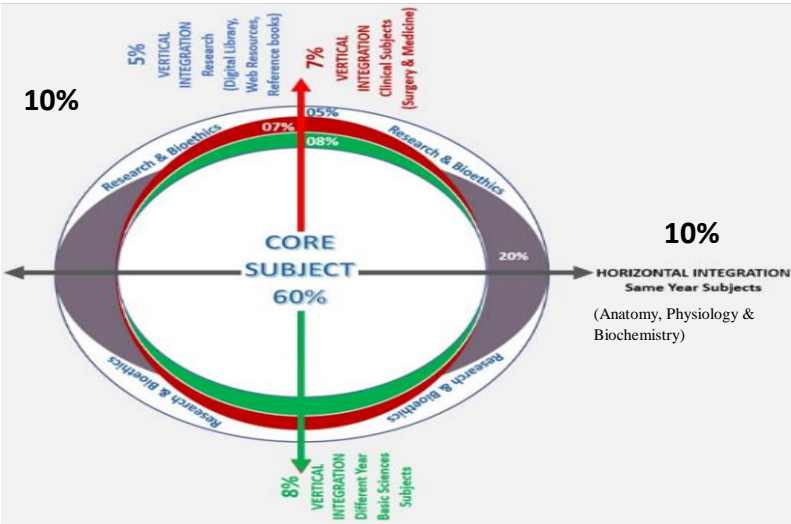


Figure 1. Prof Umar’s Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthesize & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organize Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- Small Group Discussions
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- Self-Directed Topic, Learning Objectives & References
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- Skill Laboratory
 - Anatomy
 - Physiology
 - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topics	At The End Of Lecture Students Should Be Able To:	Learning Domains	Teaching Strategy	Assessment Tools
Development of testis	<ul style="list-style-type: none"> Recall the time of early sex differentiation and genes involved in it. Explain the development of male gonads and formation of testis. Describe the descent of testis. Describe the concepts of chromosomal determination of sex, primordial germ cells and indifferent gonads. Describe histogenesis of interstitial cells of leydig and seminiferous tubules Read a relevant research article Use digital library 	C1 C2 C2 C2 C2 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SAQS VIVA
Histology of Testis	<ul style="list-style-type: none"> Discuss germ cells at different steps of spermatogenesis in the seminiferous tubule. Describe histology of Sertoli cells and Leydig cells. Explain their roles in the production of sperm and regulation of the male reproductive system Understand the bio-physiological aspects of spermatogenesis Discuss the related clinicals like orchitis, male infertility, testicular cancers, cryptorchidism Read a relevant research article Use Digital Library 	C2 C2 C2 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SAQS VIVA
Histology of male genital ducts	<ul style="list-style-type: none"> Describe the histological organization of epididymis, ductus deferens and ejaculatory ducts Describe the epithelium and microscopic features of epididymis, ductus deferens and ejaculatory ducts Understand the bio-physiological aspects of epithelium of ducts Discuss the related clinicals like vasectomy, epididymitis Read a relevant research article Use Digital Library 	C1 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SAQS VIVA
	<ul style="list-style-type: none"> Describe the development of male genital ducts during indifferent stage 	C2		<ul style="list-style-type: none"> MCQS

Development of male genital ducts, Seminal vesicles and prostate	<ul style="list-style-type: none"> • Discuss development of male genital ducts at advanced stage • Describe the molecular regulation of male genital ducts • Describe the development of seminal vesicles • Discuss the development of prostate • Discuss the remnants of mesonephric and paramesonephric ducts in males and their clinical significance • Read a relevant research article • Use Digital library 	C2 C2 C2 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • SAQS • VIVA
Histology of accessory male reproductive glands	<ul style="list-style-type: none"> • Describe the histological organization of prostate gland, seminal vesicles and bulbourethral glands • Describe microscopic features of these glands • Discuss the related clinicals like prostatitis • Read a relevant research article • Use Digital Library 	C1 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA
Development of male external genitalia	<ul style="list-style-type: none"> • Explain the different stages and further development of external genitalia. • Discuss the related clinical like ambiguous genitalia, Androgen insensitivity syndrome, hypospadias, epispadias, bifid penis, micropenis • Read a relevant research article • Use digital library 	C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA
Histology of uterus and uterine tubes	<ul style="list-style-type: none"> • Recollect knowledge of histological features of endometrium in various phases • Discuss microanatomy of layers of uterus • Describe parts of uterine tubes • Explain microscopic features of all parts of uterine tubes • Discuss the related clinicals like endometriosis, tubal ligation, salpingitis, and cervical cancers • Read a relevant research article • Use Digital Library 	C1 C1 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA
Development of uterus and uterine tubes	<ul style="list-style-type: none"> • Describe role of paramesonephric ducts, uterovaginal primordium in development of uterine tubes • Discuss the role of paramesonephric ducts, uterovaginal primordium in development of uterus • Discuss the related clinicals like bicornuate uterus, unicornuate uterus, double uterus 	C2 C2 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA

	<ul style="list-style-type: none"> • Read a relevant research article • Use digital Library 	C3		
Histology of Ovary and Vagina	<ul style="list-style-type: none"> • Discuss the stages of follicular growth (primordial, primary, secondary, tertiary), as well as the changes that occur in the follicular wall • Discuss ovarian cycle and menstrual cycle • Describe the histological features of corpus luteum of mensuration and pregnancy • Discuss the related clinicals like PCOS, Follicular cyst, hemorrhagic cyst • Discuss histological structure of vagina • Understand the bio-physiological aspects of vaginal epithelial cells • Discuss the related clinical like vaginitis, squamous cell carcinoma of vagina • Read a relevant research article • Use Digital Library 	C1 C1 C2 C3 C2 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA
Development of Ovary	<ul style="list-style-type: none"> • Recall the process of oogenesis in female. • Explain the different steps involved in early oogenesis. • Explain the ovarian and menstrual cycle and phases. • Explain the hormonal changes occurring during reproductive cycle. • Describe role of paramesonephric ducts, uterovaginal primordium in development of ovary • Describe the descent of ovaries. • Read a relevant research article • Use digital library 	C1 C1 C1 C1 C2 C2 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA
Development of Vagina	<ul style="list-style-type: none"> • Discuss the developmental stages of vagina and female external genitalia • Enlist different congenital anomalies of female reproductive system. • Describe different syndromes and gene defects associated with congenital anomalies • Read a relevant research article • Use digital library 	C1 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SAQS • VIVA

Physiology Large Group Interactive Session (LGIS)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Physiological anatomy of male reproductive system & spermatogenesis	<ul style="list-style-type: none"> Describe Physiological anatomy of male reproductive system Explain the steps of spermatogenesis Identify the process of meiosis Describe the hormonal factors that stimulate spermatogenesis Describe functions of seminal vesicles 	C2 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA
Physiological anatomy female reproductive system	<ul style="list-style-type: none"> Describe oogenesis & follicular development in ovaries Discuss female hormonal system 	C2 C2	LGIS	MCQ SEQ VIVA
Semen, capacitation & acrosome reaction	<ul style="list-style-type: none"> Explain capacitation Describe acrosomal reaction Summarize the abnormalities related to spermatogenesis: <ul style="list-style-type: none"> ➤ Bilateral orchitis ➤ Effects of temperature ➤ Cryptorchidism 	C2 C2 C2	LGIS	MCQ SEQ VIVA
Monthly Ovarian Cycle, ovulation	<ul style="list-style-type: none"> Describe gonadotropic hormones & their effects on ovaries Explain follicular phase of ovarian cycle Explain ovulation hormones Explain LH surge Describe luteinizing function of Luteinizing 	C2 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA
Male sex hormones, Abnormalities of male sexual function and spermatogenesis system	<ul style="list-style-type: none"> Describe male sex hormone's (secretion, metabolism, chemistry, degradation and excretion) Explain functions of testosterone in detail Describe: <ul style="list-style-type: none"> ➤ Hypogonadism in males ➤ Interstitial Leydig cell tumors ➤ Erectile dysfunction in males 	C2 C2 C2	LGIS	MCQ SEQ VIVA

Monthly Endometrial Cycle and Menstruation	<ul style="list-style-type: none"> • Explain monthly endometrial cycle • Explain menstruation & physiological changes in endometrium 	C2 C2	LGIS	MCQ SEQ VIVA
Response of mother's body to pregnancy, Parturition	<ul style="list-style-type: none"> • Explain: <ul style="list-style-type: none"> ➤ Anterior pituitary gland secretion ➤ Increased corticosteroid secretion ➤ Increased thyroid gland secretion ➤ Increased parathyroid gland secretion • Explain increased uterine excitability near term • Explain hormonal factors increasing uterine contractility • Discuss mechanical factors increasing uterine contractility • Explain the physiological mechanism of labour 	C2 C2 C2 C2	LGIS	MCQ SEQ VIVA
Female sex hormones (estrogen and progesterone)	<ul style="list-style-type: none"> • Explain: <ul style="list-style-type: none"> ➤ Functions of estradiol & progesterone ➤ Chemistry of sex hormones ➤ Synthesis of estrogen & progesterone 	C2	LGIS	MCQ SEQ VIVA
Lactation, Milk composition, breast feeding	<ul style="list-style-type: none"> • Explain development of breasts • Explain hormonal control of breast development • Describe the role of prolactin in lactation • Explain: <ul style="list-style-type: none"> ➤ Milk let down reflex ➤ Milk composition ➤ Metabolic drain in mother caused by lactation 	C2 C2 C2 C2	LGIS	MCQ SEQ VIVA
Puberty, menarche, menopause, postmenopausal symptoms & anovulatory cycles, Abnormalities of	<ul style="list-style-type: none"> • Discuss the physiology of: <ul style="list-style-type: none"> ➤ Puberty ➤ Menarche ➤ Menopause Explain hypogonadism • Describe amenorrhea • Describe hyper secretion by ovaries 	C2 C2 C2	LGIS	MCQ SEQ VIVA

secretion by ovaries				
Fertilization of ovum, transport, implantation Functions of placenta	<ul style="list-style-type: none"> • Describe: <ul style="list-style-type: none"> ➤ Entry of ovum into fallopian tube ➤ Transport of fertilized ovum ➤ Implantation of blastocyst ➤ Early nutrition of embryo • Describe physiological anatomy of placenta • Explain placental permeability • Explain diffusion of gases & excretion of waste products 	C2 C2 C2 C2	LGIS	MCQ SEQ VIVA
Growth & functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child	<ul style="list-style-type: none"> • Describe development of organ system in fetus • Explain fetal metabolism 	C2 C2	LGIS	MCQ SEQ VIVA
Hormonal factors in pregnancy, Special functional problems in neonate. Prematurity and its problems	<ul style="list-style-type: none"> • Explain functions of B- HCG • Describe secretion of estrogens by the placenta • Summarize function of estrogen in pregnancy • Summarize function of progesterone in pregnancy • Explain onset of breathing • Describe the cause of breathing at birth • Explain delayed / abnormal breathing at birth • Describe changes to hypoxia 	C2 C2 C2 C2 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA

Biochemistry Large Group Interactive Session (LGIS)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Male gonadal hormones	<ul style="list-style-type: none"> Synthesis mechanism of action and functions of male gonadal hormones 	C2	LGIS	MCQ SEQ VIVA
Female gonadal hormones	<ul style="list-style-type: none"> Synthesis mechanism of action and functions of female gonadal hormones 	C2	LGIS	MCQ SEQ VIVA
Digestion of nucleic acid and purine synthesis	<ul style="list-style-type: none"> Explain digestion of nucleoprotein Describe purine biosynthesis (De novo synthesis and salvage pathway) 	C2 C2	LGIS	MCQ SEQ VIVA
Purine catabolism and related disorders	<ul style="list-style-type: none"> Explain purine catabolism Discuss related disorders 	C2 C3	LGIS	MCQ SEQ VIVA
Pyrimidine metabolism	<ul style="list-style-type: none"> Explain Pyrimidine catabolism Related disorders 	C2 C3	LGIS	MCQ SEQ VIVA
Regulation of gene expression	<ul style="list-style-type: none"> Explain the regulation of gene expression 	C2	LGIS	MCQ SEQ VIVA

Anatomy Small Group Discussion (SGDs)

Topics	At The End Of Demonstration Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tools
Sacrum	<ul style="list-style-type: none"> Identify the bone Place the bone in anatomical position Demonstrate anatomical features on bone Discuss attachments and relations on bone Discuss important clinical anatomy of bone Read a relevant research article Use digital library 	C2 P P C2 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Bony pelvis	<ul style="list-style-type: none"> Identify type of pelvis Place pelvis in anatomical position Demonstrate different diameters of each type Differentiate bony features of each type Clinical importance of each type Read a relevant research article Use digital library 	C2 P P C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Pelvic Peritoneum and its contents	<ul style="list-style-type: none"> Identify viscera present in pelvis Demonstrate peritoneal reflections on pelvic viscera Discuss pouches formed by peritoneum Discuss clinical anatomy of pelvic peritoneum and pelvic viscera Read a relevant research article Use digital library 	C2 P C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Pelvic diaphragm	<ul style="list-style-type: none"> Identify the muscles forming pelvic diaphragm Demonstrate the attachments and nerve supply of muscles of pelvic diaphragm Locate the structures piercing the pelvic diaphragm Discuss clinical anatomy of pelvic diaphragm Read a relevant research article Use digital library 	C2 P C2 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA

Male external genitalia	<ul style="list-style-type: none"> Identify the anatomical structures of external genitalia Demonstrate anatomical position of testis Enlist layers of scrotum with its neurovasculature Discuss clinical anatomy of scrotum Read a relevant research article Use digital library 	C2 P C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Testis	<ul style="list-style-type: none"> Identify the structure Demonstrate anatomical position of testis Discuss layers and structure of testis Discuss important clinical anatomy related to testis Read a relevant research article Use digital library 	C2 P C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Male genital ducts	<ul style="list-style-type: none"> Describe the anatomical position of vas deferens, seminal vesicles, ejaculatory ducts on model Discuss the anatomical relations of vas deferens, seminal vesicles, ejaculatory ducts Discuss clinical anatomy Read a relevant research article Use digital library 	C2 C2 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Prostate	<ul style="list-style-type: none"> Identify the position of prostate Demonstrate the anatomical features and relations of prostate Discuss clinical anatomy Read a relevant research article Use digital library 	C2 P C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Ovaries	<ul style="list-style-type: none"> Identify the site of ovarian fossa Discuss anatomical relations of ovary Discuss neurovasculature and hormonal effects of ovaries Discuss important clinical anatomy of ovary Read a relevant research article Use digital library 	C2 C1 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA

Fallopian tubes, Uterus	<ul style="list-style-type: none"> Identify the location of structures in pelvis Demonstrate anatomical relations of these structures Discuss normal positions of uterus with its ligaments Discuss its neurovasculature Discuss important clinical anatomy of fallopian tubes, uterus and uterine tube Read a relevant research article Use digital library 	C2 P C1 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Cervix	<ul style="list-style-type: none"> Discuss anatomy of cervix Describe anatomical relations of cervix Describe its neurovasculature Read a relevant research article Use digital library 	C1 C2 C2 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Ischio-anal fossa	<ul style="list-style-type: none"> Discuss the dimensions, boundaries and recesses Describe the contents of Ischio anal fossa Describe pudendal canal and its contents Discuss important clinical anatomy of structures Read a relevant research article Use digital library 	C1 C2 C2 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Urogenital diaphragm	<ul style="list-style-type: none"> Discuss the formation of diaphragm Identify the relations and contents of diaphragm Discuss organs piercing urogenital diaphragm Discuss important clinical anatomy related to diaphragm Read a relevant research article Use digital library 	C1 C2 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA
Perineum & Superficial perineal pouches	<ul style="list-style-type: none"> Identify boundaries and divisions of perineum Discuss formation of perineal pouches Discuss in detail the contents of superficial perineal pouches in male and female Discuss important clinical anatomy related to superficial perineal pouches Read a relevant research article Use digital library 	C2 C1 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> OSPE VIVA

Deep perineal pouches	<ul style="list-style-type: none"> • Discuss in detail the contents of deep perineal pouches in male and female • Discuss important clinical anatomy related to deep perineal pouches. • Read a relevant research article • Use digital library 	C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> • OSPE • VIVA
Blood supply of pelvis and perineum	<ul style="list-style-type: none"> • Identify major blood vessels & nerves of pelvis and perineum • Demonstrate anatomical relationships • Describe important clinical anatomy related to blood vessels of pelvis and perineum • Read a relevant research article • Use digital library 	C2 P C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> • OSPE • VIVA
Lymphatic drainage of pelvis and perineum	<ul style="list-style-type: none"> • Identify major lymphatic vessels of pelvis and perineum • Discuss lymphatic drainage of pelvis and perineum • Discuss important clinical anatomy • Read a relevant research article • Use digital library 	C2 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> • OSPE • VIVA
Sacral and Coccygeal plexus	<ul style="list-style-type: none"> • Identify various branches of sacral and coccygeal plexus • Discuss anatomical relations • Describe root values of each branch of plexus and its related applied • Read a relevant research article • Use digital library 	C2 C1 C3 C3 C3	Skill Lab	<ul style="list-style-type: none"> • OSPE • VIVA
Radiology and surface marking	<ul style="list-style-type: none"> • Describe the radiological appearance of pelvis and perineum on <ul style="list-style-type: none"> ➤ Normal radiographs ➤ MRI ➤ CT scan • Project deep structures of neck on surface marking i.e. <ul style="list-style-type: none"> ➤ Arteries ➤ Veins ➤ Viscera • Read a relevant research article • Use digital library 	C2 P C3 C3	Skill Lab	<ul style="list-style-type: none"> • OSPE • VIVA

Physiology Small Group Discussion (SGDs)

Topics	At the end of discussion students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Infertility	<ul style="list-style-type: none"> Correlate basic knowledge with clinical application 	C3	SGD/CBL	MCQ SEQ VIVA
Menorrhagia	<ul style="list-style-type: none"> Correlate basic knowledge with clinical application 	C3	SGD/CBL	MCQ SEQ VIVA
Contraception	<ul style="list-style-type: none"> Correlate basic knowledge with clinical application 	C3	SGD/CBL	MCQ SEQ VIVA

Biochemistry Small Group Discussion (SGDs)

Topics	At the end of tutorial students should be able to	Learning Domains	Teaching Strategy	Assessment Tools
Purine metabolism	<ul style="list-style-type: none"> Purine denovo synthesis and describe salvage pathway Read a relevant research article Use digital library 	C2 C3 C3	SGD	MCQ SEQ VIVA
Male female sex hormones	<ul style="list-style-type: none"> Synthesis, mechanism of action and functions of male female gonadal hormones Read a relevant research article Use digital library 	C2 C3 C3	SGD	MCQ SEQ VIVA

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Sacrum	<ul style="list-style-type: none"> Identify the bone Place the bone in anatomical position Demonstrate anatomical features on bone Discuss attachments and relations on bone Discuss important clinical anatomy of bone Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 4, Page 451). https://www.youtube.com/watch?v=93c9nlxbMUw https://www.youtube.com/watch?v=PuOE-PI1eps
Bony pelvis	<ul style="list-style-type: none"> Identify type of pelvis Place pelvis in anatomical position Demonstrate different diameters of each type Differentiate bony features of each type Clinical importance of each type Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 327-337). https://www.youtube.com/watch?v=yK-8ZwLFarc https://www.youtube.com/watch?v=3v5AsAESg1Q https://www.youtube.com/watch?v=3Z0XBCyXb3Y
Pelvic Peritoneum and its contents	<ul style="list-style-type: none"> Identify viscera present in pelvis Demonstrate peritoneal reflections on pelvic viscera Discuss pouches formed by peritoneum Discuss clinical anatomy of pelvic peritoneum and pelvic viscera Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 338-349). https://www.youtube.com/watch?v=F2-5tX_CMIQ https://www.youtube.com/watch?v=3Z0XBCyXb3Y
Pelvic diaphragm	<ul style="list-style-type: none"> Identify the muscles forming pelvic diaphragm Demonstrate the attachments and nerve supply of muscles of pelvic diaphragm Locate the structures piercing the pelvic diaphragm Discuss clinical anatomy of pelvic diaphragm Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 338-349). https://www.youtube.com/watch?v=P3BBAMWm2Eo https://www.youtube.com/watch?v=3Z0XBCyXb3Y

Male external genitalia	<ul style="list-style-type: none"> • Identify the anatomical structures of external genitalia • Demonstrate anatomical position of testis • Enlist layers of scrotum with its neurovasculature • Discuss clinical anatomy of scrotum • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 418-419). • https://www.youtube.com/watch?v=ai7MjQvenKs • https://www.youtube.com/watch?v=5eHvZ2gyR1Y • https://www.youtube.com/watch?v=N66sAZH1VA8
Testis	<ul style="list-style-type: none"> • Identify the structure • Demonstrate anatomical position of testis • Discuss layers and structure of testis • Discuss important clinical anatomy related to testis • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 2, Page 208-215). • https://www.youtube.com/watch?v=ai7MjQvenKs • https://www.youtube.com/watch?v=5eHvZ2gyR1Y • https://www.youtube.com/watch?v=N66sAZH1VA8
Male genital ducts	<ul style="list-style-type: none"> • Describe the anatomical position of vas deferens, seminal vesicles, ejaculatory ducts on model • Discuss the anatomical relations of vas deferens, seminal vesicles, ejaculatory ducts • Discuss clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 376 -381). • https://www.youtube.com/watch?v=N66sAZH1VA8 • https://www.youtube.com/watch?v=ai7MjQvenKs
Prostate	<ul style="list-style-type: none"> • Identify the position of prostate • Demonstrate the anatomical features and relations of prostate • Discuss clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 376 -381). • https://www.youtube.com/watch?v=93Ayg248u_8 • https://www.youtube.com/watch?v=ai7MjQvenKs
Ovaries	<ul style="list-style-type: none"> • Identify the site of ovarian fossa • Discuss anatomical relations of ovary • Discuss neurovasculature and hormonal effects on ovaries • Discuss important clinical anatomy of ovary • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 391-392). • https://www.youtube.com/watch?v=AREHaMls9Y4 • https://www.youtube.com/watch?v=2tOtIqSNqbc

Fallopian tubes, Uterus	<ul style="list-style-type: none"> Identify the location of structures in pelvis Demonstrate anatomical relations of these structures Discuss normal positions of uterus with its ligaments Discuss its neurovasculature Discuss important clinical anatomy of fallopian tubes, uterus and uterine tube Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 385-390, 392-399). https://www.youtube.com/watch?v=AREHaMls9Y4 https://www.youtube.com/watch?v=PMI-iJwNt3Y https://www.youtube.com/watch?v=2tOtIqSNqbc
Cervix	<ul style="list-style-type: none"> Discuss anatomy of cervix Describe anatomical relations of cervix Describe its neurovasculature blood Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 385-390, 392-399). https://www.youtube.com/watch?v=AREHaMls9Y4 https://www.youtube.com/watch?v=PMI-iJwNt3Y
Ischio-anal fossa	<ul style="list-style-type: none"> Discuss the dimensions, boundaries and recesses Describe the contents of Ischio anal fossa Describe pudendal canal and its contents Discuss important clinical anatomy of structures Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 409-411, 416). https://www.youtube.com/watch?v=SFq0hA3PwK4 https://www.youtube.com/watch?v=K4K3a8UnS5M
Urogenital diaphragm	<ul style="list-style-type: none"> Discuss the formation of diaphragm Identify the relations and contents of diaphragm Discuss organs piercing urogenital diaphragm Discuss important clinical anatomy related to diaphragm Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 406-408). https://www.youtube.com/watch?v=edI7knFSu_k https://www.youtube.com/watch?v=ZaIRPhXavVg
Perineum & Superficial perineal pouches	<ul style="list-style-type: none"> Identify boundaries and divisions of perineum Discuss formation of perineal pouches Discuss in detail the contents of superficial perineal pouches in male and female Discuss important clinical anatomy related to superficial perineal pouches Read a relevant research article Use digital library 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 402-405). https://www.youtube.com/watch?v=GegidLpxW9A https://www.youtube.com/watch?v=OwWk6tqsW8o

Deep perineal pouches	<ul style="list-style-type: none"> • Discuss in detail the contents of deep perineal pouches in male and female • Discuss important clinical anatomy related to deep perineal pouches. • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 406-409, 414). • https://www.youtube.com/watch?v=q0Ax3rLFc6M • https://www.youtube.com/watch?v=OwWk6tqsW8o
Blood supply of pelvis and perineum	<ul style="list-style-type: none"> • Identify major blood vessels & nerves of pelvis and perineum • Demonstrate anatomical relationships • Describe important clinical anatomy related to blood vessels of pelvis and perineum • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 350-357, 361). • https://www.youtube.com/watch?v=xYu56Luwdls • https://www.youtube.com/watch?v=o4TplbDDcj8
Lymphatic drainage of pelvis and perineum	<ul style="list-style-type: none"> • Identify major lymphatic vessels of pelvis and perineum • Discuss lymphatic drainage of pelvis and perineum • Discuss important clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 400-402). • https://www.youtube.com/watch?v=F-Ba96V0R-c • https://www.youtube.com/watch?v=o4TplbDDcj8
Sacral and Coccygeal plexus	<ul style="list-style-type: none"> • Identify various branches of sacral and coccygeal plexus • Discuss anatomical relations • Describe root values of each branch of plexus and its related applied • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 357-361). • https://www.youtube.com/watch?v=DZ0IL1tHNxo • https://www.youtube.com/watch?v=f7Zig8eBCqY • https://www.youtube.com/watch?v=JqUleDnXuEI

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Fertilization of ovum, transport, implantation, Functions of placenta	<ul style="list-style-type: none"> • Maturation and fertilization of ovum • Transport and Implantation • Early nutrition of the Embryo • Functions of Placenta 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Reproductive development and Function of female reproductive system (Chapter 22, Page 410) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Fertilization, Pregnancy and Lactation. (Chapter 59, Page 975) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. <ul style="list-style-type: none"> ▪ Pregnancy and Lactation. Section 14. (Chapter 83, Page 1045) ○ https://teachmephysiology.com/reproductive-system/ ○ https://my.clevelandclinic.org/health/articles/11585-conception
Growth &functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child	<ul style="list-style-type: none"> • Growth & functional development of fetus • Fetal Metabolism • Changes in Fetal circulation at Birth • Adjustment of the Infant to the Extrauterine life 	<ul style="list-style-type: none"> • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Physiology of Pregnancy (Chapter 60, Page 998) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Fetal and Neonatal Physiology. Section 14. (Chapter 84, Page 1061-1065) ○ https://youtu.be/rYVGjbzmAtg ○ https://www.msdmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Hormonal factors in pregnancy, Special functional problems in neonate. Prematurity and its problems.	<ul style="list-style-type: none"> • Special functional problems in neonate • Prematurity • Immature development of the premature Infant • Instability of Homeostasis in Premature Infant • Instability of body temperature in Infants 	<ul style="list-style-type: none"> • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Physiology of Pregnancy (Chapter 60, Page 998) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Fetal and Neonatal Physiology. Section 14. (Chapter 84, Page 1066-1070) ○ https://teachmephysiology.com/reproductive-system/ ○ https://patient.info/pregnancy/premature-babies

Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Male gonadal hormones	<ul style="list-style-type: none"> Synthesis mechanism of action and functions of male gonadal hormones 	<ul style="list-style-type: none"> Mushtaq volume II, 7th edition (chapter 11 page – 333-338) https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function https://www.youtube.com/watch?v=A5u_TY1A0t8 Use digital library https://www.ncbi.nlm.nih.gov/books/NBK29/
Female gonadal hormones	<ul style="list-style-type: none"> Synthesis mechanism of action and functions of female gonadal hormones 	<ul style="list-style-type: none"> Mushtaq volume II, 7th edition (chapter 11 page – 357-366) https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn https://www.youtube.com/watch?v=A5u_TY1A0t8 Use digital library https://www.ncbi.nlm.nih.gov/books/NBK29/
Introduction to nucleic acid and purine synthesis	<ul style="list-style-type: none"> Digestion of nucleoprotein Understand whole purine synthesis (Denovo and salvage pathway) 	<ul style="list-style-type: none"> Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 22, page 292-295) https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis https://www.youtube.com/watch?v=VXWyWzbigrg Use digital library https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/
Purine catabolism	<ul style="list-style-type: none"> Explain purine catabolism Discuss related disorder 	<ul style="list-style-type: none"> Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 22, page 298-301) https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder https://www.youtube.com/watch?v=e2KFVvI8Akk Use digital library https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/

Pyrimidine metabolism	<ul style="list-style-type: none"> • Explain Pyrimidine catabolism and related disorders 	<ul style="list-style-type: none"> • Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 22, page 302-304) • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and-pyrimidines/pyrimidine-metabolism • https://www.youtube.com/watch?v=n7Uec8Jtr4E • Use digital library • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/
Regulation of gene expression	<ul style="list-style-type: none"> • Explain the regulation of gene expression 	<ul style="list-style-type: none"> • Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 22, page 465-477) • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryotes • https://www.youtube.com/watch?v=J9jhg90A7Lw • Use digital library • https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/

Histology Practicals Skill Laboratory (SKL)

Topics	At The End Of Demonstration Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tools
Testis, epididymis, ductus deferens	<ul style="list-style-type: none"> Identify the histological slide of testis, ductus deferens and epididymis Illustrate the microscopic picture of testis, ductus deferens and epididymis Enlist two points of identification of each Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE
Seminal vesicles, prostate	<ul style="list-style-type: none"> Identify the histological slide of seminal vesicles and prostate Illustrate the microscopic picture of seminal vesicles and prostate Enlist two points of identification of each Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE
Ovary	<ul style="list-style-type: none"> Identify the histological slide of ovary Illustrate the microscopic picture of ovary Enlist two points of identification Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE
Uterus, uterine tubes	<ul style="list-style-type: none"> Identify the histological slide of Uterus and uterine tubes Illustrate the microscopic picture of Uterus and uterine tubes Enlist two points of identification of each Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE

Physiology Practicals Skill Laboratory (SKL)

Practicals	At The End Of This Skill Lab, Student Should Be Able To Illustrate:	Learning Domains	Teaching Strategy	Assessment Tools
Specific gravity of urine	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Use of urinometer • Recall normal values of specific gravity 	<p>P</p> <p>C1</p> <p>P</p> <p>C1</p> <p>C1</p> <p>C1</p>	Skill lab	OSPE
Pregnancy Test	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Recall types of pregnancy test 	<p>P</p> <p>C1</p> <p>P</p> <p>C1</p> <p>C1</p>	Skill lab	OSPE
Revision of Reflexes	<ul style="list-style-type: none"> • Types of reflexes • Principles • Procedure to check reflexes • Evaluation • Clinical correlation of reflexes 	<p>C1</p> <p>C1</p> <p>P</p> <p>C3</p> <p>C3</p>	Skill lab	OSPE

Biochemistry Practicals Skill Laboratory (SKL)

Topics	At the End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Estimation of uric acid	Perform estimation of uric acid by spectrophotometer	P	Skill Lab	OSPE
Estimation of Cholestrol	Estimation of cholesterol by spectrophotometer	P	Skill Lab	OSPE
Milk analysis	Protein, carbohydrates, lipid detection	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	• Prostatic Hyperplasia	Apply basic knowledge of subject to study clinical case.	C3
	• Ovarian Cyst	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Infertility	Apply basic knowledge of subject to study clinical case.	C3
	• Menorrhagia	Apply basic knowledge of subject to study clinical case.	C3
	• Contraception	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Gout	Apply basic knowledge of subject to study clinical case.	C3

Vertical Integration LGIS Pathology

Topics	At the end of lecture students of should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Sexually transmitted diseases	<ul style="list-style-type: none"> Enumerate the STDs Describe the pathogenesis of syphilis and gonorrhea 	C1 C2	LGIS	MCQ's
BPH/Prostatitis	<ul style="list-style-type: none"> Define benign prostatic hyperplasia Briefly discuss the morphological features of BPH & prostatitis 	C1 C2	LGIS	MCQ's
Polycystic ovaries	<ul style="list-style-type: none"> Define the polycystic ovaries Describe the pathophysiology of polycystic ovaries 	C1 C2	LGIS	MCQ's

Community Medicine

Topics	At the end of lecture students of should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Sexually Transmitted Diseases				
Definition	<ul style="list-style-type: none"> Define STD and its various factors 	C1	LGIS	MCQ,
Problem statement	<ul style="list-style-type: none"> Discuss the problem statement of STD worldwide. 	C2		
Types of STDs	<ul style="list-style-type: none"> Enumerate different types of STDs 	C1		
Host factors related to STDs	<ul style="list-style-type: none"> Discuss all host factors responsible for STDs 	C2		
Demographic factors	<ul style="list-style-type: none"> Discuss in detail role of demographic factors in STD spread. 	C2		
Social factors role	<ul style="list-style-type: none"> Role of social factors in STDs 	C2		
Intervention strategies.	<ul style="list-style-type: none"> Role of intervene on strategies and planning in control of STDs 	C2	LGIS	MCQ
AIDS	<ul style="list-style-type: none"> Discuss In detail the definition of AIDS 	C2		
Problem statement of AIDS and HIV	<ul style="list-style-type: none"> Discuss in detail the problem statement of HIV n AIDs. Its impact on underdeveloped eloped world. understanding the gravity of the situation. 	C2		
Risk factors	<ul style="list-style-type: none"> Discuss the key risk factors in HIV responsible. 	C2		
Agent and other biological determinants	<ul style="list-style-type: none"> Explain agent details Describe the effect of agent stability and its biological determinants 	C2		
Host, reservoir of infection and transmission details	<ul style="list-style-type: none"> Detailed discussion on the host factors, reservoir of infection and transmission factors responsible. 	C2		
Symptomology, treatment and prevention of AIDs and HIV	<ul style="list-style-type: none"> Discuss in detail the symptomology, treatment and prevention of AIDS and HIV . 	C2		

Family Medicine

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
AIDS	<ul style="list-style-type: none"> Discuss pathophysiology, signs and symptoms of patients with HIV Discuss the diagnostic criteria Discuss the complications Discuss the management of disease and its complications. 	C1 C2 C2 C2	LGIS	MCQs

Surgery

Topics	At The End Of Lecture, Students Should Be Able To:	Learning Domains	Teaching Strategy	Assessment Tools
Male hypogonadism	<ul style="list-style-type: none"> Discuss pathophysiology, signs and symptoms of male hypogonadism Describe altered hormonal levels in male hypogonadism Outline treatment plan for breast tumors 	C2 C2 C1	LGIS	MCQ
Undescended Testes	<ul style="list-style-type: none"> Define UDT Define Retractable Testes Define Ectopic Testes Causes of UDT/Ectopic Testes Differentiate between UDT and Retractable Testes Management plan 	C1 C1 C1 C2 C2 C2	LGIS	MCQ
Acute Scrotum	<ul style="list-style-type: none"> Enumerate the causes of acute scrotum Describe Torsion, orchitis, epididymorchitisetc Differentiate between Torsion and Epididymorchitis Describe the approach towards diagnosis of acute scrotum 	C1 C2 C2 C2	LGIS	MCQ

Obstetrics & Gynaecology

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
Menstrual irregularity due to anovulation	<ul style="list-style-type: none"> Understand ovarian and endometrial changes during normal menstrual cycle Describe the process of ovulation under the effect of LH Describe causes of anovulation Describe effects of anovulation Enumerate the tests for confirmation of ovulation 	C2 C2 C2 C2 C1	LGIS	MCQs

Biomedical Ethics and Professionalism

Topics	At the end of session students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Ethical dilemmas in healthcare practice involving breach in principle of autonomy	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of autonomy. Explain what procedures adopted to maintain patient autonomy. Identify situations in which doctor may have to take decisions in the best interest of the patients 	C3 C2 C1	Short video demonstration on violation of Ethical principle of autonomy from suit CBEC Video resources	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks. (Internal Assessment) Assignment to be uploaded on LMS
Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence. Explain what procedures adopted to maintain the principle of beneficence and non-maleficence in challenging situations. Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of beneficence and non-maleficence 	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students deliberations and reflections Reflective writing	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks (Internal Assessment) Assignment to be uploaded on LMS

Ethical dilemmas practice involving breach in principle of justice	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of justice. Explain what procedures adopted to maintain the principle of justice in challenging situations. Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of justice 	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students deliberations and reflections Reflective writing	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks (Internal Assessment) Assignment to be uploaded on LMS
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Integrated Undergraduate Research Curriculum (IUGRC)

Topics	At the end of the session the student should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
Orientation session on SPSS software	<ul style="list-style-type: none"> Orientation to SPSS software How to make variables 	C3 C3	Activity	MCQs

SECTION - IV

Assessment Policies

Contents

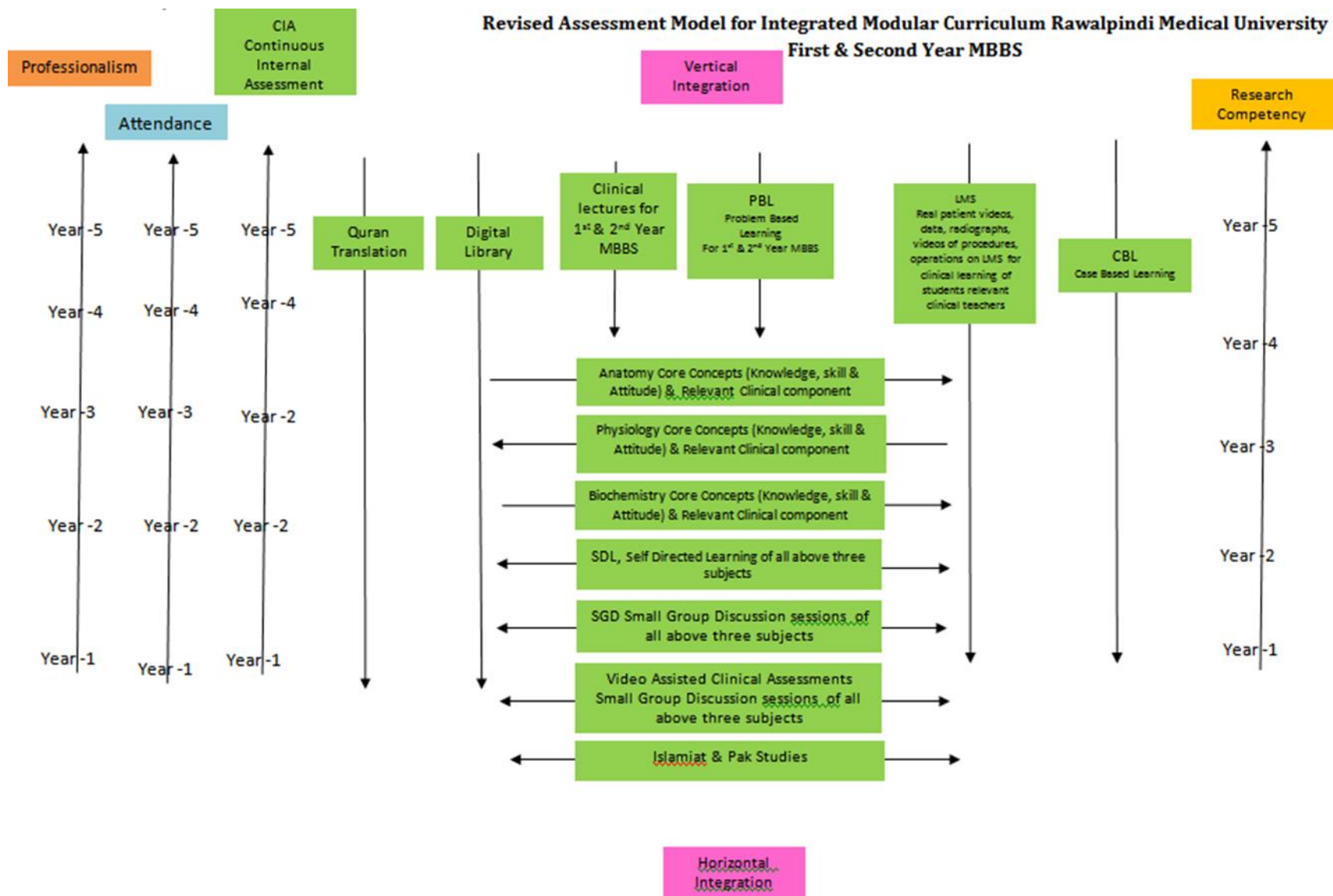
- **Assessment plan**

- **Types of Assessment:**

- **Modular Examinations**

- **Block Examination**

- **Table 4: Assessment Frequency & Time in Reproduction Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Reproduction Module

Block	Sr #	Module Reproduction Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCilCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> https://youtu.be/2_owp8kNMus (Female Reproductive system) https://youtu.be/V9a2AQSJIMc (Dr Najeed Lectures) https://youtu.be/rYVGjbzmAtg (Dr Najeed lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> Lehninger Principle of Biochemistry 8th edition. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p>

	<ul style="list-style-type: none">• https://www.youtube.com/watch?v=A5u_TY1A0t8• https://www.youtube.com/watch?v=A5u_TY1A0t8• https://www.youtube.com/watch?v=VXWyWzbigrg• https://www.youtube.com/watch?v=e2KfVvI8Akk• https://www.youtube.com/watch?v=n7Uec8Jtr4E• https://www.youtube.com/watch?v=J9jhg90A7Lw <p>E. HEC Digital Library</p> <ul style="list-style-type: none">• https://www.ncbi.nlm.nih.gov/books/NBK29/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/• https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/ <p>F. Biochemistry Journals</p> <ul style="list-style-type: none">• https://academic.oup.com/bmb/article/11/2/126/256755• https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone
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SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Reproduction Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Reproduction Module Team

Module Name	:	Reproduction Module
Duration of module	:	04 Weeks
Coordinator	:	Dr. Isma Riaz
Co-coordinator	:	Dr. Nayab Ramzan
Reviewed by	:	Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Isma Riaz (Senior Demonstrator of Biochemistry)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Gaiti Ara (APWMO)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Nayab Ramzan (Senior Demonstrator of Biochemistry)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Kamil Tahir (Senior Demonstrator of Physiology)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Gross Anatomy
1	• Anatomy	Embryology/Development <ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine tubes • Ovary & Vagina 	Histology <ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine Tubes • Ovary & Vagina 	<ul style="list-style-type: none"> • Sacrum • Bony Pelvis & Joints of Pelvis • Pelvic Fascia, Pelvic Diaphragm, & Pelvic Peritoneum • Male External Genitalia, Scrotum, & Testis • Prostate Vas Deferens, Seminal Vesicles & Ejaculatory Ducts • Female External Genitalia, Ovaries, Fallopian Tubes • Uterus, Cervix & Vagina • Ischioanal Fossa • Urogenital Diaphragm • Perineum, Superficial Perineal Pouch and its contents • Deep Perineal Pouch and its contents • Blood Supply & Lymphatic Drainage of Pelvis & Perineum • Sacral and Coccygeal Plexus • Radiology, Surface Marking
	• Biochemistry	<ul style="list-style-type: none"> • Digestion of nucleic acid & biosynthesis of purines • Purine catabolism and related disorders • Pyrimidine metabolism • Regulation of gene expression • Male Gonadal Hormones • Female Gonadal Hormones 		
	• Physiology	<ul style="list-style-type: none"> • Physiological anatomy of male reproductive system & spermatogenesis • Physiological anatomy female reproductive system • Semen, capacitation & acrosome reaction • Monthly Ovarian Cycle, ovulation • Male sex hormones, Abnormalities of male sexual function and spermatogenesis • Monthly Endometrial Cycle and Menstruation • Response of mother's body to pregnancy and parturition • Female sex hormones (oestrogen and progesterone) • Lactation, Milk composition, breast feeding 		

		<ul style="list-style-type: none"> • Puberty, menarche, menopause, postmenopausal symptoms & anovulatory cycles, Abnormalities of secretion by ovaries • Growth & functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child • Fertilization of ovum, transport, implantation, Functions of placenta • Hormonal factors in pregnancy, Special functional problems in neonate. Prematurity and its problems
	<ul style="list-style-type: none"> • Bioethics & Professionalism 	<ul style="list-style-type: none"> • Ethical dilemmas Involving breach in Autonomy • Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence • Ethical dilemmas practice involving breach in principle of justice
	<ul style="list-style-type: none"> • Research Club Activity 	<ul style="list-style-type: none"> • Orientation to SPSS software • How to make variables
	<ul style="list-style-type: none"> • Vertical components 	<ul style="list-style-type: none"> • The Holy Quran Translation Component
	<ul style="list-style-type: none"> • Vertical Integration 	<p>Clinically Content Relevant To Reproduction Module</p> <ul style="list-style-type: none"> • Male Hypogonadism Acute Scrotum (Surgery) • Undescended Testes (Surgery) • Sexually Transmitted Diseases/ BPH/Prostatitis (Pathology) • BPH/Prostatitis / Sexually Transmitted Diseases (Pathology) • Polycystic Ovaries (Pathology) • Menstrual Irregularities (Gynae & Obs) • Acquired Immunodeficiency Syndromes/ Sexually Transmitted Diseases (Community Medicine)

Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
Special Embryology	Special Histology	Demonstrations / SGD	CBL	Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine Tubes • Ovary & Vagina 	<ul style="list-style-type: none"> • Testis • Genital Ducts • Prostate & Accessory Glands • Uterus & Uterine Tubes • Ovary & Vagina 	<ul style="list-style-type: none"> • Sacrum • Bony Pelvis & Joints of Pelvis • Pelvic Fascia, Pelvic Diaphragm, & Pelvic Peritoneum • Male External Genitalia, Scrotum, & Testis • Female External Genitalia, Ovaries, Fallopian Tubes • Uterus, Cervix & Vagina • Prostate Vas Deferens, Seminal Vesicles & Ejaculatory Ducts • Ischioanal Fossa • Urogenital Diaphragm • Perineum, superficial Perineal Pouch and its contents • Deep Perineal Pouch and its contents • Blood Supply & Lymphatic Drainage of Pelvis & Perineum • Sacral and Coccygeal Plexus • Radiology, Surface Marking 	<ul style="list-style-type: none"> • Prostate (Benign prostate hyperplasia) • Ovary (ovarian cyst) 	<ul style="list-style-type: none"> • Testis, Epididymis, Ductus Deferens • Seminal Vesicles, Prostate • Ovary, Uterus, Uterine Tubes 	<ul style="list-style-type: none"> • Sacrum • Bony Pelvis & Joints of Pelvis • Pelvic Fascia, Pelvic Diaphragm, & Pelvic Peritoneum • Male External Genitalia, Scrotum, & Testis • Prostate Vas Deferens, Seminal Vesicles & Ejaculatory Ducts • Female External Genitalia, Ovaries, Fallopian Tubes • Uterus, Cervix & Vagina • Ischioanal Fossa • Urogenital Diaphragm • Perineum, superficial Perineal Pouch and its contents • Deep Perineal Pouch and its contents • Blood Supply & Lymphatic Drainage of Pelvis & Perineum • Sacral and Coccygeal Plexus

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	01
3.	Demonstrators of Anatomy department	03

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$2 * 05 = 10$ hours
2.	Small Group Discussions (SGD)	$2*12 + 1*2=26$ hours
3.	Practical / Skill Lab	$1.5 * 15 = 22.5$ hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 * 5 = 05$ hours
2.	Small Group Discussions (SGD)	$2*12+ 1*2=26$ hours
3.	Practical / Skill Lab	$1.5 * 3 = 4.5$ hours
4.	Self-Directed Learning (SDL)	$1 * 5 = 10$ hours

Physiology

Category A*	Category B**	Category C***				
LGIS	LGIS	PBL	CBL	Practical's	SGD	SDL
<ul style="list-style-type: none"> Monthly Ovarian Cycle, ovulation (Monthly Endometrial Cycle and Menstruation) 	<ul style="list-style-type: none"> Physiological anatomy of male reproductive system & spermatogenesis Physiological anatomy female reproductive system Semen, capacitation & acrosome reaction Male sex hormones, abnormalities of male sexual function and spermatogenesis Response of mother's body to pregnancy, Parturition Female sex hormones (oestrogen and progesterone) Lactation, milk composition, breast feeding Puberty, menarche, menopause, postmenopausal symptoms & anovulatory cycles, abnormalities of secretion by ovaries Fertilization of ovum, transport, implantation, functions of placenta Hormonal factors in pregnancy, special functional problems in neonate. Prematurity and its problems. 		<ol style="list-style-type: none"> Menorrhagia Infertility Contraception 	<ol style="list-style-type: none"> Pregnancy test Ophthalmoscopy Revision of Reflexes 		<ol style="list-style-type: none"> Fertilization of ovum, transport, implantation, Functions of placenta Growth & functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child Special functional problems in neonate. Prematurity and its problems

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

Sr. #	Designation Of Teaching Staff / HumanResource	Total number ofteaching staff
1.	Professor of physiology department	01
2.	Associate professor of physiology department	01
3.	Assistant professor of physiology department (AP)	01
4.	Demonstrators of physiology department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of TeachingStrategies	Total Hours
1.	Large Group Interactive Session (LECTURES)	13 x 2= 26 x 1 hour = 26 hours
2.	Small Group Discussions (SGD)/CBL	15 x 1.5 hour = 22.5 hours
3.	Problem Based Learning (PBL)	---
4.	Practical / Skill Lab	15 x 1.5 hour = 22.5 hours
5.	Self-Directed Learning (SDL)	3 x 1 hour = 3 hours

Biochemistry

Category A*	Category B**	Category C***			
LGIS	LGIS	PBL	CBL	Practical's	SGD
<ul style="list-style-type: none"> Regulation of gene expression 	<ul style="list-style-type: none"> Male gonadal hormones Female gonadal hormones Introduction to nucleic acid and purine synthesis Purine catabolism and related disorders Pyrimidine metabolism and related disorders 		<ul style="list-style-type: none"> Gout 	<ul style="list-style-type: none"> Estimation of Uric acid by spectrophotometer Estimation of cholesterol by spectrophotometer Analysis of Milk 	<ul style="list-style-type: none"> Purine synthesis and describe salvage pathway Synthesis, mechanism of action and functions of male and female sex hormones

Category A*: By HOD and Assistant Professor

Category B:** By All (HOD, Assistant Professors, Senior Demonstrators)

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation Of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	02
2	Demonstrators of biochemistry department	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	$2 * 6 = 12$ hours	06
2.	Small Group Discussions (SGD)	$1.5 * 3 = 4.5$ hours	4.5
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	$1.5 * 3 = 4.5$ hours	4.5
5.	Self-Directed Learning (SDL)	-----	05

Reproduction Module (First Week)

(25-04-2023 To 29-04-2023)

Date/Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 12:20pm	12:20pm – 2:00pm	Home Assignments (2HRS)					
24-04-2023 MONDAY	Eid Holidays											
25-04-2023 TUESDAY												
26-04-2023 WEDNESDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)		BIOCHEMISTRY (LGIS)		BREAK	SGD/DISSECTION	SDL Biochemistry Gene Expression, Constituents of Purine synthesis and Salvage Pathway of Purine Metabolism		
		Physiological anatomy of female reproductive system,	Physiological anatomy of male reproductive system & spermatogenesis,	Special Embryology	Special Histology	Gene Expression	Nucleic Acid & purine synthesis					
		ProfDr Samia Sarwar/ Dr Sheena (Even)	Dr Fareed (Odd)	Prof. Dr. Ifra (Even)	Assis. Prof. Dr. Maria (Odd)				Dr. Isma (Even)		Dr. Uzma (Odd)	
27-04-2023 THURSDAY	Practical & SGD/CBL Topics & venue mentioned at the end	ANATOMY (LGIS)		PHYSIOLOGY (LGIS)		BIOCHEMISTRY (LGIS)		BREAK	CBL/DISSECTION	SDL Anatomy Sacrum, Bony Pelvis & Joints of Pelvis, Pelvic Fascia, Pelvic Peritoneum, Pelvic Diaphragm & Contents of Pelvic Cavity		
		Special Histology	Special Embryology	Physiological anatomy of male reproductive system & spermatogenesis,	Physiological anatomy of female reproductive system	Nucleic Acid & purine synthesis	Gene Expression					
		Histology of Testis	Development of Testis									
		Assis. Prof. Dr. Maria (Even)	Prof. Dr Ifra (Odd)	Dr Fareed (Even)	Prof. Dr Samia Sarwar/ Dr Sheena (Odd)	Dr. Uzma (Even)	Dr. Isma (Odd)					
28-04-2023 FRIDAY	8:00 AM – 9:00 AM	9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM						
	PRACTICAL & SGD/CBL	ANATOMY (LGIS)		QURAN TRANSLATION - I		PRACTICAL & SGD/CBL						
	Practical & SGD/CBL Topics & venue mentioned at the end (Monday batches)	Special Histology	Special Embryology	Imaniat-5	Akhlaqiat-1	Practical & SGD/CBL Topics & venue mentioned at the end (Tuesday batches)						
		Histology of Genital Ducts and Histology of Prostate & Seminal vesicles	Development of Genital Ducts and Development of Prostate & Accessory gland									
		Assis. Prof. Dr. Maria (Even)	Prof. Dr Ifra (Odd)	Mufti Naeem (Even)	Dr. Fahd (Odd)							
8:00 AM – 9:30 AM	9:30 AM – 10:20AM		10:20AM – 11:10 AM		11:10AM – 12:05PM	12:05PM – 01:00PM	01:00PM – 02:00PM	2HRS				
29-05-2023 SATURDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)		PAK STUDIES/ISLAMIYAT				SGD/DISSECTION		SDL Anatomy External Male Genitalia, Testis & Scrotum
		Monthly Ovarian Cycle, ovulation Monthly Endometrial Cycle and Menstruation	Semen, Capacitation & acrosome reaction Male sex hormones, Abnormalities of male sexual function and spermatogenesis	Special Embryology	Special Histology	Kaamyab logu ki sifaat	Nehru report, Quaid e Azam k 14 nukaat	Nehru report, Quaid e Azam k 14 nukaat	Kaamya b logu ki sifaat	External Male Genitalia, Testis & Scrotum	SDL Physiology Physiological anatomy of female reproductive system, Monthly Ovarian Cycle	
				Development of Genital Ducts and Development of Prostate & Accessory gland	Histology of Genital Ducts and Histology of Prostate & Seminal vesicles							
		Prof. Dr Samia Sarwar/ Dr Sheena (Even)	Dr. Fareed (Odd)	Prof. Dr Ifra (Even)	Assis. Prof. Dr. Maria (Odd)	Mufti Naem (Even)	Qari Aman Ullah (Odd)	Qari Aman Ullah (Even)	Mufti Naem (Odd)			

Topics for Practical with Venue						Topics for Small Group Discussion & CBLs With Venue				
<ul style="list-style-type: none">Histology of Testis, epididymis, ductus deferens (Anatomy Histology Practical) Venue- Histology laboratoryEstimation of serum Uric acid by Spectrophotometer (Biochemistry Practical) Venue- Biochemistry laboratoryPregnancy test (Physiology Practical) Venue – Physiology Lecture Hall No 5						<ul style="list-style-type: none">Physiology CBL: Menorrhagia (Venue: Physiology Demo Room (Basement))Biochemistry tutorial: Deno synthesis of purine, describe salvage pathway (Venue: Lecture Hall No 2)				
Schedule for Practical / Small Group Discussion						Venue for Second Year Batches for Anatomy Dissection / Small Group Discussion				
Days	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Wednesday	E	D	B	C	A	A	01-90	Dr. Sadia	Lecture Hall No. 04 Anatomy Lecture Hall	
Thursday	B	A	D	E	C	B	91-180	Dr. Gaiti	LTC- 1	
Friday	D and C	C and B	A and E	B and A	E and D	C	181- 270	Dr. Mariyam	LTC-4	
Saturday	A	E	C	D	B	D	271 onwards	Dr. Sajjad	Lecture Hall No.03 Anatomy Lecture Hall	
Venue for Second Year Batches for PBL & SGD Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Muhammad Usman		1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Ali Zain		3.	Batch – C	141-210	Dr. Romasa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Kamil Tahir		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Maryam Abbas (PGT Physiology)		5.	Batch -E	281- onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)						
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Najam-us-Sehar (SGD) Dr. Sheena Tariq (PBL)		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details of SDL Biochemistry										
<ul style="list-style-type: none">Constituents of Purine & Pyrimidine Bases										
<ul style="list-style-type: none">Salvage Pathway of Purine Metabolism										
<ul style="list-style-type: none">Regulation of gene expression										

(Reproduction Module Second Week)

(08-05-2023 To 13-05-2023)

Date/Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)			
01-05-2023 MONDAY	Labour day									
02-05-2023 TUESDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)		SURGERY (LGIS)		BREAK	SGD/DISSECTION	SDL Biochemistry Mechanism of action of
		Monthly Ovarian Cycle, ovulation Monthly Endometrial Cycle and Menstruation	Semen, Capacitation & acrosome reaction Male sex hormones, Abnormalities of male sexual function and spermatogenesis	Special Histology	Special Embryology	Male hypogonadism Acute Scrotum	B R E A K	Male Internal Genital Organs (Prostate Vas deferens, seminal vesicles & ejaculatory ducts)	Steroid Hormones and Synthesis of Sex Hormones	
				Histology of Uterus & Uterine Tubes	Development of Uterus & Uterine Tubes					
Prof. Dr Samia Sarwar /Dr. Sheena (Odd)	Dr. Fareed (Even)	Assis. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Mariyam (Even)	Dr. Faraz (Odd)					
03-05-2023 WEDNESDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		ANATOMY (LGIS)		PATHOLOGY (LGIS)		SGD/DISSECTION	SDL Physiology Male Reproductive Physiology	
		Response of mother’s body to pregnancy, Parturition	Female sex hormones (oestrogen and progesterone)	Special Embryology	Special Histology	Sexually transmitted diseases				BPH/Prostatitis
				Development of Uterus & Uterine Tubes	Histology of Uterus & Uterine Tubes					
Dr. Sheena (Even)	Dr. Shazia (Odd)	Prof. Dr. Ifra (Even)	Assis. Prof. Dr. Maria (Odd)	Dr Abid Hassan (Even)	Dr Rabbiya Khalid (Odd)					
04-05-2023 THURSDAY	Practical & SGD/CBL Topics & venue mentioned at the end	ANATOMY (LGIS)		BIOCHEMISTRY (LGIS)		PATHOLOGY (LGIS)		CBL/DISSECTION	SDL Biochemistry Purine Catabolism & Related Disorders	
		Special Embryology	Special Histology	Purine catabolism	Male & Female Sex Hormones	BPH/ Prostatitis				Sexually transmitted diseases
		Development of Ovary & Vagina	Histology of Ovary & Vagina							
Prof. Dr. Ifra (Even)	Assis. Prof. Dr. Maria (Odd)	Dr. Uzma (Even)	Dr. Almas (Odd)	Dr Rabbiya Khalid (Even)	Dr Abid Hassan (Odd)					
05-05-2023 FRIDAY	8:00 AM – 9:00 AM		9:00 AM – 10:00AM		10:00AM – 11:00 AM		11:00AM – 12:00PM			
	Surgery (LGIS)		ANATOMY (LGIS)		BIOCHEMISTRY (LGIS)		QURAN TRANSLATION – II			
	Undescended Testes		Histology of Ovary & Vagina	Development of Ovary & Vagina	Male & Female Sex Hormones	Purine catabolism	Akhlaqiat-1	Imaniat-5		
	Dr. Rameez (Even)	Dr. Ameen (Odd)	Assis. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Almas (Even)	Dr. Uzma (Odd)	Dr. Fahd Anwar (Even)	Mufti Naeem Sherazi (Odd)		
06-05-2023 SATURDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		BIOMEDICAL (CLUB ACTIVITY)				SGD/DISSECTION		
		Female sex hormones (oestrogen and progesterone)	Response of mother’s body to pregnancy, Parturition	Ethical dilemmas Involving breech in Autonomy				Ischioanal Fossa	SDL Anatomy Male Internal Genital Organs (Prostate Vas deferens, seminal vesicles & ejaculatory ducts) Female Internal Genital Organs Uterus cervix, (Ovaries, Fallopian Tubes)	
				Biomedical ethics PBL/ SGD team detail given on next page						

Topics for Practical with Venue						Topics for Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of Seminal Vesicles & Prostate (Anatomy Histology Practical) Venue-Histology LaboratoryEstimation of Cholestrol by Spectrophotometer (Biochemistry Practical) Venue- Biochemistry LaboratoryExamination of VII Cranial Nerves (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology CBL: Infertility (Venue: Lecture Hall No 5)Biochemistry CBL: Gout: (Lecture Hall No 2)				
Schedule for Practical / Small Group Discussion						Venue for Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
						A	01-90	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy Lecture Hall	
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	LTC-1	
Wednesday	E	D	B	C	A	C	181- 270	Dr. Mariyam	LTC-4	
						D	271 onwards	Dr. Sajjad	Lecture Hall No.03 Anatomy Lecture Hall	
Thursday	B	A	D	E	C					
Saturday	A	E	C	D	B					
Venue for Second Year Batches For PBL, SGD & Biomedical (Club Activity) Team-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Muhammad Usman		1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Ali Zain		3.	Batch – C	141-210	Dr. Romasa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Kamil Tahir		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Maryam Abbas (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Najam-us-Sehar (SGD) Dr. Sheena Tariq (PBL)		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						

Reproduction Module (Third Week)

(15-05-2023 To 20-05-2023)

Date/Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
08-05-2023 MONDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		PATHOLOGY (LGIS)		QURAN TRANSLATION - III		BREAK	SGD/DISSECTION	SDL Anatomy Ischioanal Fossa Urogenital Diaphragm Online SDL & Clinical Evaluation
		Lactation, Milk composition, breast feeding	Puberty, menarche, menopause PMS & anovulatory cycles, Abnormalities of secretion by ovaries	Polycystic ovaries		Imaniat-6	Akhlaqiat-2	B R E A K	Urogenital Diaphragm	
		Dr. Sheena (Even)	Dr. Shazia (Odd)	Dr Tayaba Ali (Even)	Dr. Aasiya Niazi (Odd)	Mufti Naeem Sherazi (Even)	Dr. Fahd Anwar (Odd)			
09-05-2023 TUESDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		COMMUNITY MEDICINE (LGIS)		GYNAE AND OBS (LGIS)				SGD/DISSECTION	SDL Biochemistry Pyrimidine Metabolism & Related Disorder
		Puberty, menarche, menopause PMS & anovulatory cycles, Abnormalities of secretion by ovaries	Lactation, Milk composition, breast feeding	Sexually Transmitted Diseases (STDs)	Acquired immunodeficiency syndromes (AIDs)	Menstrual irregularities		Perineum, Superficial Perineal Pouch & Contents		
		Dr. Shazia (Even)	Dr. Sheena (Odd)	Dr. Rizwan (Even)	Dr. Asif (Odd)	Dr Shama Bashir (Even)	Dr. Saira Ahmed (Odd)			
10-05-2023 WEDNESDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		Biomedical Ehtics (Club Activity)		COMMUNITY MEDICINE (LGIS)				SGD/DISSECTION	SDL Physiology Neonatal physiology
		Fertilization of ovum, transport, implantation, Functions of placenta	Growth &functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child	Ethical dilemmas in healthcare practice involving breach in principle of beneficence and non-maleficence		Acquired immunodeficiency syndromes (AIDs)	Sexually Transmitted Diseases (STDs)	Deep Perineal Pouch & Contents		
		Dr. Shazia (Even)	Dr. Usman (odd)	Biomedical ethics PBL/ SGD team detail given on next page		Dr. Asif (Even)	Dr. Rizwan (Odd)			
11-05-2023 THURSDAY	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		Biomedical Ehtics (Club Activity)		BIOCHEMISTRY (LGIS)				SGD/DISSECTION	SDL Biochemistry Pyrimidine Metabolism & Related Disorder
		Growth &functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child	Fertilization of ovum, transport, implantation, Functions of placenta	Ethical dilemmas practice involving breach in principle of justice		Pyrimidine Metabolism	Sex hormones	Blood Supply, Venous Drainage & Lymphatic Drainage of Pelvis & Perineum		
		Dr. Usman (Even)	Dr. Shazia (Odd)	Biomedical ethics PBL/ SGD team detail given on next page		Dr. Uzma (Even)	Dr. Almas (Odd)			
12-05-2023 FRIDAY	8:00 AM – 9:00 AM Practical & SGD/CBL	9:00 AM – 10:00AM SGD/DISSECTION		10:00AM – 11:00 AM BIOCHEMISTRY (LGIS)		11:00AM – 12:00PM PHYSIOLOGY (LGIS)				
	Practical & SGD/CBL Topics & venue mentioned at the end (Monday BATCHS of last week)	Sacral & Coccygeal Plexus		Sex hormones-II	Pyrimidine Metabolism	Special functional problems in neonate. Prematurity and its problems	Hormonal factors in pregnancy			
				Dr. Almas(Even)	Dr. Uzma (Odd)	Dr. Usman (Even)	Dr. Sheena (Odd)			
13-05-2023 SATURDAY	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm – 12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
	Practical & SGD/CBL Topics & venue mentioned at the end	PHYSIOLOGY (LGIS)		IUGRC		MEDICINE (LGIS)		BREAK	SGD/DISSECTION	SDL Anatomy SDL Anatomy Perineum, Superficial Perineal Pouch & Contents Deep Perineal Pouch & Contents Blood Supply, Venous Drainage & Lymphatic Drainage of Pelvis & Perineum Sacral & Coccygeal Plexus
		Hormonal factors in pregnancy	Special functional problems in neonate.Prematurity and its problems	Orientation to SPSS software How to make variables		AIDS			Radiology & Surface Marking	
		Dr. Sheena (Even)	Dr. Usman (Odd)	Dr. Afifa	Dr. Abdul Qadoos	Dr. Khaula	Dr Shaheer (Even)	Dr Shabaz Ashraf (Odd)		

Topics for Practical with Venue						Topics for Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Histology of uterus, uterine tube and ovary (Anatomy Histology Practical) Venue- Histology LaboratoryMilk Analysis (Biochemistry Practical) Venue- Biochemistry LaboratoryExamination of III, IV & VI Cranial Nerves (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Special Problems of Prematurity (In Neonate) (Venue: Lecture Hall No 5)Biochemistry SGD: Synthesis mechanism of action and funtions of sex hormones: Lecture Hall No 2)				
Schedule for Practical / Small Group Discussion						Venue for Second Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD		Batches	Roll No	Anatomy Teacher	Venue
Monday	C	B	E	A	D		A	01-90	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy
Tuesday	D	C	A	B	E		B	91-180	Dr. Gaiti Ara	LTC-1
Wednesday	E	D	B	C	A		C	181-270	Dr. Mariyam	LTC-4
Thursday	B	A	D	E	C		D	271 onwards	Dr. Sajjad	Lecture Hall No.03 Anatomy Lecture Hall
Friday	C	B	E	A	D					
Saturday	A	E	C	D	B					
Venue for Second Year Batches For PBL, SGD & Biomedical (Club Activity) Team-II					Sr. No	Batch	Roll no	Names of Teachers		
Batches	Roll No	Venue		Biochemistry				Physiology		
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Muhammad Usman	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam-us-Sehar	
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Ali Zain	3.	Batch – C	141-210	Dr. Romasa	Dr. Nayab / Dr. Usman	
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Kamil Tahir	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub	
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Maryam Abbas (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir	
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Najam-us-Sehar (SGD) Dr. Sheena Tariq (PBL)	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
Topic Details Of SDL Biochemistry										
<ul style="list-style-type: none">Constituents of Purine & Pyrimidine Bases										
<ul style="list-style-type: none">Salvage Pathway of Purine Metabolism										
<ul style="list-style-type: none">Pyrimidine metabolism										

Reproduction Module (Fourth Week)
(22-05-2023 To 27-05-2023)

Date/time	9:00am - 12:00pm	12:00-02:00pm
15-05-2023 MONDAY	Anatomy Theory Paper	
16-05-2023 TUESDAY	Physiology Theory Paper & Video Assisted Quiz	
17-05-2023 WEDNESDAY	Biochemistry Theory Paper & Allieds	
18-05-2023 THURSDAY	Anatomy /Physiology Viva Voce	
19-05-2023 FRIDAY	Anatomy /Physiology Viva Voce	
20-05-2023 SATURDAY	SDL For Upcoming Module	

*Note: Detailed notice regarding content, time and venue will be issued accordingly

Note: Timetable Subject to change according to the current circumstances.

SECTION-VI

Table of Specification (TOS) For Reproduction Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
						No. of items	Marks					
			C1	C2	C3			C1	C2	C3		
1.	Anatomy	20	10	5	5	4	20	1	1	2	60	100
2.	Physiology	30	18	9	3	4	20	1	1.5	1.5	25	75
3.	Biochemistry	8	4	3	1	1	5	-	1	-	-	13
4.	Bioethics Professionalism	5	-	3	2	-	-	-	-	-	-	5
5.	Research, Artificial Intelligence & Innovation	5	-	3	2	-	-	-	-	-	-	5
6.	Pathology	3	-	2	1	-	-	-	-	-	-	3
7.	Medicine	5	-	3	2	-	-	-	-	-	-	5
8.	Surgery	3	-	2	1	-	-	-	-	-	-	3
9.	Obs & Gynaecology	5	-	3	2	-	-	-	-	-	-	5
10.	Community Medicine	4	-	2	2	-	-	-	-	-	-	4
Grand Total											218	

Annexure I

(Sample MCQ & SEQ Papers)

RAWALPINDI MEDICAL UNIVERSITY, RWP
ANATOMY DEPARTMENT
2nd Year MBBS Module Exam (Reproduction)

1. A 30 year old male having mumps came to emergency with high grade fever with feeling of heaviness, pain and swelling of scrotum. What is the most likely diagnosis
 - a. Orchitis
 - b. Cryptorchidism
 - c. Prostatitis
 - d. Salpingitis
 - e. Urethritis
3. A baby was brought to a GP Clinic with the opening of the urethra on the downward curve of penis. The baby has
 - a. Epispadias
 - b. Bladder exstrophy
 - c. Omphalocele
 - d. Rectocele
 - e. Hypospadias
5. A woman came to gynae OPD with pain lower abdomen and pelvis. Medical officer suspected rupture of ovarian cyst which was confirmed on Ultrasound of pelvis as there was a collection of fluid in the rectouterine pouch. Culdocentesis was decided via syringe, the needle would be introduced through:
 - a. Anterior fornix of vagina .
 - b. Posterior fornix of vagina .
 - c. Anal canal
 - d. Rectum
 - e. Urethra.
2. A 70-year-old male presented to OPD with severe dull backache, loss of weight and severe fatigue. His Prostate Specific Antigen were raised. On Direct Rectal Examination a hard, immobile and irregular mass was confirmed anteriorly. Most likely diagnosis is
 - a. BPH
 - b. Sciatica
 - c. PID
 - d. Prostatic Cancer
 - e. Prostatitis
4. While crossing road an elder woman was run over by a speeding car. She was taken to the emergency department by the police where an X-ray examination of the pelvis revealed the disruption of the sacroiliac joint and fracture of the body of the pubis.

Which viscera are the most vulnerable to injury during pelvic fracture?

 - a. Urinary bladder and urethra.
 - b. sigmoid colon.
 - c. appendix
 - d. cecum
 - e. anal canal

RAWALPINDI MEDICAL UNIVERSITY
REPRODUCTION MODULE EXAM 2ND YEAR MBBS
ANATOMY SEQs

Note: Attempt all questions. All questions carry equal marks. Draw diagram where necessary

- | | | |
|-----|---|----|
| Q1 | a. Draw and label microscopic structure of fallopian tubes. | 03 |
| | b. Briefly describe blood testis barrier. | 02 |
| Q2. | 30 years female presented in gynae OPD with complaint of repeated miscarriages. On ultrasonography she was diagnosed as a case of uterus didelphys (double uterus). | |
| | a. Give embryological basis of this condition. | 02 |
| | b. Tabulate the adult derivatives and remnants of mesonephric and paramesonephric ducts in males and females. | 03 |

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF PHYSIOLOGY
REPRODUCTION MODULE FOR SECOND YEAR MBBS

1. Testosterone is secreted by:
 - a. Anterior pituitary gland
 - b. Posterior pituitary gland
 - c. Leyding cells of testis
 - d. Adrenal gland
 - e. Thyroid gland
2. The enzyme present in acrosome responsible for the opening pathways between the granulosa cells so that sperm can reach the ovum, is:
 - a. Lipase
 - b. Sucrase
 - c. Amylase
 - d. Lactase
 - e. Hyaluronidase
3. The normal stimulus that causes the test is to descend into the scrotum from abdomen is:
 - a. Testosterone secreted by fetal testes
 - b. Aldosterone
 - c. ADH
 - d. Fetal cortisol
 - e. Growth hormone
4. The function of testosterone in male includes:
 - a. It increases protein formation & muscle development
 - b. It decreases thickness of skin
 - c. It decreases red blood cells
 - d. It decreases basal metabolic rate
 - e. It decreases reabsorption of sodium in distal tubule
5. Increased secretion by the fallopian tubules is promoted by:
 - a. Estrogen
 - b. Prolactin
 - c. Progesterone
 - d. Oxytocin
 - e. Testosterone

RAWALPINDI MEDICAL UNIVERSITY
DEPARTMENT OF PHYSIOLOGY
REPRODUCTION MODULE SEQs SECOND YEAR MBBS

- Q.1 A 35 year old male known athlete, used testosterone to improve work performance and muscle mass.
- a. How testosterone is secreted in males? (2)
 - b. Explain the feedback regulation of hypothalamic-pituitary testicular axis. (3)
- Q.2 Explain the hormonal changes during normal female monthly cycle with the help of graph. (2,3)
- Q.3 A 25 year old obese female married for 2 years, presented with complaints of primary infertility. Her labs were performed. Hormonal profile showed raised LH and reduced FSH levels. Scan revealed multiple cysts in ovaries confirming the diagnosis of polycystic ovarian syndrome.
- a. Explain the mechanism of ovulation. (2)
 - b. Briefly explain the phases of ovarian cycle. (3)
- Q.4 A 55 years old female presented to OPD with complaints of hot flashes, insomnia and mood disturbances. The examining doctor counseled her about her menopause and related symptoms.
- a. What are the effects of estrogen on primary and secondary sexual characteristics? (2)
 - b. Enlist the effects of deficiency of estrogen. (3)
- Q.5 A 26 years old female presented with complaints of missed periods. Her pregnancy test came out be positive.
- a. Name the hormone detected in urine pregnancy test. (1)
 - b. Explain the functions of this hormone. (2.5)
 - c. Enlist the hormones secreted by the placenta. (1.5)

RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOCHEMISTRY
2ND YEAR MBBS
REPRODUCTION MODULE

1. Which one of the following Nitrogenous base is absent in DNA?
 - a. Adenine
 - b. Guanine
 - c. Uracil
 - d. Thymine
 - e. Cytosine
2. End product of Purine degradation is:
 - a. Urea
 - b. Uric acid
 - c. Ammonia
 - d. Allantoin
 - e. Pyruvate
3. Following is the cause main clinical feature of Gout:
 - a. Photosensitivity
 - b. Arthritis
 - c. Immunodeficiency
 - d. Jaundice
 - e. Anemia
4. Following statement is true regarding Testosterone:
 - a. It is produced by Ovaries
 - b. Acts on the liver and adipose tissue
 - c. Receptors are present on the cell surface
 - d. It is a steroid hormone
 - e. Transported as free hormone in the plasma

SEQ

- Q. a. Explain steps of synthesis of estrogen. 2.5
- b. Discuss causes of hyperuricemia. 2.5

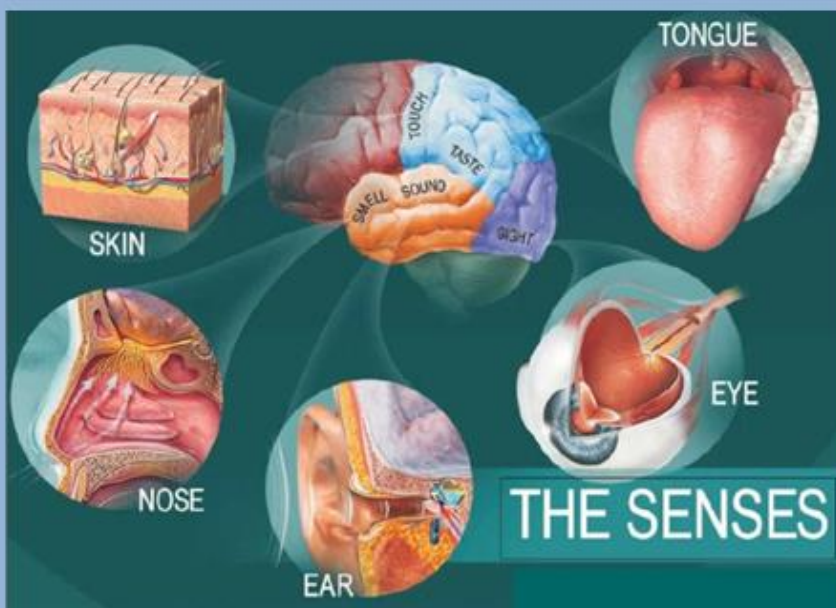
RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOETHICS
2ND YEAR MBBS
REPRODUCTION MODULE

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.
 - a. Bio-piracy
 - b. Biosafety
 - c. Bioethics
 - d. Bio-patents
 - e. Bio-logistic
2. The right of patients having self-decision is called.
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
3. Following is not code of ethics.
 - a. Integrity
 - b. Objectivity
 - c. Confidentiality
 - d. Behaviour
 - e. Autonomy
4. -----in the context of medical ethics, if it's fair and balanced
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
5. -----Principle requiring that physicians provide, positive benefits
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity



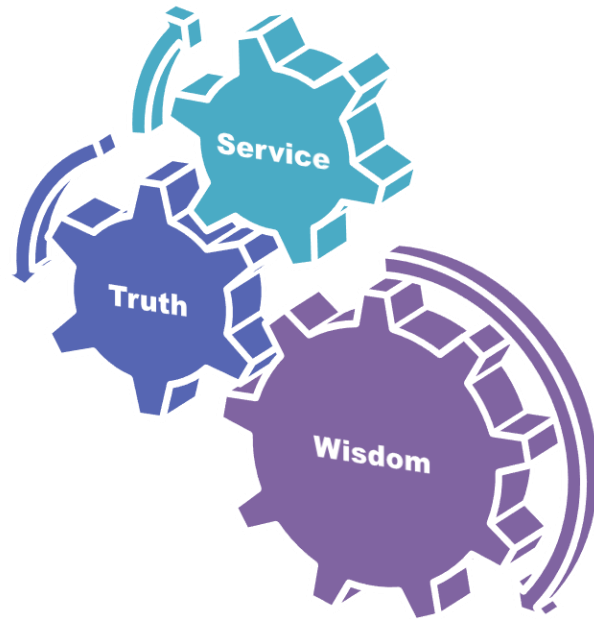
Special Senses Module

Study Guide Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

Special Senses Module

Discipline Wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
II	<ul style="list-style-type: none"> Anatomy 	<ul style="list-style-type: none"> Development of Eye Development of Pharyngeal arches Development of Ear 	<ul style="list-style-type: none"> Histology of Eye Histology of Ear 	<ul style="list-style-type: none"> Cornea Retina External and Internal ear 	<ul style="list-style-type: none"> Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) External surface of cranial base (Norma basalis) Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) Mandible Temporomandibular joint Face Scalp Orbit boundaries and Extraocular muscles Vessels and nerves of orbit Eyeball Eyelid and lacrimal apparatus Parotid and temporal region Infratemporal fossa Pterygopalatine fossa External and middle ear Inner ear Nose and paranasal sinuses 	<ul style="list-style-type: none"> Oculomotor nerve palsy Extra Dural hemorrhage 	<ul style="list-style-type: none"> Norma frontalis, verticalis and basalis Lateralis and occipitalis, TMJ & Mandible Orbit boundaries Extraocular muscles Vessels and Nerves of orbit Temporal and Infra temporal region, Pterygopalatine fossa External and middle ear
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Physiology of Ear & Eye 					
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Receptors, Second messengers, Neurotransmitters, Vitamin A role in vision 					
	<ul style="list-style-type: none"> Biomedical Ethics / Professionalism 	<ul style="list-style-type: none"> Ethical dilemmas Involving breach in Justice 					
	<ul style="list-style-type: none"> Behavioral Sciences 	<ul style="list-style-type: none"> Perception 					
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> Synopsis writing 					
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> General radiologic concepts 					
	<ul style="list-style-type: none"> Family Medicine 	<ul style="list-style-type: none"> Approach to a patient with earache 					

	<ul style="list-style-type: none"> • Vertical components 	<ul style="list-style-type: none"> • The Holy Quran Translation Component
	<ul style="list-style-type: none"> • Vertical Integration 	<ul style="list-style-type: none"> • Clinically content relevant to Speical Senses module • Plastic surgery (Surgery) • Imaniat (Hadith) (Islamiyat) • Pakistan ki jughraiyyai ahmiyat aur difai haisiyat (Pak Studies) • Nasal polyp & Sinusitis & Diseases of External Nose (ENT) • Cataract & Glaucoma & Anti glaucoma drugs (Eye) • Conjunctivitis Chalazion (Eye) • Ocular trauma & Ocular Procedures (Eye) • Zimidaari aur taluqaat (Islamiyat) • Pakistan k hamsaya mumalik se taluqaat (Pak Studies) • Refractive Errors Strabismus (Eye) • Management Of Covid-19 Sense Of Smell (Medicine) • Otitis Media Ear Discharge &Hearing Problems in Children (ENT) • Facial fractures (ENT) • Uswa-e-hasna (Islamiyat) • Pakistan k qudrati wasail-maadniyaat (Pak Studies)

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Special Senses Module Team

Module Name : Reproduction Module
 Duration of module : 04 Weeks
 Coordinator : Dr. Rahat
 Co-coordinator : Dr. Fareed Ullah
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Rahat (Senior Demonstrator of Biochemistry)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Rahat (Senior Demonstrator of Biochemistry)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Fareed Ullah (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Module III – Special Senses Module

Rationale: Visual system is a blessing, and no one can underestimate the importance of sight in one's life. It is a highly sensitive system. Unfortunately, it is among the neglected parts of health care and millions of people are getting blind either due to negligence or inappropriate treatment. Refractive errors, cataract, glaucoma and diabetic eye disease are among the ophthalmic diseases which can be easily treated, and morbidity prevented if diagnosed earlier. A young doctor must know how to screen out eye diseases and treat where possible. It is our responsibility to provide them with the required acumen.

Ear, Nose and Throat disorders are very common in the community and form a major portion of clinical practice of a general / family physician. Common ENT problems like pharyngitis, tonsillitis, Otitis media, rhinosinusitis, nasal allergy, deafness, vertigo and balance problems can be diagnosed and treated easily. The prevalence of cancer of the upper aerodigestive tract is very high in Pakistan. These patients must be diagnosed and treated at the early stages to reduce morbidity and mortality. Medical students must be made aware of the importance of proper management of ENT problems for the benefit of community and humanity.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- Integrate the basic knowledge and clinical problems.
- Take detailed history, examine the patients and make a provisional diagnosis with the plan of management.
- Timely refer the patient to an ophthalmologist or ENT specialist.
- Used technology based Medical Education including **Artificial Intelligence**
- Appreciate concept and importance of **Family Medicine, Biomedical Ethics, & Research.**

Skills

- Demonstrate effective skill for performing and interpreting various laboratory tests like pregnancy test.
- Demonstrate awareness of ethical, legal and social implication of issues related to bioethics.

Attitude

- Demonstrate effective communication skill strategies while interacting with patients.
- Demonstrate teamwork and positive interaction with colleagues.
- Demonstrate self learning attitude and problem-solving skills.

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

- Large Group Interactive Session (LGIS)
- Small Group Discussion (SGD)
- Self-Directed Learning (SDL)
- Case Based Learning (CBL)
- Problem- Based Learning (PBL)
- Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar’s Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

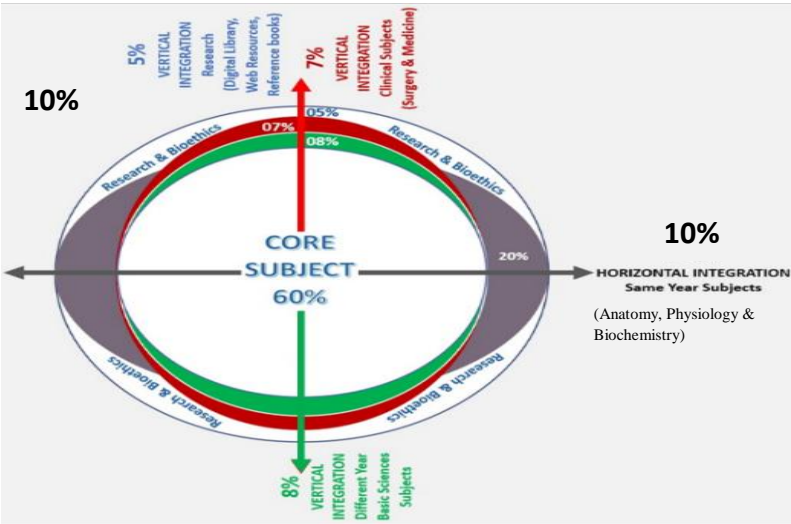


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementation of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self-Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It’s a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthesize & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organize Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- Small Group Discussions
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- Self-Directed Topic, Learning Objectives & References
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- Skill Laboratory
 - Anatomy
 - Physiology
 - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Development				
Development of Pharyngeal apparatus	Define the pharyngeal arch apparatus. Describe components of pharyngeal arches. Enlist derivatives of each of pharyngeal arch. Describe the development of pharyngeal grooves and pharyngeal membranes. Enlist the derivatives of pharyngeal pouches and clefts. Enlist common birth defects associated with pharyngeal apparatus. Explain the embryological basis of these defects. Understand the bio-physiological aspects of arches. Read relevant research article. Use Digital Library	C1 C2 C1 C2 C2 C1 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA
Development of face, nasal cavities	Describe the developmental stages of face. Discuss the role of neural crest cells in development of facial skeleton and pharyngeal arch derivatives. Describe the molecular regulation of facial development. Discuss the congenital anomalies of face. Describe the development of nasal cavities and paranasal sinuses. Understand the bio-physiological aspects of face & nasal cavities Read relevant research article. Use Digital Library	C2 C2 C2 C3 C2 C3 C3 C3	LGIS	MCQ SAQ VIVA
Development of palate	Discuss the development of primary and secondary palate. Enlist the different varieties of cleft palate. Discuss the etiology of cleft lip and cleft palate. Describe embryological basis of craniofacial anomalies. Understand the bio-physiological aspects of Palate. Read relevant research article. Use Digital Library	C2 C2 C1 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA

Development of Eye (1)	Describe the different embryological sources of development of eye. Describe development of eye field on rostral neural tube. Enlist derivatives of optic cup and development of retina. Recall the differentiation of optic grooves and optic vesicle. Discuss transformation of optic vesicles into optic cup. Describe development of retina. Read relevant research article. Use Digital Library	C2 C2 C1 C1 C2 C2 C3 C3	LGIS	MCQ SAQ VIVA
Development of Eye (11)	Describe formation of optic stalk. Explain induction of optic placodes and lens primordia. Enumerate neural crest cell and mesenchymally derived eye structures. Enlist the molecular regulation of eye development. Discuss birth defects of the eye. Read relevant research article Use Digital Library	C2 C2 C1 C1 C3 C3 C3	LGIS	MCQ SAQ VIVA
Development of Ear	Explain the development of otic placodes, otic pit, otic vesicle and otic capsule. Enlist derivatives of otic vesicle and otic capsule. Describe development of middle ear cavity and Eustachian tube from tubotympanic recess. Describe the development of auditory ossicles, tympanic membrane and mastoid antrum. Discuss development of external acoustic meatus. Enlist common congenital anomalies associated with ear development. Describe the embryological basis of these anomalies Read relevant research article Use Digital Library	C2 C1 C2 C2 C2 C3 C3 C3 C3	LGIS	MCQ SAQ VIVA
Histology				

Histology of Ear	Describe the structural differences between the outer, middle and inner ear. Discuss the functions of different parts of ear. Distinguish the auditory parts of the inner ear from the vestibular system. Discuss their roles in hearing and balance. Describe the function of sensory hair cells. Describe the appearance and function of the spinal ganglion. Read relevant research article Use Digital Library	C2 C2 C1 C2 C2 C2 C3 C3	LGIS	MCQ SAQ VIVA
Histology of Eye (I) (Fibrous & vascular coats)	Discuss the histology of different coats of the eyeball. Describe histological sections of sclera and cornea. Describe the histology of choroid, ciliary body and iris. Discuss histological sections of accessory structures of the eye. Discuss the histological details of lens chambers of eye ball and vitreous body Discuss the related clinical like glaucoma, cataract Read a relevant research article Use Digital Library	C2 C2 C2 C2 C3 C3 C3	LGIS	MCQ SAQ VIVA
Histology of Eye(II) (Retina and photoreceptors)	Describe layers of retina. Discuss retinal pigment epithelium. Discuss histology and functions of neuronal retina Describe Photoreceptors and Rod cells. Discuss the related clinical like retinal detachment Read relevant research article Use Digital Library	C2 C2 C2 C2 C3 C3 C3	LGIS	MCQ SAQ VIVA

Physiology Large Group Interactive Session (LGIS)

Topics	Learning Objectives	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	<ol style="list-style-type: none"> 1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems) 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635) 	<ul style="list-style-type: none"> • https://www.britanica.com/science/human-eye • https://youtu.be/IaEFdlxW0rA 	<ol style="list-style-type: none"> 1.C2 2. C2 3. C2 4.C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Introduction to Physiology of external ear, Middle ear	<ol style="list-style-type: none"> 1.Describe physiology of external ear 2.Describe physiology of middle ear 3. Explain structure of middle ear 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02, (Chapter 10, Page 199) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 92 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 364-371) 	<ul style="list-style-type: none"> • https://youtu.be/VRLm7cpmZSk • https://www.sciencedirect.com/science/article/pii/S0378595522002192 	<ol style="list-style-type: none"> 1. C2 2. C2 3. C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

		<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 663) 				
Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina	1.Describe the formation and circulation of aqueous humor 2.Explain the mechanism of regulation of intraocular pressure 3.Define glaucoma and its treatment	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 178) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1094) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 635) (Chapter 51,Page 639) 	<ul style="list-style-type: none"> https://youtu.be/CKtLIOSh8o4 https://youtu.be/7CFY4gxLnMY https://my.clevelandclinic.org/health/body/24611-aqueous-humor-vitreous-humor 	1. C2 2. C2 3. C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Functions of Inner ear, Physiology of Hearing	1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impendence matching and attenuation reflex 3. Explain the conduction of sound waves in the cochlea	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 200,204) Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 93 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669) 	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=90&ContentID=P02025	1. C2 2. C1 3. C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Photochemistry of vision &Physiological	1. Describe the physiology of retinal layers 2. Explain photochemistry of vision (rhodopsin - retinal)	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 182) 	1. https://www.brainkart.com/article/Photochemistry-of-Eye-	1. C2 2. C2 3. C2	LGIS	MCQ SEQ VIVA VOCE

basis for photo transduction	<ol style="list-style-type: none"> Describe the mechanism of activation of Rods Explain the photochemistry of color vision 	<ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 87 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 379-387) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 51, Page 641) 	<ol style="list-style-type: none"> Vision_19676/ https://youtu.be/k9lrM5iPNuY 	4. C2		MCQ (LMS based Aseessment, MST based Assessment) OSPE
Hearing abnormalities, Tuning fork tests and audiometry	<ol style="list-style-type: none"> Explain the auditory nervous pathway and abnormalities associated with it. Describe the function of cerebral cortex in hearing. 	<ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition (Chapter 62, Page 1067) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 53, Page 672) 	<ol style="list-style-type: none"> https://youtu.be/FgF91K7dU8Y https://youtu.be/acYMy9b0F2A https://www.uptodate.com/contents/image?imageKey=PC%2F58032&topicKey=PC%2F15359&source=see_link 	<ol style="list-style-type: none"> C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information	<ol style="list-style-type: none"> Explain the neural circuitry of the Retina Describe the physiology of visual pathway Name the optic lesion associated with visual pathway 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 09, Page 189, 193) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 90 Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 51, Page 644) (Chapter 52, Page 653-657) 	<ol style="list-style-type: none"> https://youtu.be/wiYmTAuVimg https://youtu.be/cG5ZuK0_qtc https://teachmeanatomy.info/head/cranial-nerves/optic-cnii/ 	<ol style="list-style-type: none"> C2 C2 C1 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Vestibular system	<ol style="list-style-type: none"> Describe the function of the organ of corti Explain vestibular system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 10, Page 209) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 95 Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition, (Chapter 63, Page 1072) 	<ol style="list-style-type: none"> https://www.physio-pedia.com/Vestibular_System https://youtu.be/ryGMI3SpxCE https://youtu.be/mcp7qLh8_5c 	<ol style="list-style-type: none"> C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control	<ol style="list-style-type: none"> Explain the muscular control of eye movement Describe the fixation movements of eye Define accommodation reflex and pupillary light reflex Name the optic lesion associated with visual pathway 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 09, Page 190) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 374-378) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 52, Page 657) 	<ol style="list-style-type: none"> https://youtu.be/evLyI35m8xU https://teachmeanatomy.info/head/organs/eye/extraocular-muscles/ 	<ol style="list-style-type: none"> C2 C2 C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Sense of Taste and pathophysiology	<ul style="list-style-type: none"> List the primary sensation of taste Explain the mechanism of taste perception and its transmission into central nervous system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 11, Page 221) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 100 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 361) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 54, Page 675-679) 	<ol style="list-style-type: none"> https://youtu.be/K9JSBzEEA0o https://youtu.be/mFm3yA1nsIE https://www.sciencedirect.com/topics/nursing-and-health-professions/taste 	<ol style="list-style-type: none"> C1 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

Physiology of accommodation and clinical abnormalities	<ol style="list-style-type: none"> 1. Define accommodation reflex and pupillary light reflex 2. Explain Clinical abnormalities associated with accommodation 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 188) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 52, Page 660) 	<ol style="list-style-type: none"> 1. https://youtu.be/xj0blrAx3_s 2. https://teachmephysiology.com/nervous-system/ocular-physiology/ocular-accommodation/ 	<ol style="list-style-type: none"> 1. C1 2. C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Sense of Smell and pathophysiology	<ol style="list-style-type: none"> 1. List the primary sensation of smell 2. Describe the stimulation of olfactory cells and its transmission into central nervous system 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 217) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 98 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 358) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 679) 	<ol style="list-style-type: none"> 1. https://www.alimentarium.org/en/fact-sheet/senses-smell 2. https://youtu.be/mFm3yA1nsIE 	<ol style="list-style-type: none"> 3. C1 4. C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Receptors and their classification	Define receptors. Classify Receptors	C1 C2	LGIS	MCQs, SAQs& Viva
Signal transduction G proteins	Explain the structure and function of G proteins	C2	LGIS	MCQs, SAQs & Viva
Signal transduction Second messenger system	Describe different types of second messengers	C2	LGIS	MCQs, SAQs & Viva
Neurotransmitters	Explain synthesis & functions of neurotransmitters. Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Role of vitamin A in vision	Explain the role of vitamin A in vision. Discuss related clinical abnormalities	C2 C3	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topics	At the end of lecture students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Facial & Superior Aspect of Cranium (Norma Frontalis & Verticalis.)	• Define boundaries of Norma frontalis and verticalis.	C1	Skills Lab	MCQ SAQ VIVA
	• Enumerate their muscle attachment.	C1		
	• Describe and features of its structure	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
External Surface of Cranial Base (Norma Basalis)	• Describe bones forming the base of skull	C2	Skills Lab	MCQ SAQ VIVA
	• Explain the details of anterior, middle and posterior part of base of skull	C2		
	• Identify different foramina and structures passing through them.	C1		
	• Explain the attachments and relations of base of skull.	C2		
	• Fracture of cranial base	C2		
	• Head injuries and intracranial haemorrhage	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Lateral & Occipital Aspect of Cranium (Norma Lateralis. & Occipitalis)	• Enlist various bones in normal lateralis. Describe the cranial and facial subdivision. Define external acoustic meatus,	C1	Skills Lab	MCQ SAQ VIVA
	• Discuss attachments of mastoid and styloid process.	C2		
	• Explain the boundaries of Norma occipitalis.	C2		
	• Identify different foramina and structures passing through them at the base.	C1		
	• Explain its attachments and relations.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Mandible	• Describe the anatomical features of mandible	C2	Skills Lab	MCQ SAQ VIVA
	• Describe parts of mandible	C2		
	• Explain structural features of each part	C2		
	• Enlist attachments of each part	C1		
	• Describe blood and nerve supply of mandible.	C2		
	• Interpret applied anatomy of mandible.	C3		

	• Read relevant research article	C3		
	• Use digital library	C3		
Temporomandibular joint (TMJ)	• Discuss the temporomandibular joint, its type, formation and neurovascular supply.	C2	Skills Lab	MCQ SAQ VIVA
	• Describe the movement's axis and muscles involved.	C2		
	• Correlate clinically disorders of the temporo- mandibular joint.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Face	• Discuss limits of face.	C2	Skills Lab	MCQ SAQ VIVA
	• Tabulate the muscles of face. (Superficial and deep) origin, insertion, nerve supply and action.	C2		
	• Discuss their role in facial expression.	C2		
	• Describe facial nerve palsy upper and lower motor neuron.	C3		
	• Discuss nerve supply of face.	C1		
	• Discuss superficial and deep vasculature of face.	C1		
	• Read relevant research article	C3		
	• Use digital library	C3		
Scalp and temple	• Explain the extent of scalp	C2	Skills Lab	SAQ VIVA
	• Describe the Scalp layers, nerves & vessels	C2		
	• Discuss the clinical correlates like scalp injuries and scalp wounds.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Orbit	• Discuss its location, surfaces and borders	C2	Skills Lab	MCQ SAQ VIVA
	• Describe its muscular and ligamentous attachment.	C2		
	• Describe eyeball movements in relation to recti and oblique muscles.	C2		
	• Discuss role of levator palpebrae superioris	C2		
	• Discuss clinical correlations of different coats of eyeball.	C2		
	• Explain extent and subdivisions of pharynx	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		

Eyeball	• Describe anatomy of eyeball with suspensory apparatus.	C2	Skills Lab	MCQ SAQ VIVA
	• Discuss different coats of eyeball with their nerve and blood supply.	C2		
	• Discuss refractive media and compartments of eyeball.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Eyelid & lacrimal app	• Discuss the different components of lacrimal apparatus	C2	Skills Lab	MCQ SAQ VIVA
	• Describe the lacrimal gland and its neurovascular supply	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Parotid & Temporal Region	• Describe boundaries of parotid region.	C2	Skills Lab	MCQ SAQ VIVA
	• Discuss surfaces, innervation and relations of parotid gland.	C2		
	• Understand the bio-physiological aspects of arches	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Infra temporal Fossa	• Discuss the boundaries and contents of temporal region.	C2	Skills Lab	MCQ SAQ VIVA
	• Describe the temporalis muscle and its relations	C2		
	• Enumerate the boundaries and contents of infratemporal region.	C1		
	• Discuss muscles of mastication	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Pterygopalatine Fossa	• Discuss the boundaries and contents of pterygopalatine fossa.	C2	Skills Lab	MCQ SAQ VIVA
	• Discuss the communications of pterygopalatine fossa.	C2		
	• Understand the bio-physiological aspects of arches	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
External & Midal Ear	• Describe parts of the ear.	C2	Skills Lab	MCQ SAQ VIVA
	• Discuss walls and contents of external and middle ear ,	C2		
	• Discuss their blood and nerve supply.	C2		
	• Explain pharyngo tympanic tube, mastoid antrum and air cells.	C2		
	• Relation of chorda tympani and facial nerve.	C1		
	• Discuss Mastoiditis and tubal blockage	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		

Inner Ear	• Discuss membranous and bony labyrinth.	C2	Skills Lab	MCQ SAQ VIVA
	• Describe internal acoustic meatus.	C2		
	• Explain the course of 7th and 8th cranial nerve in detail.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Nose & Paranasal Sinuses	• Discuss anatomy and location of paranasal air sinuses separately.	C2	Skills Lab	MCQ SAQ VIVA
	• Define & list names of paranasal sinuses	C1		
	• Describe their blood and nerve supply	C2		
	• Describe functions of paranasal sinuses.	C2		
	• Discuss drainage of paranasal sinuses.	C2		
	• Identify carious sinuses in radiographs	C1		
	• Describe anatomy of external nose and features of of nasal septum, side and anatomical position.	C2		
	• Describe details of olfactory receptors and formation of olfactory nerve.	C2		
	• Discuss blood and nerve supply of external nose and nasal septum.	C2		
	• Explain functions of nose.	C2		
	• Discuss in detail clinical correlates of external nose and nasal septum. Lateral nasal wall and their importance.	C2		
	• Discuss on clinical importance of nasal cavity.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		

Physiology Small Group Discussion (SGDs)

Topics	Learning Objectives	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Physiology of Vision	<ol style="list-style-type: none"> 1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems) 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635)</p>	<ol style="list-style-type: none"> 1. https://www.britannica.com/science/human-eye 2. https://youtu.be/laEFdlxW0rA 	<ol style="list-style-type: none"> 1.C2 2. C2 3. C2 4.C2 	SGD	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>
Physiology of Hearing	<ol style="list-style-type: none"> 1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impendence matching and attenuation reflex 3. Explain the conduction of sound waves in the cochlea 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 200,204) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 93 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669)</p>	<ol style="list-style-type: none"> 1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeID=90&ContentID=P02025 	<ol style="list-style-type: none"> 1. C2 2. C1 3. C2 	SGD	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>

Sense of Taste and Smell	<ol style="list-style-type: none"> List the primary sensation of taste Explain the mechanism of taste perception and its transmission into central nervous system List the primary sensation of smell Describe the stimulation of olfactory cells and its transmission into central nervous system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 11, Page 221) (Chapter 11, Page 217) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 100, chapter 3, page 98 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 361) (Chapter 10, Page 358) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 54, Page 675-679) . (Chapter 54, Page 679) 	<ol style="list-style-type: none"> https://youtu.be/K9JSBzEEA0o https://youtu.be/mFm3yA1nsIE https://www.sciencedirect.com/topics/nursing-and-health-professions/taste https://www.alimentarium.org/en/fact-sheet/senses-smell https://youtu.be/mFm3yA1nsIE 	1.C1 2.C2 3.C1 4.C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
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Biochemistry Small Group Discussion (SGDs)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Receptors & G proteins	Explain different types of receptors and G proteins	C2	SGD	MCQs, SAQs & Viva
Role of vitamin A in vision	Explain the role of vitamin A in vision. Discuss related clinical abnormalities	C2 C3	SGD	MCQs, SAQs & Viva
Neurotransmitters	Discuss synthesis, functions & clinical significance of neurotransmitters	C2	SGD	MCQs, SAQs & Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Norma Frontalis and Verticalis.	<ul style="list-style-type: none"> Define boundaries of Norma frontalis and verticalis. 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 823-8291).
	<ul style="list-style-type: none"> Enumerate their muscle attachment. 	
	<ul style="list-style-type: none"> Describe and features of its structure 	<ul style="list-style-type: none"> https://youtu.be/rr3-V7Qhf8E
	<ul style="list-style-type: none"> Read relevant research article 	<ul style="list-style-type: none"> https://youtu.be/35Y71cRBqs8
	<ul style="list-style-type: none"> Use digital libaray 	
External Surface of Cranial Base Norma Basalis.	<ul style="list-style-type: none"> Describe bones forming the base of skull 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, P829-836).
	<ul style="list-style-type: none"> Explain the details of anterior, middle and posterior part of base of skull 	<ul style="list-style-type: none"> https://youtu.be/6ZjJPLOJ0N8
	<ul style="list-style-type: none"> Identify different foramina and structures passing through them. 	<ul style="list-style-type: none"> https://youtu.be/75lLaDFJTP4
	<ul style="list-style-type: none"> Explain the attachments and relations of base of skull. 	<ul style="list-style-type: none"> https://youtu.be/fteiKT_wQDE
	<ul style="list-style-type: none"> Fracture of cranial base 	
	<ul style="list-style-type: none"> Head injuries and intracranial haemorrhage 	
	<ul style="list-style-type: none"> Read relevant research article 	
	<ul style="list-style-type: none"> Use digital libaray 	
Lateral & Occipital Aspect of Cranium Norma Lateralis. Norma Occipitalis	<ul style="list-style-type: none"> Enlist various bones in normal lateralis. Describe the cranial and facial subdivision. 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 827-829).
	<ul style="list-style-type: none"> Define external acoustic meatus, 	<ul style="list-style-type: none"> https://youtu.be/tkpzPMXzwiM
	<ul style="list-style-type: none"> Discuss attachments of mastoid and styloid process. 	<ul style="list-style-type: none"> https://youtu.be/9Msvtw5CjFY
	<ul style="list-style-type: none"> Explain the boundaries of Norma occipitalis. 	
	<ul style="list-style-type: none"> Identify different foramina and structures passing through them at the base. 	
	<ul style="list-style-type: none"> Explain its attachments and relations. 	
	<ul style="list-style-type: none"> Read relevant research article 	
Mandible	<ul style="list-style-type: none"> Define location of mandible 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Pae 827).
	<ul style="list-style-type: none"> Describe parts of mandible 	<ul style="list-style-type: none"> https://youtu.be/_lHosB-c_fQ
	<ul style="list-style-type: none"> Explain structural features of each part 	<ul style="list-style-type: none"> https://youtu.be/Qc0ysewMJg4
	<ul style="list-style-type: none"> Enlist attachments of each part 	
	<ul style="list-style-type: none"> Describe blood and nerve supply of mandible. 	
	<ul style="list-style-type: none"> Interpret applied anatomy of mandible. 	
	<ul style="list-style-type: none"> Read relevant research article 	

	<ul style="list-style-type: none"> • Use digital library 			
Temporomandibular joint	<ul style="list-style-type: none"> • Discuss the temporomandibular joint, its type, formation, and neurovascular supply. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 916-920). 		
	<ul style="list-style-type: none"> • Describe the movement's axis and muscles involved. 			
	<ul style="list-style-type: none"> • Correlate clinically disorders of the temporo- mandibular joint. 	<ul style="list-style-type: none"> • https://youtu.be/6tJsi5oghNY 		
	<ul style="list-style-type: none"> • Read relevant research article 	<ul style="list-style-type: none"> • https://youtu.be/0BKU04QLzV0 		
	<ul style="list-style-type: none"> • Use digital library 			
Orbit	<ul style="list-style-type: none"> • Discuss its location, surfaces and borders 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 889-906). 		
	<ul style="list-style-type: none"> • Describe its muscular and ligamentous attachment. 			
	<ul style="list-style-type: none"> • Describe eyeball movements in relation to recti and oblique muscles. 			
	<ul style="list-style-type: none"> • Discuss role of levator palpebrae superioris 	<ul style="list-style-type: none"> • https://youtu.be/HKEA4p5k66U 		
	<ul style="list-style-type: none"> • Discuss extraocular muscles of orbit. 	<ul style="list-style-type: none"> • https://youtu.be/Oz4kGGiJNrA 		
	<ul style="list-style-type: none"> • Supporting apparatus of eyeball. 			
	<ul style="list-style-type: none"> • Nerves of eye ball 			
	<ul style="list-style-type: none"> • Vasculature of orbit 			
	<ul style="list-style-type: none"> • Read relevant research article 			
Temporal Region	<ul style="list-style-type: none"> • Use digital library 			
	<ul style="list-style-type: none"> • Describe boundaries of parotid region. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 914-916). 		
	<ul style="list-style-type: none"> • Discuss surfaces, innervation and relations of parotid gland. 			
	<ul style="list-style-type: none"> • Understand the bio-physiological aspects of arches 	<ul style="list-style-type: none"> • https://youtu.be/HB6bN-rs2NU 		
	<ul style="list-style-type: none"> • Read relevant research article 	<ul style="list-style-type: none"> • https://youtu.be/zo7DDK-h1Mg 		
Infra temporal Fossa	<ul style="list-style-type: none"> • Use digital library 			
	<ul style="list-style-type: none"> • Discuss the boundaries and contents of temporal region. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 916-926). 		
	<ul style="list-style-type: none"> • Describe the temporalis muscle and its relations 			
	<ul style="list-style-type: none"> • Enumerate the boundaries and contents of infratemporal region. 	<ul style="list-style-type: none"> • https://youtu.be/z2GlluoOtMY 		
	<ul style="list-style-type: none"> • Discuss muscles of mastication 	<ul style="list-style-type: none"> • https://youtu.be/ixCCX46XWHA 		
	<ul style="list-style-type: none"> • Read relevant research article 			
Pterygopalatine Fossa	<ul style="list-style-type: none"> • Use digital library 			
	<ul style="list-style-type: none"> • Discuss the boundaries and contents of pterygopalatine fossa. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 7, Page 951-954) 		
	<ul style="list-style-type: none"> • Discuss the communications of pterygopalatine fossa. 			
	<ul style="list-style-type: none"> • Understand the bio-physiological aspects of arches 	<ul style="list-style-type: none"> • https://youtu.be/9taW-Th3ycc 		
	<ul style="list-style-type: none"> • Read relevant research article 	<ul style="list-style-type: none"> • https://youtu.be/o_JbDynMZjo 		

	<ul style="list-style-type: none"> Use digital library 	
External & Middle Ear	<ul style="list-style-type: none"> Describe parts of the ear. 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore. 6th Edition. (Chapter 7, Page 966-973).
	<ul style="list-style-type: none"> Discuss walls and contents of external and middle ear, 	
	<ul style="list-style-type: none"> Discuss their blood and nerve supply. 	
	<ul style="list-style-type: none"> Explain pharyngo tympanic tube, mastoid antrum and air cells. 	<ul style="list-style-type: none"> https://youtu.be/VRLm7cpmZSk
	<ul style="list-style-type: none"> Relation of chorda tympani and facial nerve. 	<ul style="list-style-type: none"> https://youtu.be/unDpXRE_PPA
	<ul style="list-style-type: none"> Discuss Mastoiditis and tubal blockage 	
	<ul style="list-style-type: none"> Read relevant research article 	
	<ul style="list-style-type: none"> Use digital library 	

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objective	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
ON CAMPUS Introduction to Physiology of external ear, Middle ear	1. Describe physiology of external ear 2. Describe physiology of middle ear 3. Explain structure of middle ear	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, (Chapter 10, Page 199) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 92 Human Physiology by Dee Unglaub Silverthorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 364-371) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 53, Page 663) 	1. https://youtu.be/VRLm7cpmZSk 2. https://www.sciencedirect.com/science/article/pii/S0378595522002192	1. C2 2. C2 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
Functions of Inner ear, Physiology of Hearing	1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impedance matching and attenuation reflex	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 10, Page 200, 204) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 93 	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeId=00000001	1. C2 2. C1 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,

	3. Explain the conduction of sound waves in the cochlea	<ul style="list-style-type: none"> Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 371-374) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 664,669) 	D=90&ContentID=P02025			MST based Assessment) OSPE SDL Evaluation
Hearing abnormalities, Tuning fork tests and audiometry	1.Explain the auditory nervous pathway and abnormalities associated with it. 2. Describe the function of cerebral cortex in hearing.	<ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's.13th Edition(Chapter 62,Page 1067) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 53, Page 672) 	1. https://youtu.be/FgF91K7dU8Y 2. https://youtu.be/acYMy9b0F2A 3. https://www.uptodate.com/contents/image?imageKey=PC%2F58032&topicKey=PC%2F15359&source=see_link	1.C2 2. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
OFF CAMPUS Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635) 	<ul style="list-style-type: none"> https://www.britannica.com/science/human-eye https://youtu.be/laEFdlxW0rA 	1.C2 2. C2 3. C2 4.C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
Fluid system of the eye Intraocular	1.Describe the formation and circulation of aqueous humor	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 178) 	<ul style="list-style-type: none"> https://youtu.be/CKtLIOSh8o4 	1. C2 2. C2 3. C1	SDL	MCQ SEQ VIVA VOCE

pressure, Function of the Structural Elements of the Retina	2.Explain the mechanism of regulation of intraocular pressure 3.Define glaucoma and its treatment	<ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1094) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 635) (Chapter 51,Page 639) 	<ul style="list-style-type: none"> https://youtu.be/7CFY4gxLnMY https://my.clevelandclinic.org/health/body/24611-aqueous-humor-vitreous-humor 			MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
Photochemistry of vision &Physiological basis for photo transduction	1. Describe the physiology of retinal layers 2. Explain photochemistry of vision (rhodopsin - retinal) 3. Describe the mechanism of activation of Rods 4. Explain the photochemistry of color vision	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 182) Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 87 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 379-387) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 51, Page 641) 	3. https://www.brainkart.com/article/Photochemistry-of-Eye-Vision_19676/https://youtu.be/k9lrM5iPNuY	1. C2 2. C2 3. C2 4. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
Vestibular system	1. Describe the function of the organ of corti 2. Explain vestibular system	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 10, Page 209) Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 95 Physiological Basis of Medical Practice by Best & Taylor's.13 th Edition,(Chapter 63,Page 1072)	4. https://www.physio-pedia.com/Vestibular_System 5. https://youtu.be/ryGMI3SpxCE https://youtu.be/mcp7qLh85c	1. C2 2. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation

Sense of Taste and pathophysiology	<ol style="list-style-type: none"> 1. List the primary sensation of taste 2. Explain the mechanism of taste perception and its transmission into central nervous system 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 221) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 100 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 361) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 675-679)</p>	<ol style="list-style-type: none"> 3. https://youtu.be/K9JSBzEEA0o 4. https://youtu.be/mFm3yA1nsIE 5. https://www.sciencedirect.com/topics/nursing-and-health-professions/taste 	<ol style="list-style-type: none"> 1.C1 2. C2 	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation
Sense of Smell and pathophysiology	<ol style="list-style-type: none"> 1. List the primary sensation of smell 2. Describe the stimulation of olfactory cells and its transmission into central nervous system 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 11, Page 217) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 98 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.Sensory Physiology (Chapter 10,Page 358) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 54, Page 679)</p>	<ol style="list-style-type: none"> 6. https://www.alimentarium.org/en/fact-sheet/senses-smell 7. https://youtu.be/mFm3yA1nsIE 	<ol style="list-style-type: none"> 1.C1 2.C2 	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE SDL Evaluation

Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Neurotransmitter	<ul style="list-style-type: none"> Explain synthesis & functions of neurotransmitters Discuss related clinical disorders 	<ul style="list-style-type: none"> Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 13, 21 page 166 & 317 - 319) Use digital library https://www.youtube.com/watch?v=wtcZt6VA4y8 https://www.youtube.com/watch?v=ijLdLjl_wTQ
Receptors	<ul style="list-style-type: none"> Define receptors Classify Receptors 	<ul style="list-style-type: none"> Text book of Biochemistry Lehninger 8th edition (Chapter 12, page 439- 440) Use digital library https://www.youtube.com/watch?v=lkEvLrIPj-U https://www.youtube.com/watch?v=RkFVViTUhbY
G - Proteins	<ul style="list-style-type: none"> Explain the structure and function of G proteins 	<ul style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition (Chapter 42, page 503 – 505) Use digital library https://www.youtube.com/watch?v=Glu_T6DQuLU https://www.youtube.com/watch?v=N7o0Fkz9iGE
Role of Vitamin A in Vision	<ul style="list-style-type: none"> Explain the role of vitamin A in vision Discuss related clinical abnormalities 	<ul style="list-style-type: none"> Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 28, page 433-434) Use digital library https://www.youtube.com/watch?v=HG5BfsaoiE0 https://www.youtube.com/watch?v=AKR1g4aHNb4
Second Messenger System	<ul style="list-style-type: none"> Describe different types of second messengers 	<ul style="list-style-type: none"> Lippincott Illustrated reviews of biochemistry 8th edition (Chapter 8, page 103- 105) Harper's Illustrated Biochemistry 32th edition (Chapter 42, page 506 – 509) Use digital library https://www.youtube.com/watch?v=PzA5Z3DXfrQ https://www.youtube.com/watch?v=aIZQ3ker0KE

Histology Practicals Skill Laboratory (SKL)

Topics	At The End Of Demonstration Student Should Be Able To	Learning Domains	Teaching Strategy	Assessment Tools
Cornea	<ul style="list-style-type: none"> Identify the histological slide cornea. Illustrate the microscopic picture of Cornea. Enlist two points of identification of each Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE
Retina	<ul style="list-style-type: none"> Identify the histological slide of retina. Illustrate the microscopic picture of retina Enlist two points of identification Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE
Ear	<ul style="list-style-type: none"> Identify the histological slide of ear Illustrate the microscopic picture of ear Enlist two points of identification of each Read a relevant research article Use digital library 	P C2 C1 C3 C3	Skill Lab	OSPE

Physiology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives	Reference	Learning Domains	Learning Strategy	Assessment Tools
Estimation of Visual Acuity	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Recall normal value of visual acuity • Use of Snellen's chart & jaeger's chart • Recall the different Errors of refraction 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1 P C1 C1 P C1	Practicals/skill lab	Viva Voce Ospe Video Assisted Assessment
Examination of 8 th Cranial Nerve (vestibular function)	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Use various hearing tests & interpretation of their results • Recall deafness, its types & causes 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1 P C1 C1 C1	Practicals/skill lab	Viva Voce Ospe Video Assisted Assessment
Performance of Hearing Test (cochlear function)	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Use various hearing tests & interpretation of their results • Recall deafness, its types & causes 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	P C1 P C1 C1 C1	Practicals/skill lab	Viva Voce Ospe Video Assisted Assessment

Biochemistry Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At The End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Urine report revision	Write and interpret urine report	P	Skill Lab	OSPE
Lipid Profile	Write and interpret lipid profile	P	Skill Lab	OSPE
Spectrophotometer	Understand principle and uses of spectrophotometer	P	Skill Lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	• Extra dural Haemorrhage (Norma lateralis & occipitalis)	Apply basic knowledge of subject to study clinical case.	C3
	• Occulo Motor nerve palsy (Extra ocular muscles)	Apply basic knowledge of subject to study clinical case.	C3
Biochemistry	• Night Blindness	Apply basic knowledge of subject to study clinical case.	C3

Vertical Integration LGIS

Pharmacology

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Anti glaucoma drugs	• Recall the process of production and drainage of aqueous humor	C1	LGIS	MCQ
	• Outline the range of normal IOP	C1		
	• Enumerate main drug groups used in treatment of glaucoma	C1		
	• Briefly discuss IOP lowering mechanism of main groups	C2		

Medicine

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Management Of Covid-19 Sense of Smell	• Discuss pathophysiology, signs and symptoms of patients with COVID-19.	C2	LGIS	MCQ
	• Discuss How will you investigate the patient with COVID-19.	C2		
	• Explain the management of COVID-19.	C2		

Sugery

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Plastic surgery	<ul style="list-style-type: none"> • Introduction to Plastic Surgery 	C2	LGIS	MCQ
Burn	<ul style="list-style-type: none"> • Define Burn 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> • Types of Burns 	C2		
	<ul style="list-style-type: none"> • Classification of Burns 			
	<ul style="list-style-type: none"> • Percentages of Burn 			
Burn Managment	<ul style="list-style-type: none"> • Approach toward Burn patient? 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> • Physiological changes because of Burn 	C2		
	<ul style="list-style-type: none"> • Importance of Fluid Management in burn 			
Foot Ulcer	<ul style="list-style-type: none"> • Classify Foot Ulcer 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> • Differentiate among Venous/Arterial /Traumatic and Diabetic Ulcer 	C2		
	<ul style="list-style-type: none"> • Grading of Diabetic foot ulcers 	C3		
Skin ulcer	<ul style="list-style-type: none"> • Classify Skin Ulcers 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> • Differentiate between marjolin ulcer, basal cell carcinoma and squamous cell carcinoma 	C2	LGIS	MCQ

Peadiatrics

Topic	At the End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Preventive Pediatrics	<ul style="list-style-type: none"> • Classify the degree of malnutrition in a malnourished child 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Differentiate between clinical features of kwashiorkor and marasmus on a patient 	C2	LGIS	MCQs

Radiology

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
General radiologic concepts	<ul style="list-style-type: none"> Categorize different tissues from most to least opaque on x-ray including bone, soft tissue, air, metal, and fat. 	C2	LGIS	MCQs

ENT

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Deafness	<ul style="list-style-type: none"> Know various cases of deafness 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> Understand the etiology, Pathology of various cases of deafness in external middle and internal ear and to know how to treat them. 	C2		
DNS & Rhinitis	<ul style="list-style-type: none"> Should define the turns 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> Know various causes of DNS and Rhinitis 	C1		
	<ul style="list-style-type: none"> Must be able to know treatment of all. 	C1		
Nasal polyp	<ul style="list-style-type: none"> Know definition of polyp 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> Know different types of nasal Polyps, their etiology, pathophysiology and treatment 	C1		
	<ul style="list-style-type: none"> Know latest management 	C1		
Diseases of External Nose	<ul style="list-style-type: none"> Know various diseases of external nose, their etiology 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> Pathophysiology and know how to treat them 	C1		
Ear Discharge	<ul style="list-style-type: none"> Know Various cases of ear discharge 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> Understand the etiology, Pathology of various cases of ear discharge in external and middle ear. 	C2		
	<ul style="list-style-type: none"> Know how to treat these causes. 	C1		

Dizziness and Vertigo.	• Recognise signs and symptoms of acoustic neuroma.	C1	LGIS	MCQs,
	• Identify treatment options and risks	C2		
Facial fractures	• Classify facial fractures	C1	LGIS	MCQs,
	• Enumerate treatment options for facial fractures	C2		
Sinusitis	• Classify Sinusitis	C1	LGIS	MCQs,
	• Enlist clinical features of sinusitis.	C2		
Hearing Problems in Children	• Define deafness	C1	LGIS	MCQs,
	• State the aetiology of hearing loss	C1		
	• Elaborate the types of hearing loss	C1		
	• Discuss the investigations of hearing loss	C2		
	• Describe the treatment options for hearing loss patients.	C2		

Eye

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Refractive Errors	Refractive Errors	C1	LGIS	MCQs,
	• Types			
	• Treatment			
	ColourVison			
	• Types			
	• Inheritance			
	• Gender Predisposition			
	Night Blindness	C1		
	• Etiology			
	• Treatment			
Glaucoma	Glaucoma	C1	LGIS	MCQs,
	• What is Glaucoma			
	• Classification			
	• Treatment			

Cataract	Cataract	C1	LGIS	MCQs,
	• Define			
	• Types of cataract			
	• Surgical procedures			
Ocular trauma & Ocular Procedures	Ocular Trauma	C1	LGIS	MCQs,
	• Blunt			
	• Penetrating			
	• Chemical Burns			
	• Laceration			
	Ocular Procedures	C1		
	• Cataract surgeries			
	• Glaucoma Surgeries			
	• Laser And refractive Surgeries			
Cornea	Corneal Ulcer	C1	LGIS	MCQs,
	• Bacterial			
	• Viral			
	• Fungal			
Conjunctivitis	• Define conjunctivitis	C1	LGIS	MCQs,
	• Discuss the causes & types			
	• Explain management in detail			

Behavioural Sciences

Topic	At The End Of Lecture, Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Perception	<ul style="list-style-type: none"> To be able to define perception and basic perceptual abilities. To identify abnormalities of perceptions and their role in disease causation 	C2	LGIS	MCQs,
Sleep and arousal	<ul style="list-style-type: none"> To be able to understand the physiology of sleep. Disorders of sleep and their management 	C2	LGIS	MCQs,

Family Medicine

Topic	At the End of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Approach to a patient with earache	• Define earache.	C1	LGIS	MCQs
	• Discuss various types of earache.	C2		
	• Discuss the signs and symptoms of a patient with earache.	C2		
	• Discuss the workup for diagnosis of different types of earache.	C2		
	• Discuss management of Various types of earache.	C2		
	• Appreciate approach to a patient with earache.	C3		

Biomedical Ethics & Professionalism

Topics	At the end of session students should be able to:	Learning Domains	Teaching Strategy	Assessment Tools
Ethical dilemmas practice involving breach in principle of justice	<ul style="list-style-type: none"> Analyze ethical dilemmas in healthcare practice involving breach in principle of justice. Explain what procedures adopted to maintain the principle of justice in challenging situations. Identify situations in which a doctor may have to take decisions in the best interests of the patient considering the principle of justice 	C3 C2 C1	Short video demonstration on violation of Ethical principle of beneficence and non-maleficence from suit CBEC Video resources Students' deliberations and reflections Reflective writing	<ul style="list-style-type: none"> Assignment based assessment involving real life case scenarios under aggregate Marks. (Internal Assessment) Assignment to be uploaded on LMS

Integrated Undergraduate Research Curriculum (IUGRC)

Topics	At the end of the session the student should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
How to write a report /manuscript Writing	<ul style="list-style-type: none">How to write a report /manuscript	C3	Activity	MCQs

SECTION - IV

Assessment Policies

Contents

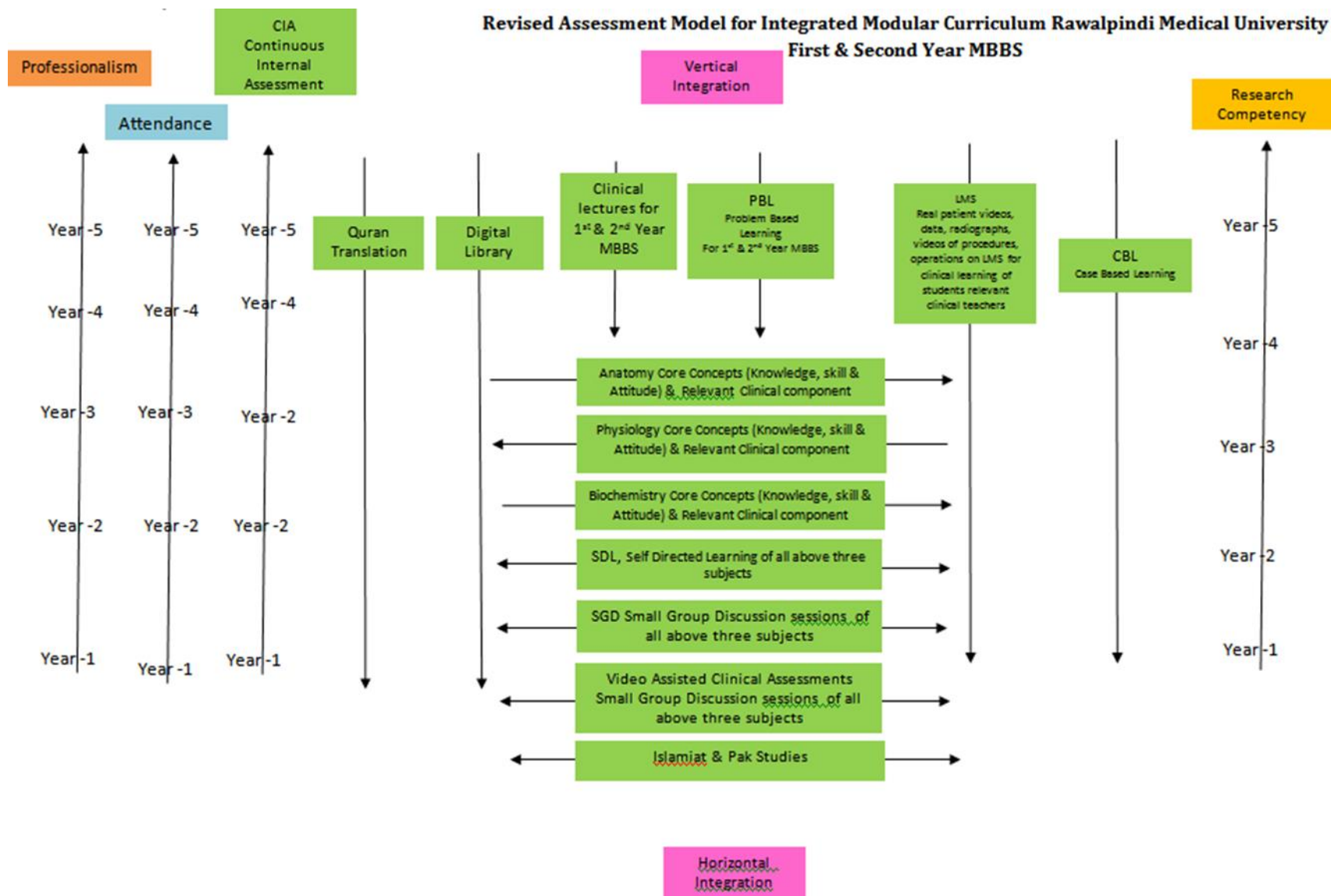
- **Assessment plan**

- **Types of Assessment:**

- **Modular Examinations**

- **Block Examination**

- **Table 4: Assessment Frequency & Time in Special Senses Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Special Senses Module

Block	Sr #	Module Special Senses Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCilCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> https://youtu.be/2_owp8kNMus (Female Reproductive system) https://youtu.be/V9a2AQSJIMc (Dr Najeed Lectures) https://youtu.be/rYVGjbzmAtg (Dr Najeed lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> Lehninger Principle of Biochemistry 8th edition. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p>

	<ul style="list-style-type: none">• https://www.youtube.com/watch?v=A5u_TY1A0t8• https://www.youtube.com/watch?v=A5u_TY1A0t8• https://www.youtube.com/watch?v=VXWyWzbigrg• https://www.youtube.com/watch?v=e2KfVvI8Akk• https://www.youtube.com/watch?v=n7Uec8Jtr4E• https://www.youtube.com/watch?v=J9jhg90A7Lw <p>E. HEC Digital Library</p> <ul style="list-style-type: none">• https://www.ncbi.nlm.nih.gov/books/NBK29/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/• https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/ <p>F. Biochemistry Journals</p> <ul style="list-style-type: none">• https://academic.oup.com/bmb/article/11/2/126/256755• https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone
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SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Special Senses Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Special Senses Module Team

Module Name : Reproduction Module
 Duration of module : 04 Weeks
 Coordinator : Dr. Rahat
 Co-coordinator : Dr. Fareed Ullah
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Rahat (Senior Demonstrator of Biochemistry)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (Assistant Professor of Physiology)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Rahat (Senior Demonstrator of Biochemistry)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Fareed Ullah (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar			
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
			DME Implementation Team		
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
II	<ul style="list-style-type: none"> Anatomy 	<ul style="list-style-type: none"> Development of Eye Development of Pharyngeal arches Development of Ear 	<ul style="list-style-type: none"> Histology of Eye Histology of Ear 	<ul style="list-style-type: none"> Cornea Retina External and Internal ear 	<ul style="list-style-type: none"> Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) External surface of cranial base (Norma basalis) Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) Mandible Temporomandibular joint Face Scalp Orbit boundaries and Extraocular muscles Vessels and nerves of orbit Eyeball Eyelid and lacrimal apparatus Parotid and temporal region Infratemporal fossa Pterygopalatine fossa External and middle ear Inner ear Nose and paranasal sinuses 	<ul style="list-style-type: none"> Oculomotor nerve palsy Extra Dural hemorrhage 	<ul style="list-style-type: none"> Norma frontalis, verticalis and basalis Lateralis and occipitalis, TMJ & Mandible Orbit boundaries Extraocular muscles Vessels and Nerves of orbit Temporal and Infra temporal region, Pterygopalatine fossa External and middle ear
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Physiology of Ear & Eye 					
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Receptors, Second messengers, Neurotransmitters, Vitamin A role in vision 					
	<ul style="list-style-type: none"> Biomedical Ethics / Professionalism 	<ul style="list-style-type: none"> Ethical dilemmas Involving breach in Justice 					
	<ul style="list-style-type: none"> Behavioral Sciences 	<ul style="list-style-type: none"> Perception 					
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> Synopsis writing 					
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> General radiologic concepts 					

	<ul style="list-style-type: none"> ● Family Medicine 	<ul style="list-style-type: none"> ● Approach to a patient with earache
	<ul style="list-style-type: none"> ● Vertical components 	<ul style="list-style-type: none"> ● The Holy Quran Translation Component
	<ul style="list-style-type: none"> ● Vertical Integration 	<p>Clinically content relevant to Speical Senses module</p> <ul style="list-style-type: none"> ● Plastic surgery (Surgery) ● Imaniat (Hadith) (Islamiyat) ● Pakistan ki jughrafiyai ahmiyat aur difai haisiyat (Pak Studies) ● Nasal polyp & Sinusitis & Diseases of External Nose (ENT) ● Cataract & Glaucoma & Anti glaucoma drugs (Eye) ● Conjunctivitis Chalazion (Eye) ● Ocular trauma & Ocular Procedures (Eye) ● Zimidaari aur taluqaat (Islamiyat) ● Pakistan k hamsaya mumalik se taluqaat (Pak Studies) ● Refractive Errors Strabismus (Eye) ● Management Of Covid-19 Sense Of Smell (Medicine) ● Otitis Media Ear Discharge &Hearing Problems in Children (ENT) ● Facial fractures (ENT) ● Uswa-e-hasna (Islamiyat) ● Pakistan k qudrati wasail-maadniyaat (Pak Studies)

Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
		Demonstrations / SGD	CBL	SKL/Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> Special Embryology 	<ul style="list-style-type: none"> Special Histology 	<ul style="list-style-type: none"> Facial and superior aspect of cranium (Norma frontalis, Norma verticalis) External surface of cranial base (Norma basalis) Lateral and occipital aspect of cranium (Norma lateralis, occipitalis) Mandible Temporomandibular joint Face Scalp Orbit boundaries Extraocular muscles Vessels and nerves of orbit Eye ball Eyelid and lacrimal apparatus Parotid and temporal region Infratemporal fossa Pterygopalatine fossa External and middle ear Inner ear Nose and paranasal sinuses 	<ul style="list-style-type: none"> Oculomotor nerve palsy Extra Dural hemorrhage 	<ul style="list-style-type: none"> Cornea Retina External and internal ear 	<ul style="list-style-type: none"> Norma frontalis, verticalis and basalis Lateralis and occipitalis, TMJ & Mandible Orbit boundaries & Extraocular muscles Vessels and Nerves of orbit Temporal and Infra temporal region, Pterygopalatine fossa External and middle ear

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

Sr . #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	01
3.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$2 * 09 = 18$ hours
2.	Small Group Discussions (SGD)	$2*15 + 1*4 = 34$ hours
3.	Practical / Skill Lab	$1.5 * 15 = 22.5$ hours

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 * 9 = 09$ hours
2.	Small Group Discussions (SGD)	$2*15 + 1*4 = 34$ hours
3.	Practical / Skill Lab	$1.5 * 3 = 4.5$ hours
4.	Self-Directed Learning (SDL)	$2 * 3 = 06$ hours

Physiology

Category A	Category B	Category C
Photochemistry of vision & Physiological basis for photo transduction (By Prof. Dr. Samia Sarwar / Dr. Uzma)	Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction (By Dr. Uzma)	CBL:
Physiology of accommodation and clinical abnormalities (By Prof. Dr. Samia Sarwar / Dr. Uzma)	Introduction to Physiology of external ear, Middle ear (By Dr. Fareed)	PBL:
	Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina (By Dr. Uzma)	Practical: 1. Estimation of Visual Acuity 2. Examination of 8 th Cranial Nerve (vestibular function) 3. Performance of Hearing Test (cochlear function)
	Functions of Inner ear, Physiology of Hearing (By Dr. Fareed)	CBL:
	Hearing abnormalities, Tuning fork tests and audiometry (By Dr. Aneela)	SGD: 1. Physiology of Vision 2. Physiology of hearing & Balance 3. Sense of Taste & Smell
	Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information (By Dr. Uzma)	SDL: (ON CAMPUS) 1. Introduction to Physiology of external ear, Middle ear 2. Functions of Inner ear, Physiology of Hearing 3. Hearing abnormalities, Tuning fork tests and audiometry (OFF CAMPUS) 4. Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction 5. Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina 6. Photochemistry of vision & Physiological basis for photo transduction 7. Vestibular system 8. Sense of Taste and pathophysiology 9. Sense of Smell and pathophysiology
	Vestibular system (By Dr. Sidra)	
	Lesions of visual pathway and its effects on field of vision, Movements of eyeball along with neural control (By Dr. Uzma)	
	Sense of Taste and pathophysiology (By Dr. Kamil)	
	Sense of Smell and pathophysiology (By Dr. Kamil)	

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

Sr . #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Physiology department	01
2.	Assistant professor of Physiology department (AP)	01
3.	Associate professor of Physiology department	01 (DME)
4..	Demonstrators of Anatomy department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr . #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	12 * 1= 12 hours
2.	Small Group Discussions (SGD) Case based learning (CBL)	1.5 * 3 = 4.5 hours
3.	Problem based learning (PBL)	--
4.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
5.	Self- Directed Learning	3x1=3hours (on campus) + 6x1=6hours (off campus) = 9hours

Biochemistry

Category A*	Category B**	Catogery C***			
LGIS	LGIS	PBL	CBL	Practical's	SGD
<ul style="list-style-type: none">NeurotransmitterSecond Messenger	<ul style="list-style-type: none">ReceptorsG-ProteinsRole of Vitamin A in Vision		Night Blindness	<ul style="list-style-type: none">Lipid ProfileUrine Report RevisionSpectrophotometer Revision	<ul style="list-style-type: none">NeurotransmittersG-Proteins

Category A*: By HOD and Assistant Professor

Category B**: By All (HOD, Assistant Professors, Senior Demonstrators)

Category C***: (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

Sr. #	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	07

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	2 * 5= 10hours	05
2.	Small Group Discussions (SGD)	1.5 * 5 = 7.5hours=22.5 hrs	4.5
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	1.5 * 5= 7.5hours=22.5 hrs	4.5
5.	Self-Directed Learning (SDL)	-----	05

Special Senses Module (First Week)
(14-08-2023 To 19-08-2023)

Date/ Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 2:00pm	Home Assignments(2HRS)
14-08-2023 Monday	Independence Day					
15-08-2023 Tuesday	End of Block Assessment Physiology Theory / Video Assisted Quiz (08:00am-10:30am)					
16-08-2023 Wednesday	End of Block Assessment Physiology OSPE / Viva Voce Roll No. (1-180) (08:00am-02:00pm)					
17-08-2023 Thursday	End of Block Assessment Physiology OSPE / Viva Voce Roll No. (181-onwards) (08:00am-02:00pm)					
18-08-2023 Friday	Practical & CBL/SGD Topic mentioned at the end Practical Thursday batch	ISLAMIAT	Dissection & Spotting			
		Imaniat (hadith)				
		Mufti Naem Sherazi (Even)				
19-08-2023 Saturday	Practical & CBL/SGD Topic mentioned at the end Practical		Dissection & Spotting	12:00pm – 01:00pm	12:00pm – 01:00pm	
				Pak Studies	Physical Activity	
				Pakistan ki jughrafiyai ahmiyat aur difai haisiyat		
				Qari Aman Ullah (Odd)		

Special Senses Module (First Week)

(21-08-2023 To 26-08-2023)

Date / Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
21-08-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		BEHAVIORAL SCIENCES		Break	SGD/DISECTION	SDL Physiology Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction
		Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	Introduction to Physiology of external ear, Middle ear	Histology of Eye-I	Development of Eye-I	Perception			Facial and superior aspect of cranium (Norma frontalis & Norma verticalis)	
		Dr. Uzma (Even)	Dr. Fareed (Odd)	Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Mahmood Ali (even)	Dr. Sarah Afzal (Odd)			
22-08-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		Family Medicine		ANATOMY LGIS			SGD/DISECTION	SDL Anatomy Norma frontalis, verticalis and basalis
		Introduction to Physiology of external ear, Middle ear	Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	Approach to a patient with earache		Development of Eye-I	Histology of Eye-I		External surface of cranial base (Norma basalis)	
		Dr. Fareed (Even)	Dr. Uzma (Odd)	Dr. Sadia (even)	Dr. Amna (Odd)	Prof. Dr. Ifra Saeed (Even)	Assist. Prof. Dr. Maria (Odd)			
23-08-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		RESEACH CLUB ACTIVITY					CBL/DISECTION	SDL Physiology Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina
		Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina	Functions of Inner ear, Physiology of Hearing						Lateral and occipital aspect of cranium (Norma lateralis & occipitalis) Extra Dural hemorrhage	
		Dr. Uzma (Even))	Dr Fareed (Odd)							
24-08-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOMEDICAL ETHICS CLUB ACTIVITY		SGD/DISECTION			SGD/DISECTION	SDL Neurotransmitters
		Functions of Inner ear, Physiology of Hearing	Fluid system of the eye Intraocular pressure, Function of the Structural Elements of the Retina	Ethical dilemmas Involving breach in Justice	Mandible	Temporomandibular joint				
		Dr. Fareed (Even)	Dr. Uzma (Odd)							
25-08-2023 Friday	8:00 AM – 9:00 AM	9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM		SDL Anatomy Norma lateralis and occipitalis, TMJ & Mandible		
	SURGERY	BIOCHEMISTRY (LGIS)		ISLAMIYAT		SGD/DISECTION				
	Plastic surgery	Receptors	Neurotransmitters	Imaniat (hadith)						
	Dr. Hassnain	(Odd) Dr. Isma (Even)	Dr. Aneela (Odd)	Mufti Naem Sherazi (Even)		Face				
26-08-2023 Saturday	Practical & CBL/SGD Topic mentioned at the end	RADIOLOGY		BIOCHEMISTRY (LGIS)		PAK STUDIES		Break	SGD/DISECTION	SDL Biochemistry Receptors
		General radiologic concepts		Neurotransmitters	Receptors	Pakistan ki jughraiyyai ahmiyat aur difai haisiyat			Scalp	
		Dr. Quratalain (even)	Dr. Riffat (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)	Qari Aman Ullah (Odd)				

Break

Break

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Cornea (Anatomy Histology Practical) Venue-Histology laboratory(Biochemistry Practical) Lipid Profile Venue- Biochemistry laboratoryExamination of Visual Acuity (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Physiology of Vision (Venue: Lecture Hall No 5)Biochemistry SGD: Neurotransmitter				
Schedule For Practical / Small Group Discussion						Venue For First Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Sajjad Hussain	New lecture Theater complex 4	
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	181-270	Dr Sadia Baqir	New lecture Theater complex 1	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Maryam Sohail	Lecture Hall No.03 Anatomy Lecture Hall	
Saturday	A	E	C	D	B					
VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry					Physiology	
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Muhammad Usman		1.	Batch – A	01-70	Dr. Romessa Naeem	Dr. Syed Ali Moosa
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02(Basement)		Dr. Ismail		3.	Batch – C	141-210	Dr. Nayab	Dr. Asif Mehmood
Batch-B2	(106-140)	Conference room (Basement)		Dr. Kamil Tahir		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04(Basement)		Dr. Maryam Abbas (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05(Basement)		Dr. Nayab (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)						
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Sheena Tariq (Physiology)		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none">Neurotransmitters										
<ul style="list-style-type: none">Receptors										

(28-08-2023 To 02-09-2023)

Break

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">Retina (Anatomy Histology Practical) Venue-Histology laboratory(Biochemistry Practical) Urine Report Venue- Biochemistry laboratoryExamination of 8th Cranial Nerve (Vestibular function) (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Physiology of hearing & Balance (Venue: Lecture Hall No 5)Biochemistry SGD: G-Proteins				
Schedule For Practical / Small Group Discussion						Venue For First Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Sajjad Hussain	New lecture Theater complex 4	
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	181-270	Dr Sadia Baqir	New lecture Theater complex 1	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Maryam Sohail	Lecture Hall No.03 Anatomy Lecture Hall	
Saturday	A	E	C	D	B					
VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry		Physiology
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Muhammad Usman		1.	Batch – A	01-70	Dr. Romessa Naeem	Dr. Syed Ali Moosa
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02(Basement)		Dr. Ismail		3.	Batch – C	141-210	Dr. Nayab	Dr. Asif Mehmood
Batch-B2	(106-140)	Conference room (Basement)		Dr. Kamil Tahir		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04(Basement)		Dr. Maryam Abbas (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05(Basement)		Dr. Nayab (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Iqra Ayub (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Sheena Tariq (Physiology)		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none">G-Proteins										
<ul style="list-style-type: none">Role Of Vitamin a In Vision										

Special Senses Module (Third Week)

(04-09-2023 To 09-09-2023)

Date / Day	8:00am-9:30am		9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)
04-09-2023 Monday	Practical & CBL/SGD Topic mentioned at the end		PHYSIOLOGY LGIS		EYE		SGD/DISSECTION		Break	SGD/DISSECTION	Online SDL Evaluation
			Sense of Taste and pathophysiology	Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control	Refractive Errors Strabismus		Dissection			Infratemporal fossa-I	
			Dr. Kamil (Even)	Dr. Uzma (Odd)	Dr. Sidra Jabeen (Even)	Dr. Maria (Odd)					
05-09-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end		PHYSIOLOGY LGIS		MEDICINE		SGD/DISSECTION			SGD/DISSECTION	
			Physiology of accommodation and clinical abnormalities	Sense of Smell and pathophysiology	Management Of Covid-19 Sense Of Smell		Dissection			Infratemporal fossa-II	SDL Biochemistry 2 nd Messenger System
			Prof.Dr. Samia Sarwar/ Dr Uzma (Even)	Dr. Kamil (Odd)	Dr. Sadeef Zaman (Even)	Dr. Semaab Abid (Odd)					
06-09-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end		PHYSIOLOGY LGIS		ANATOMY LGIS		ENT			SGD/DISSECTION	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa
			Sense of Smell and pathophysiology	Physiology of accommodation and clinical abnormalities	Development of Ear	Development of Nose	Otitis Media Ear Discharge &Hearing Problems in Children			Pterygopalatine fossa	
			Dr.Kamil (Even)	Prof.Dr. Samia Sarwar/ Dr Uzma (Odd)	Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Haitum (Even)	Dr. Arshad (Odd)			
07-09-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end		PHYSIOLOGY SDL No.01		ANATOMY LGIS		ENT			SGD/DISSECTION	Anatomy SDL External and middle ear Online clinical Evaluation
			Introduction to Physiology of external ear, Middle ear		Development of Nose	Development of Ear	Facial fractures			External and middle ear	
			Dr.Fareed (Even)	Dr Afsheen (Odd)	Prof. Dr. Ifra Saeed (Even)	Assist. Prof. Dr. Maria (odd)	Dr. Nida (Even)	Dr. Ashar (Odd)			
08-09-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM				SDL Physiology Sense of Taste and pathophysiology
	PHYSIOLOGY SDL No. 02		ISLAMIAT		ANATOMY LGIS		SGD/DISSECTION				
	Functions of Inner ear, Physiology of Hearing		Uswa-e-hasna		Development of Palate	Developme nt of Palate	Inner ear				
	Dr. Fareed (Even)	Dr Ali Zain (Odd)	Mufti Naem Sherai (Even)	Qari Aman Ullah (Odd)	Prof. Dr. Ifra Saeed (Odd)	Assist. Prof. Dr. Maria (Even)					
Saturday 09-09-2023	Practical & CBL/SGD Topic mentioned at the end		PAKSTUDIES		PHYSIOLOGY SDL No. 03		SGD/DISECTION		Break	SGD/DISECTION	SDL Physiology Sense of Smell and pathophysiology
			Pakistan k qudrati wasail-maadniyaat		Hearing abnormalities, Tuning fork tests and audiometry		Inner Ear			Nose and paranasal sinuses	
			Qari Aman Ullah (Even)	Mufti Naem Sherazi (Odd)	Dr. Aneela (Even)	Dr Usman (Odd)					

Topics For Practical with Venue						Topics For Small Group Discussion& CBLs With Venue				
<ul style="list-style-type: none">External & Internal Ear (Anatomy Histology Practical) Venue-Histology laboratory(Biochemistry Practical) Revision of Spectrophotometer Venue- Biochemistry laboratoryPerformance of Hearing Test (cochlear function) (Physiology Practical) Venue – Physiology Lab						<ul style="list-style-type: none">Physiology SGD: Physiology of Taste & Smell (Venue: Lecture Hall No 5)Biochemistry CBL: Night Blindness				
Schedule For Practical / Small Group Discussion						Venue For First Year Batches for Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Sajjad Hussain	New lecture Theater complex 4	
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall	
Wednesday	E	D	B	C	A	C	181-270	Dr Sadia Baqir	New lecture Theater complex 1	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Maryam Sohail	Lecture Hall No.03 Anatomy Lecture Hall	
Saturday	A	E	C	D	B					
VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue			Biochemistry				Physiology	
Batch-A1	(01-35)	New Lecture Hall complex no.01			Dr. Muhammad Usman	1.	Batch – A	01-70	Dr. Romessa Naeem	Dr. Syed Ali Moosa
Batch-A2	(36-70)	New Lecture Hall complex no.04			Dr. Shazia Nosheen	2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02(Basement)			Dr. Ismail	3.	Batch – C	141-210	Dr. Nayab	Dr. Asif Mehmood
Batch-B2	(106-140)	Conference room (Basement)			Dr. Kamil Tahir	4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04(Basement)			Dr. Maryam Abbas (PGT Physiology)	5.	Batch - E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05(Basement)			Dr. Nayab (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)			Dr. Iqra Ayub (PGT Physiology)					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)			Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)			Dr. Sheena Tariq (Physiology)	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05Physiology			Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)	Next week will be assessment week. The detail of assessment week will be shared once finalized.				
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none">Second Messenger										

Special Senses Module (Fourth Week)
(11-09-2023 To 16-09-2023)

Date / Days	Tentative Schedule for Special Senses Module Assessment	Time
11-09-2023 Monday	Physiology Viva Voce (Roll no 1-180) Anatomy Regional Assessments (Roll no 181- onwards)	08:00am - 02:00pm
12-09-2023 Tuesday	Anatomy Regional Assessments (Roll no 1-180) Physiology Viva Voce (Roll no 181- onwards)	08:00am - 02:00pm
13-09-2023 Wednesday	Anatomy Theory Paper	08:15am - 09:15am
14-09-2023 Thursday	Physiology Theory Paper	08:15am - 09:15am
15-09-2023 Friday	Biochemistry Theory Paper & Allied	08:15am - 09:15am
16-09-2023 Saturday	SDL	

Note: Timetable Subject to Change According to The Current Circumstances.

SECTION-VI

Table of Specification (TOS) For Special Senses Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
						No. of items	Marks					
			C1	C2	C3			C1	C2	C3		
1.	Anatomy	25	15	5	5	5	25	1	2	2	60	110
2.	Physiology	30	18	9	3	4	20	1	2	1	25	75
3.	Biochemistry	5	3	2	-	1	15	-	1	-	-	20
4.	Bioethics & Professionalism	6	-	3	3	-	-	-	-	-	-	6
5.	Research & Artificial Intelligence and Innovation	10	-	5	5	-	-	-	-	-	-	10
6.	Medicine	5	-	3	2	-	-	-	-	-	-	5
7.	Surgery	4	-	2	2	-	-	-	-	-	-	4
8.	ENT	6	-	3	3							6
9.	Eye	6	-	3	3							6
10.	Family Medicine & Community Health	4	-	2	2	-	-	-	-	-	-	4
Grand Total											246	

Annexure I

(Sample OSPE, MCQ, & SEQ)

Sample Paper of MCQs
Department of Anatomy

1. During the 4th week of development, mesenchyme for pharyngeal arches comes from which of following sources? (1 Point)
 - a. Neural crest cells
 - b. Lateral plate mesoderm
 - c. Paraxial mesoderm
 - d. Ectodermal placods
 - e. All of above
2. A teenager was fond of hearing loud rock music he is liable to suffer from (1 Point)
 - a. Nerve deafness
 - b. Presbycusis
 - c. Conductive deafness
 - d. Sensorineural deafness
 - e. Otosclerosis
3. Established function of external ear (1 Point)
 - a. Attenuation
 - b. Accentuation
 - c. Impedance matching
 - d. Determination of direction
 - e. Determination of loudness
4. Medial palpebral ligament is attached to the frontal process of (1 Point)
 - a. Frontal
 - b. Zygomatic
 - c. Maxilla
 - d. Temporal
 - e. Nasal
5. The stroma of cornea (1 Point)
 - a. Makes up 30% of the corneal thickness.
 - b. Has collagen bundles arranged at right angles.
 - c. Is highly vascular.
 - d. Has cells called hyalocytes.
 - e. Has hydration maintained by surface epithelium

Sample Paper of SEQs
Department of Anatomy

1. a. Give the boundaries and contents of infratemporal fossa (3)
 b. Tabulate the attachments and actions of extra ocular muscles. (2)
2. a. Describe the formation of nasal septum, Discuss its blood supply with clinical significance. (3)
 b. Give connections of submandibular ganglion with special reference to its secretomotor fibers. (2)

Department of Physiology

1. Cannaliculus innominatus is situated between foramen (1 Point)
 - a. Rotundum and ovale
 - b. Ovale and spinosum
 - c. Mastoid and styloid process
 - d. Sphenoid and Vesalius
 - e. Sacrum and ovale
3. Which of the following substances is present in high concentration in the urine of patients with pheochromocytomas? (1 Point)
 - a. Epinephrine.
 - b. Metanephrine.
 - c. Norepinephrine.
 - d. Dopamine.
 - e. 3- methoxy-4-OH-Mandelic acid
5. On irrigating right auditory canal with cold water nystagmus is: (1 Point)
 - a. Towards left side
 - b. Towards right side
 - c. Not seen
 - d. Vertical
 - e. Rotational
2. Olfactory receptors have a unique capability that they: (1 Point)
 - a. Do not adapt.
 - b. Do not regenerate.
 - c. Are hyperpolarized.
 - d. Make electrotonic junctions.
 - e. Make gap junctions
4. On turning head to the right, the impulse traffic: (1 Point)
 - a. Increases in Right VIII nerve.
 - b. Decreases in Right VIII nerve.
 - c. Increases in Left VIII nerve.
 - d. Decreases in Left VII nerve.
 - e. No change

Department of Biochemistry

1. Which one of the following is fat soluble vitamin? (1 Point)
 - a. vitamin A
 - b. vitamin C
 - c. vitamin B1
 - d. vitamin B6
 - e. vitamin B9
2. Auditory loss in a 70-year-old man is best called. (1 Point)
 - a. Nerve deafness
 - b. Presbycusis
 - c. Conductive deafness
 - d. Sensorineural deafness
 - e. Otosclerosis
3. Taste receptors are: (1 Point)
 - a. Modified neural cells.
 - b. Also found in respiratory epithelium
 - c. Modified epithelial cells.
 - d. Have a half life of 8 weeks.
 - e. Cannot regenerate
4. Superior and inferior lateral arteries are the branches of (1 Point)
 - a. Facial artery
 - b. External carotid artery
 - c. Maxillary artery
 - d. Lingual artery
 - e. Transverse facial artery
5. Hair cell in vestibular apparatus are type of (1 Point)
 - a. Teleceptors
 - b. Exteroceptors
 - c. Mechanoreceptors
 - d. Nociceptors
 - e. Photoceptors

SEQ

Q. Explain synthesis and fate of catecholamines. 05

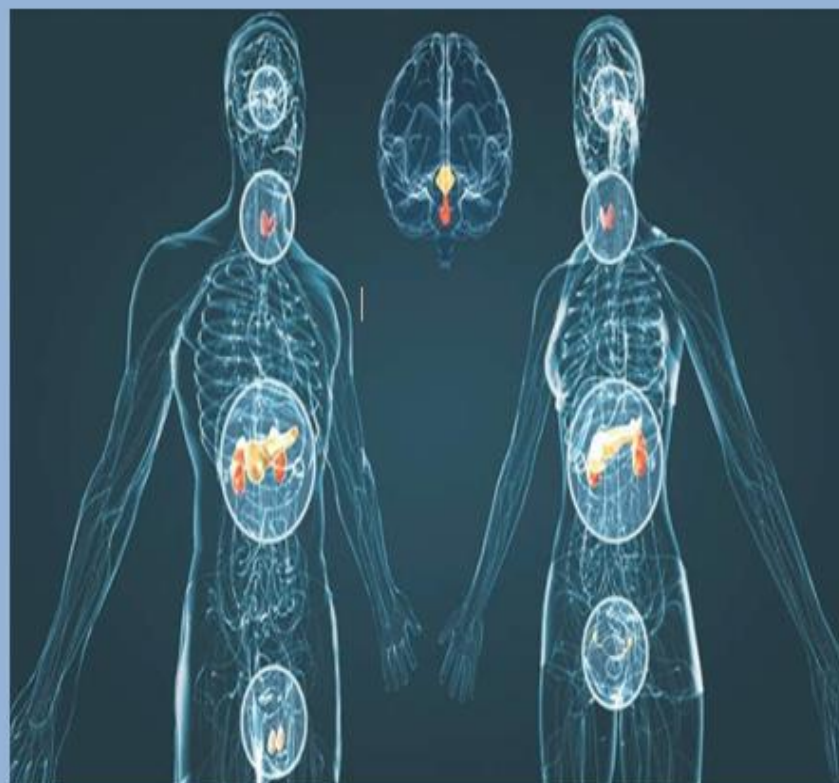
Department of Bioethics


1. ---Includes rules of conduct that may be used to regulate our activities concerning the biological world.
 - a. Bio-piracy
 - b. Biosafety
 - c. Bioethics
 - d. Bio-patents
 - e. Bio-logistic
2. The right of patients having self-decision is called.
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
3. Following is not code of ethics.
 - a. Integrity
 - b. Objectivity
 - c. Confidentiality
 - d. Behaviour
 - e. Autonomy
4. -----in the context of medical ethics, if it's fair and balanced
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
5. -----Principle requiring that physicians provide, positive benefits
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity



Endocrinology Module

Study Guide Second Year MBBS 2021 - 2022



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Document Information

Category	Endocrinology Module Study Guide
Document	Procedure for Control of Documented Information
Issue	1
Rev	00
Identifier	RMU-MR-SOP-67
Status	Final Document
Author(s)	Additional Director Medical Education, Asst. Director Medical Education,
Reviewer(s)	Curriculum Committee.
Approver(s)	Vice Chancellor
Creation Date	04-09-2023
Effective Date	04-09-2023
Control Status	CONTROLLED
Distribution	VC, Principle, ISO Committee
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	DOCUMENT #: RMU-MR-SOP-67	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 04-09-2023

Document Approval

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	Prof. Dr. Samia Sarwar	



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DOCUMENT #: RMU-MR-SOP-67


Rev. #: 00

ISSUE #: 01

ISSUE DATE: 04-09-2023

Document Revision History

Author(s)	Date	Version	Description

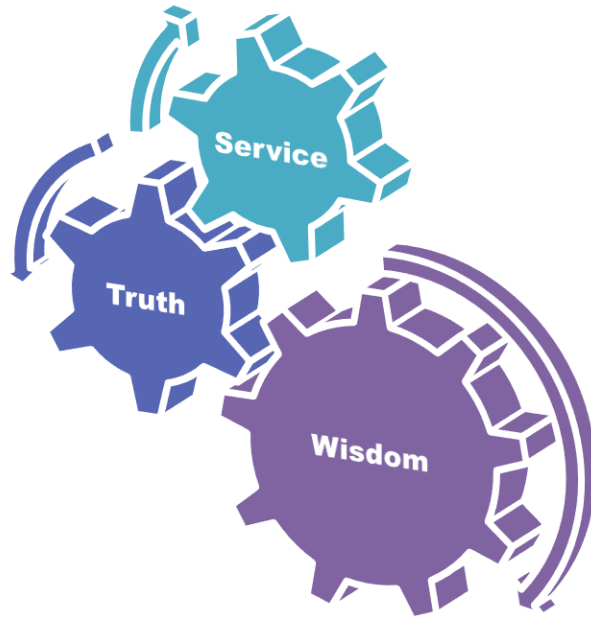
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	DOCUMENT #: RMU-MR-SOP-67	Rev. #: 00	ISSUE #: 01	ISSUE DATE: 04-09-2023

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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision and Values

Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable.

Goals of the Undergraduate Integrated Modular Curriculum

The Undergraduate Integrated Learning Program is geared to provide you with quality medical education in an environment designed to:

- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional conduct in your future life.
- Kindle a spirit of inquiry and acquisition of knowledge to help you attain personal and professional growth & excellence.

Second Year MBBS 2023

Study Guide

Endocrinology Module

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
III	<ul style="list-style-type: none"> Anatomy 	<ul style="list-style-type: none"> Development of pituitary & pineal gland Developmnt of thyroid & parathyroid gland Developmnt adrenal gland and pancreas 	<ul style="list-style-type: none"> Pituitary & pineal gland Thyroid & parathyroid gland Adrenal gland and pancreas 	<ul style="list-style-type: none"> Pituitary Gland Thyroid & parathyroid gland Adrenal gland Pancreas 	<ul style="list-style-type: none"> Bones of neck. Hyoid Bone & Cervical vertebrae Fascias of Neck Superficial structurs of neck Lateral-cervical region (muscles & triangles) Latera-cervical-region (neurovascular organization) Interior-cervical region(muscles) Interior-cervical region (vessels of neck & cervical plexus) Submandular region Soft palate Deep structures of neck Root of neck Thyroid&Parathyroid gland Larynx Pharynx pancreas 		<ul style="list-style-type: none"> Bones of neck SCM region & superficial & deep fascia lateral cervical region Anterior Triangle of neck & its subdivisions Thyroid and para thyroid gland Online SDL Evaluation soft palate, larynx
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Classification of hormones, Mechanism of action of different hormones Physiology of Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Role of Calcium & Phosphate 					
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Classification of hormones, Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Calcium revisit 					
	<ul style="list-style-type: none"> Biomedical Ethics 	<ul style="list-style-type: none"> History of Medical Ethics 					
	<ul style="list-style-type: none"> Behavioral Sciences 	<ul style="list-style-type: none"> Professionalism In Healthcare 					
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> Poster Presentation 					
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> Basics of Radiology 					
	<ul style="list-style-type: none"> Family Medicine 	<ul style="list-style-type: none"> Approach to patient diabetes mellitus 					
	<ul style="list-style-type: none"> Vertical components 	<ul style="list-style-type: none"> The Holy Quran Translation Islamiayat 					

	<ul style="list-style-type: none">• Vertical Integration	<ul style="list-style-type: none">• Growth problems due to Endocrine causes (Peads)• Thyroid Disorders (Surgery)• Hypothyroidism and hyperthyroidism (Pathology)• Diabetes Mellitus (Medicine)• Endocrine Disorders In Pregnancy (Diabetes Mellitus, Thyroid Disorders) (Obs & Gynae)
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Endocrinology Module Team

Module Name : Endocrinology Module
 Duration of module : 04 Weeks
 Coordinator : Dr. Sidra Hamid
 Co-coordinator : Dr. Nayab
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Sidra Hamid (Assistant Professor of Physiology)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Saira Aijaz (Senior Demonstrator)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Nayab (Senior Demonstrator of Biochemistry)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Aneela Yasmin (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar	DME Implementation Team		
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			
16.	Focal Person Family Medicine	Dr. Sadia Khan			

Module VI – Endocrinology Module

Rationale: The endocrine system is one of the two control systems of the body. It consists of many small organs responsible for the release of hormones. The endocrine system regulates metabolism, growth and development, tissue function and mood of a person. This system acts by means of hormones secreted into the blood to control process that require duration rather than speed e.g, metabolic activities and water and electrolyte balance. In this module we will concentrate on the integrating functions of the endocrine system and focus our teaching on the interaction of hormones and their integration to produce homeostatic regulation.

Module Outcomes

By the end of the module, students will be able to:

Knowledge

- The students should know the hormones and the organs producing them. They should know the chemical nature, biosynthesis and the physiological functions on their target organs. The student should understand & apply the concepts & principles of the basic sciences in context of clinical signs & symptoms to commonly occurring diseases of the endocrine.
- Used technology based Medical Education including **Artificial Intelligence**
- Appreciate concept and importance of **Family Medicine**
Biomedical Ethics & Professional Research

Skills

- Students should be able to recognize the histological features of all the endocrine glands under microscope.

Attitude

- Student should observe lab safety rules
Should have professional Attitude

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning
- Methodologies/Strategies
 - Large Group Interactive Session (LGIS)
 - Small Group Discussion (SGD)
 - Self-Directed Learning (SDL)
 - Case Based Learning (CBL)
 - Problem- Based Learning (PBL)
 - Skill Labs/Practicals (SKL)

Tables & Figures

- Table1. Domains of learning according to Blooms Taxonomy
- Figure 1. Prof Umar’s Model of Integrated Lecture
- Table2. Standardization of teaching content in Small Group Discussions
- Table 3. Steps of taking Small Group Discussions
- Figure 2. PBL 7 Jumps Model

Table1. Domains Of Learning According to Blooms Taxonomy

Sr. #	Abbreviation	Domains of learning
1.	C	Cognitive Domain: knowledge and mental skills.
	• C1	Remembering
	• C2	Understanding
	• C3	Applying
	• C4	Analyzing
	• C5	Evaluating
	• C6	Creating
2.	P	Psychomotor Domain: motor skills.
	• P1	Imitation
	• P2	Manipulation
	• P3	Precision
	• P4	Articulation
	• P5	Naturalization
3.	A	Affective Domain: feelings, values, dispositions, attitudes, etc
	• A1	Receive
	• A2	Respond
	• A3	Value
	• A4	Organize
	• A5	Internalize

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

The large group interactive session is structured format of Prof Umar Model of Integrated lecture. It will the followed for delivery of all LGIS. The lecturer will introduce a topic or common clinical condition and explains the underlying phenomena through questions, pictures, videos of patients, interviews and exercises, etc. Students are actively involved in the learning process.

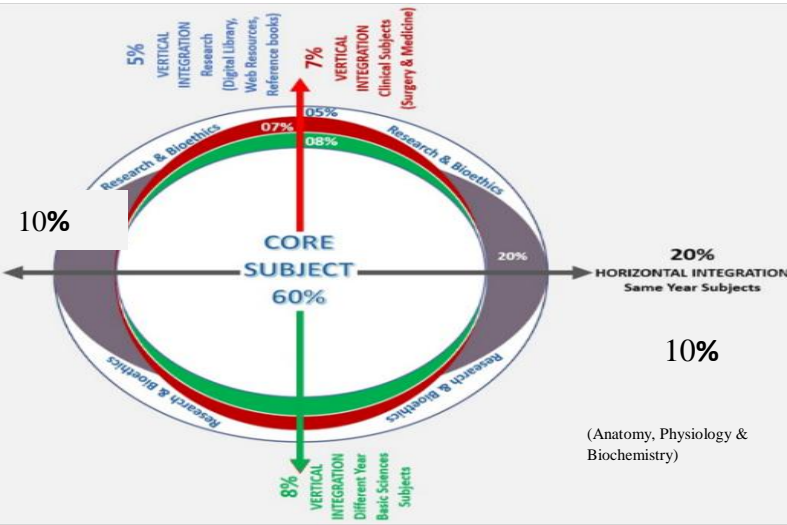


Figure 1. Prof Umar’s Model of Integrated Lecture

Small Group Discussion (SGD)

This format helps students to clarify concepts acquire skills and attitudes. Sessions are structured with the help of specific exercises such as patient case, interviews or discussion topics or power point presentations. Students exchange opinions and apply knowledge gained from lectures, SGDs and self study. The facilitator role is to ask probing questions, summarize and help to clarify the concepts.

Table 2. Standardization of teaching content in Small Group Discussions

S. No	Topics	Approximate %
1	Title Of SGD	
2	Learning Objectives from Study Guides	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Related Advance Research points	3%
7	Related Ethical points	2%

Table 3. Steps of Implementaion of Small Group Discussions

Step 1	Sharing of Learning objectives by using students Study guides	First 5 minutes
Step 2	Asking students pre-planned questions from previous teaching session to develop co-relation (these questions will be standardized)	5minutes
Step 3	Students divided into groups of three and allocation of learning objectives	5minutes
Step 4	ACTIVITY: Students will discuss the learning objectives among themselves	15 minutes
Step 5	Each group of students will present its learning objectives	20 min
Step 6	Discussion of learning content in the main group	30min
Step 7	Clarification of concept by the facilitator by asking structured questions from learning content	15 min
Step 8	Questions on core concepts	
Step 9	Questions on horizontal integration	
Step 10	Questions on vertical integration	
Step 11	Questions on related research article	
Step 12	Questions on related ethics content	
Step 13	Students Assessment on online MS teams (5 MCQs)	5 min
Step 14	Summarization of main points by the facilitator	5 min
Step 15	Students feedback on the SGD and entry into log book	5 min
Step 16	Ending remarks	

Self Directed Learning (SDL)

- Self- directed learning is a process where students take primary charge of planning, continuing, and evaluating their learning experiences.
- Time Home assignment
- Learning objectives will be defined
- Learning resources will be given to students = Textbook (page no), web site
- Assessment:
 - i Will be online on LMS (Mid module/ end of Module)
 - ii.OSPE station

Case Based Learning (CBL)

- It's a learner centered model which engages students in discussion of specific scenarios that typically resemble real world examples.
- Case scenario will be given to the students
- Will engage students in discussion of specific scenarios that resemble or typically are real-world examples.
- Learning objectives will be given to the students and will be based on
 - i. To provide students with a relevant opportunity to see theory in practice
 - ii. Require students to analyze data in order to reach a conclusion.
 - iii. Develop analytic, communicative, and collaborative skills along with content knowledge.

Problem Based Learning (PBL)

- Problem-based learning (PBL) is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem.
- This problem is what drives the motivation and the learning.

The 7- Jump-Format of PBL (Masstricht Medical School)	
Step 7	Synthese & Report
Step 6	Collect Information from outside
Step 5	Generate learning Issues
Step 4	Discuss and Organise Ideas
Step 3	Brainstorming to Identify Explanations
Step 2	Define the Problem
Step 1	Clarify the Terms and Concepts of the Problem Scenario
Problem- Scenario	

Figure 2. PBL 7 Jumps Mode

Practical Sessions/Skill Lab (SKL)

Practical Session/ Skill Lab (SKL)	
Demonstration/ power point presentation 4-5 slide	10-15 minutes
Practical work	25-30 minutes
Write/ draw and get it checked by teacher	20-25 minutes
05 mcqs at the end of the practical	10 minutes
At the end of module practical copy will be signed by head of department	
At the end of block the practical copy will be signed by	
Head of Department	
Dean	
Medical education department	
QEC	

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

- Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)
- Large Group Interactive Session:
 - Anatomy (LGIS)
 - Physiology (LGIS)
 - Biochemistry (LGIS)
- Small Group Discussions
 - Anatomy (SGD)
 - Physiology (SGD)
 - Biochemistry (SGD)
- Self Directed Topic, Learning Objectives & References
 - Anatomy (SDL)
 - Physiology (SDL)
 - Biochemistry (SDL)
- Skill Laboratory
 - Anatomy
 - Physiology
 - Biochemistry

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching strategy	Assessment Tool
Histology of pituitary gland and pineal gland	<ul style="list-style-type: none"> Describe histological structure of pituitary and pineal gland Enumerate different cells present in both glands Discuss bio-physiological aspects related to their secretions Discuss the related clinical Read relevant research article Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SEQS VIVA
Histology of thyroid and parathyroid glands	<ul style="list-style-type: none"> Describe histological structure of thyroid and parathyroid gland Enumerate different cells present in both glands Discuss bio-physiological aspects related to their secretions Discuss the related clinical Read relevant research article Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SEQS VIVA
Histology of adrenal gland	<ul style="list-style-type: none"> Describe histological structure of adrenal gland. Enumerate different cells present in gland Discuss bio-physiological aspects related to secretions. Discuss the related clinical Read relevant research article Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SEQS VIVA
Development of pituitary and pineal gland	<ul style="list-style-type: none"> Describe stages of development of pituitary and pineal glands Enumerate structures involved in development of glands Discuss congenital abnormalities related to development of glands Read relevant research article Use digital library 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SEQS VIVA
Development of thyroid and parathyroid glands	<ul style="list-style-type: none"> Describe a stage of development of thyroid and parathyroid glands Enumerate structures involved in development of glands Discuss congenital abnormalities associated with their development 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> MCQS SEQS VIVA

	<ul style="list-style-type: none"> • Read relevant research article • Use digital library 			
Development of adrenal gland	<ul style="list-style-type: none"> • Describe stages of development of adrenal glands • Enumerate structures involved in the development of gland. • Discuss congenital abnormalities associated with its development. • Read relevant research article • Use digital library 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQS • VIVA

Physiology Large Group Interactive Session (LGIS)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to endocrinology & Signal transduction - I	<ul style="list-style-type: none"> • Define endocrinology • Describe several types of chemical messenger systems • Enumerate endocrine glands in the body along with their secretions • Compare two major control systems of the body • Identify different locations and properties of hormone receptors • Explain various intracellular signaling pathways after hormone receptor activation • Describe various mechanism of actions of hormones in detail 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 299) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 231) (Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys 	1. C1 2. C1 3. C1 4. C2 5.C1 6.C2 7.C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Hypothalamic–pituitary axis & GH	<ul style="list-style-type: none"> • Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324) 	<ul style="list-style-type: none"> • https://www.mdpi.com/2072-6694/15/15/3820 	C1 C1 C2	LGIS	MCQ SEQ VIVA

	<p>gland along with their secretion and function</p> <ul style="list-style-type: none"> • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of growth hormone • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion 	<ul style="list-style-type: none"> • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) (Chapter 23,Page 775) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929) 	<ul style="list-style-type: none"> • https://youtu.be/fqz4W0wfz4Q • https://resources.wfsahq.org/atotw/th-e-hypothalamic-pituitary-axis-part-1-anatomy-physiology/ 	<p>C1</p> <p>C1</p> <p>C2</p> <p>C2</p> <p>C2</p>		<p>VOCE</p> <p>MCQ (LMS based Assessment, MST based Assessment)</p> <p>OSPE</p>
<p>Introduction to endocrinology & Signal transduction- II</p>	<ul style="list-style-type: none"> • Classify hormones according to solubility and chemical nature • Describe the nature& synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control& clearance of hormones <p>Differentiate different classes of hormones</p>	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys 	<p>C2</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C2</p>	<p>LGIS</p>	<p>MCQ</p> <p>SEQ</p> <p>VIVA</p> <p>VOCE</p> <p>MCQ (LMS based Assessment, MST based Assessment)</p> <p>OSPE</p>
<p>Abnormalities of</p>	<ul style="list-style-type: none"> • Enlist abnormalities of GH secretion • Describe pan hypopituitarism • Discuss in detail dwarfism & its treatment 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 18, Page 321-334) 	<ol style="list-style-type: none"> 1. https://youtu.be/0GuRf5YPGiA 2. https://www.ncbi.n 	<p>C1</p> <p>C1</p> <p>C2</p>	<p>LGIS</p>	<p>MCQ</p> <p>SEQ</p> <p>VIVA</p>

growth hormone secretion	<ul style="list-style-type: none"> • Explain gigantism & acromegaly • Differentiate gigantism & acromegaly 	<ul style="list-style-type: none"> • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 412) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 23, Page 775) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 14. (Chapter 76, Page 936) 	lm.nih.gov/books/NBK278971/	C2 C2		VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Insulin and glucagon: Structure and metabolic functions	<ul style="list-style-type: none"> • Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 24, Page 429, 445) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 440, 446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22, Page 743) • Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 07 (Chapter 56, Page 902) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 14. (Chapter 79, Page 973, 982) 	1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/insulin 3. https://www.medicalnewstoday.com/articles/316427#overview	C1 C1 C1 C2 C1 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Hormones of posterior pituitary gland (oxytocin and ADH)	<ul style="list-style-type: none"> • Recall site of synthesis and secretion of posterior pituitary hormones • Describe mechanism of action, stimuli for secretion, functions and regulation of ADH • Discuss functions of oxytocin 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 17, Page 311) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 415) • Human Physiology by Dee Unglaub 	1. https://youtu.be/EGl1Oeetxpg 2. https://teachmeanatomy.com/endocrine-system/hypothalamus	C1 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based)

		<p>Silver thorn. 8TH Edition. (Chapter 07,Page 241)</p> <ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 849) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 938) 	<p>mus-pituitary/posterior-pituitary/posterior-pituitary-gland/https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/posterior-pituitary-hormones</p> <p>3.</p>			<p>Aseessment, MST based Assessment) OSPE</p>
Regulation of blood Glucose & Diabetes mellitus	<ul style="list-style-type: none"> Describe various factors regulating blood glucose concentration Discuss the importance of blood glucose regulation Discuss the pathophysiology of diabetes mellitus Explain the physiology of diagnosis of diabetes mellitus Explain the treatment of diabetes mellitus Differentiate between type I & type II diabetes mellitus Differentiate between diabetes mellitus & diabetes insipidus 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983) 	<p>1. https://youtu.be/KY85BUcQZew</p> <p>2. https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html</p> <p>3. https://www.medicalnewstoday.com/articles/316427</p>	<p>C1 C2 C2 C2 C2 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>
Aldosterone and cortisol	<ul style="list-style-type: none"> Describe physiological anatomy of adrenal gland Enumerate its various hormones Describe synthesis, transport & metabolism of adrenocortical hormones Describe mechanism, physiological actions of aldosterone 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) Human Physiology by Dee Unglaub 	<p>1. https://youtube/2-Z3Q6BZuBY</p> <p>2. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109</p> <p>3. https://www.britan</p>	<p>C1 C1 C1 C1 C2 C1 C1</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,</p>

	<ul style="list-style-type: none"> • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-inflammatory actions of cortisol</p> <ul style="list-style-type: none"> • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH • Discuss the actions of ACTH 	<p>Silver thorn. 8TH Edition.(Chapter 23,Page 765)</p> <ul style="list-style-type: none"> • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955) 	nca.com/science/aldosterone	<p>C2</p> <p>C2</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C2</p>		MST based Assessment) OSPE
Thyroid hormone: Production, storage and release	<ul style="list-style-type: none"> • Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941) 	<p>1. https://youtu.be/afVX3mlNB80</p> <p>2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release</p> <p>3. https://byjus.com/biology/thyroid-hormone/</p>	<p>C1</p> <p>C2</p> <p>C2</p> <p>C1</p> <p>C2</p> <p>C2</p>	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
	<ul style="list-style-type: none"> • Discuss in detail Cushing's syndrome • Differentiate between Cushing disease and 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 	<p>1. https://journals.ph</p>	<p>C2</p> <p>C2</p>		

Abnormalities of adrenocortical hormone	<ul style="list-style-type: none"> Cushing's syndrome Discuss adrenogenital syndrome Discuss the physiological anatomy of adrenal medulla Enumerate various hormones secreted by adrenal medulla Describe the steps involved in synthesis of catecholamines Explain the function of catecholamines Discuss stress response Describe pheochromocytoma 	<p>(Chapter 20, Page 364-373)</p> <ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 874,875) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78, Page 969) 	<p>ysiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109</p> <p>2. https://youtu.be/pSeU9Ei-3u4</p> <p>3. https://medlineplus.gov/adrenalglanddisorders.html</p>	<p>C2</p> <p>C2</p> <p>C1</p> <p>C1</p> <p>C2</p> <p>C2</p> <p>C1</p>	LGIS	<p>MCQ</p> <p>SEQ</p> <p>VIVA</p> <p>VOCE</p> <p>MCQ (LMS based Aseessment, MST based Assessment)</p> <p>OSPE</p>
Physiological role of thyroid hormone	<ul style="list-style-type: none"> Describe mechanism of action of thyroid hormone Explain physiological functions of thyroid hormone 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 343,345) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 423) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 944) 	<p>1. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release</p> <p>2. https://youtu.be/IXjRsX50JB4</p> <p>3. https://journals.physiology.org/doi/full/10.1152/physrev.2001.81.3.1097</p>	<p>C1</p> <p>C2</p>	LGIS	<p>MCQ</p> <p>SEQ</p> <p>VIVA</p> <p>VOCE</p> <p>MCQ (LMS based Aseessment, MST based Assessment)</p> <p>OSPE</p>
	<ul style="list-style-type: none"> Discuss normal levels and metabolism of calcium and phosphate 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 	<p>1. https://youtu.be/JY</p>	<p>C2</p> <p>C1</p>		

Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	<ul style="list-style-type: none"> Describe the effects of hypocalcemia & hypercalcemia Explain the absorption and excretion of calcium and phosphate Discuss in detail bone physiology Describe the steps involved the activation of Vitamin D Discuss the actions of vitamin D Describe the physiological anatomy of parathyroid glands Describe the chemistry & regulation of secretion of parathyroid hormone Explain the actions of parathyroid hormones Describe functions and regulation of calcitonin 	<p>(Chapter 21, Page 375-386)</p> <ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991) 	<p>2. https://teachmeanatomy.com/biochemistry/electrolyte-regulation</p>	<p>C2 C2 C1 C2 C1 C1 C2 C1</p>	LGIS	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	<ul style="list-style-type: none"> Enlist disorders of thyroid gland Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism Compare hypothyroidism with hyperthyroidism Differentiate between pituitary dwarfism and cretinism 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 950) 	<p>1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaSI57c</p>	<p>C1 C2 C2 C2 C2</p>	LGIS	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>

Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	<ul style="list-style-type: none"> • Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> 1. https://www.orthobullets.com/basic-science/9031/ricke 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia 	C2 C1 C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
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Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives	Learning	Teaching	Assessment
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	At The End Of Lecture Students Should Be Able To	Domain	Strategy	Tool
Classification and mechanism of action of hormones	Classify hormones Explain the mechanism of action of hormones	C2 C2	LGIS	MCQs, SAQs & Viva
Thyroxin	Describe nature, formation and mechanism of action of thyroxin Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Parathyroid and Calcitonin	Discuss role of various hormones acting on calcium and phosphate metabolism Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal cortical hormones	Describe synthesis, mechanism of action and functions of aldosterone, cortisol and adrenal androgens Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal medullary hormones	Describe mechanism of action and role of adrenal medullary hormones Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Insulin and glucagon	Explain formation, mechanism of action and role of insulin and glucagon Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Blood glucose regulation	Describe regulation of normal plasma glucose level Explain hypoglycemia	C2 C3	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topic	Learning Objectives	Learning	Teaching	Assessment
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	At the end of lecture students should be able to	Domain	Strategy	Tool
Bones of neck Hyoid Bone Cervical vertebrae	• Describe the borders and surfaces of body and the two cornuas of hyoid bone.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the attachments on the hyoid bone.	C2		
	• Discuss the related applied of hyoid.	C2		
	• Describe anatomical features of cervical typical & atypical vertebrae .	C2		
	• Discuss the intervertebral joints& movements of cervical region of vertebral column.	C2		
	• Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Fascias of Neck.	• Understand cervical subcutaneous tissue & platysma.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the deep cervical fascia and the formation of layers due to its condensation.	C2		
	• Discuss the attachments and special features of the investing layer.	C2		
	• Describe the attachments and special features of prevertebral fascia.	C2		
	• Describe the attachments and special features of pretracheal fascia.	C2		
	• Discuss the carotid sheath formation, contents and relations.	C2		
	• Differentiate between the buccopharyngeal fascia and pharyngobasilar fascia.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Superficial structures of the neck	• Discuss the location, attachments & actions of SCM & trapezius.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss suboccipital triangle of neck & its contents.	C2		
	• Discuss related clinicals	C3		
	• Discuss the location, attachments & actions of SCM & trapezius .	C2		
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss related clinicals	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical region-(Muscles & triangles)	• Describe boundaries of posterior triangle.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the muscles in lateral cervical region.(splenius capitus ,levator scapulae ,middle scalene &posterior scalene.	C2		
	• Describe boundaries and contents of occipital triangle	C2		

	• Discuss boundaries and contents of subclavian triangle	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical region-(Neuro vascular organization)	• Discuss arteries in lateral cervical region (supra scapular artery, 3rd part of subclavian artery ,	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss veins of lateral cervical region (EJV&subclavian vein)	C2		
	• Discuss nerve supply of lateral cervical region	C2		
	• Discuss lymphatic drainage in lateral cervical region.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Anterior cervical region-(Muscles)	• Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the anatomical basis of torticollis	C3		
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Anterior Cervical Region-(Vessels of neck & Cervical plexus)	• Discuss arterial supply in anterior cervical region (carotid system of arteries)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss venous drainage in anterior cervical region	C2		
	• Discuss formation of cervical plexus	C2		
	• Enumerate branches of cervical plexus	C2		
	• Discuss area of distribution	C2		
	• Describe clinical and applied anatomy	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Submandibular Region	• Discuss the relations of digastric, mylohyoid and hyoglossus muscles.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of submandibular salivary gland.	C2		
	• Describe the details of Wharton's duct, its opening and related clinicopathological conditions	C2		
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of sublingual salivary gland.	C2		

	• Tabulate the comparison of three salivary glands.	C2		
	• Describe the connections and branches with area of supply by the sub-mandibular ganglion.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Soft Palate	• Discuss the anatomy of soft palate along with attachment of muscles and their actions.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries of tonsillar fossa.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
Deep structures of neck	• Use digital library	C3	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss prevertebral muscles (ant.vertebral muscles & lateral vertebral muscles)	C2		
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
Root of Neck	• Use digital library	C3	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss arteries & veins in root of neck.	C2		
	• Discuss nerve supply in root of neck.	C2		
	• Discuss related clinicals.	C3		
Thyroid and para thyroid glands	• Read a relevant research article	C3	Skill lab	MCQS SEQS VIVA OSPE
	• Use digital library	C3		
	• Discuss anatomy & functions of thyroid & parathyroid gland	C2		
	• Discuss blood supply of thyroid gland	C2		
larynx	• Discuss lymphatic drainage & nerve supply of thyroid gland	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss related clinicals.	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
	• Discuss larynx in detail with its cartilages and muscles.	C2	Skill lab	MCQS SEQS VIVA
	• Discuss blood supply of larynx	C2		
	• Discuss functions of larynx	C2		
	• Discuss trachea (revisit).	C2		
	• Discuss related clinicals	C3		

	• Read a relevant research article	C3		OSPE
	• Use digital library	C3		
Pharynx	• Tabulate muscles of pharynx with origin, insertion, nerve supply and actions	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss nerve supply of Pharynx	C2		
	• Discuss blood supply of larynx	C2		
	• Discuss esophagus (revisit)	C2		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
Pancreas & Adrenal gland	• Describe location of pancreas & Adrenal gland	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Enlist different parts of pancreas	C2		
	• Describe relations of pancreas	C2		
	• Discuss blood supply of pancreas	C2		
	• Discuss the clinical Anatomy of pancreas	C3		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		

Physiology Small Group Discussion (SGDs)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Signal transduction & Growth hormone.	<ul style="list-style-type: none"> Define endocrinology Describe several types of chemical messenger systems Enumerate endocrine glands in the body along with their secretions Compare two major control systems of the body Identify different locations and properties of hormone receptors Explain various intracellular 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 16, Page 299) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 395) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07, Page 231) (Chapter 23, Page 765) 	<ul style="list-style-type: none"> https://youtu.be/QLcxQT1fb_c https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling https://youtu.be/GHwMJnxaiys 	1. C1 2. C1 3. C1 4. C2 5. C1 6. C2 7. C1	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

	<p>signaling pathways after hormone receptor activation</p> <ul style="list-style-type: none"> Describe various mechanism of actions of hormones in detail 	<ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 				
Thyroid Hormones	<ul style="list-style-type: none"> Recall physiological anatomy of thyroid gland Briefly explain secretions of thyroid gland Compare the features of tri iodothyronine with thyroxine Describe the steps of synthesis of thyroid hormone Discuss in detail half-life, release, and transport of thyroid hormones <p>Explain regulation of secretion of thyroid hormone</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941)</p>	<ol style="list-style-type: none"> https://youtu.be/afVX3mlNB80 https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release https://byjus.com/biology/thyroid-hormone/ 	C1 C2 C2 C1 C2 C2	SGD	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE</p>

Insulin and Glucose Metabolism	<ul style="list-style-type: none"> Describe physiological anatomy of pancreas Describe chemistry, synthesis and transport of insulin Describe the factors which affect secretion of insulin Discuss mechanism of action of insulin Describe the physiological actions of insulin Explain mechanism of insulin secretion Describe mechanism of action of glucagon Discuss regulation of secretion of glucagon <p>Explain the functions of glucagon</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)</p>	<ol style="list-style-type: none"> https://youtu.be/1c6a0BNsyek https://www.britannica.com/science/insulin https://www.medicalnewstoday.com/articles/316427#overview 	C1 C1 C1 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	<ul style="list-style-type: none"> Discuss in detail hypoparathyroidism Describe hyperparathyroidism <p>Describe osteoporosis</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> https://www.orthobullets.com/basic-science/9031/rickets https://youtu.be/Srm2GH1dusg https://www.webmd.com/osteoporosis/what-is-osteomalacia 	C2 C1 C1	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment, MST based Assessment) OSPE

Insulin and Glucagon:Structure and metabolic functions (Second week)	<ul style="list-style-type: none"> Describe physiological anatomy of pancreas Describe chemistry, synthesis and transport of insulin Describe the factors which affect secretion of insulin Discuss mechanism of action of insulin Describe the physiological actions of insulin Explain mechanism of insulin secretion Describe mechanism of action of glucagon Discuss regulation of secretion of glucagon <p>Explain the functions of glucagon</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) <p>4. Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)</p>	<p>1. https://youtu.be/1c6a0BNsyek</p> <p>2. https://www.britannica.com/science/insulin</p> <p>3. https://www.medicalnewstoday.com/articles/316427#overview</p>	C1 C1 C1 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Adrenal gland and its hormones (Fourth week)	<ul style="list-style-type: none"> Describe physiological anatomy of adrenal gland Enumerate its various hormones Describe synthesis, transport & metabolism of adrenocortical hormones Describe mechanism, physiological actions of aldosterone Explain the phenomenon of aldosterone escape Describe regulation of aldosterone secretion Enlist abnormalities of aldosterone secretion Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) <p>5. Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955)</p>	<p>1. https://youtube/2-Z3Q6BZuBY</p> <p>2. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109</p> <p>3. https://www.britannica.com/science/aldosterone</p>	C1 C1 C1 C1 C2 C1 C2 C2 C1 C2 C2	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

	inflammatory actions of cortisol <ul style="list-style-type: none"> • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH Discuss the actions of ACTH					
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Biochemistry Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Classification of endocrine hormones,	• Classify Endocrine hormones	C1	SGD	MCQs SAQs Viva
	• Discuss the mechanism of action of endocrine hormones	C2		
Adrenocortical Hormones	• Elaborate formation, functions & related disorders of adrenocortical hormones	C2	SGD	MCQs SAQs Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Bones of neck Hyoid Bone, Cervical vertebrae	<ul style="list-style-type: none"> Describe the borders and surfaces of body and the two cornuas of hyoid bone. 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 982-985).
	<ul style="list-style-type: none"> Discuss the attachments on the hyoid bone. 	
	<ul style="list-style-type: none"> Discuss the related applied of hyoid. 	
	<ul style="list-style-type: none"> Describe anatomical features of cervical typical & atypical vertebrae . 	<ul style="list-style-type: none"> https://youtu.be/Mrtt9s72a7I?si=-ICPtI4ihH7g0tKE
	<ul style="list-style-type: none"> Discuss the intervertebral joints& movements of cervical region of vertebral column. 	
	<ul style="list-style-type: none"> Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column 	<ul style="list-style-type: none"> https://youtu.be/4Q244XGveyQ?si=TH6lM2Jf43P_SBv3
	<ul style="list-style-type: none"> Read relevant research article 	
	<ul style="list-style-type: none"> Use digital library. 	
Sternocleidomastoid region & superficial & deep fascias of neck	<ul style="list-style-type: none"> Discuss the location, attachments & actions of SCM & trapezius . 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, P 989-992).
	<ul style="list-style-type: none"> Describe boundaries & location of posterior cervical region . 	
	<ul style="list-style-type: none"> Discuss suboccipital triangle of neck & its contents. 	
	<ul style="list-style-type: none"> Discuss related clinicals 	
	<ul style="list-style-type: none"> Discuss the location,attachments & actions of SCM & trapezius . 	
	<ul style="list-style-type: none"> Describe boundaries & location of posterior cervical region . 	<ul style="list-style-type: none"> https://youtu.be/nSaaWPzG4Zk?si=Muj6xMLX8fYkPOie
	<ul style="list-style-type: none"> Discuss related clinicals 	
	<ul style="list-style-type: none"> Read relevant research article 	<ul style="list-style-type: none"> https://youtu.be/dEpCSJajCew?si=OM4W_bKbS7Eodte4
	<ul style="list-style-type: none"> Use digital library. 	
Lateral cervical region	<ul style="list-style-type: none"> Describe boundaries of posterior triangle. 	<ul style="list-style-type: none"> Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 992-999).
	<ul style="list-style-type: none"> Discuss the muscles in lateral cervical region . 	
	<ul style="list-style-type: none"> (splenius capitus ,levator scapulae ,middle scalene &posterior scalene. 	
	<ul style="list-style-type: none"> Describe boundaries and contents of occipital triangle 	<ul style="list-style-type: none"> https://youtu.be/bk9KA2nR7PA?si=jBEZeD-MWZ83ne6a
	<ul style="list-style-type: none"> Discuss boundaries and contents of subclavian triangle 	
	<ul style="list-style-type: none"> Discuss related clinicals 	<ul style="list-style-type: none"> https://youtu.be/kPUwVJE_j0I?si=-Ozn5s_bZLuoq-a
	<ul style="list-style-type: none"> Read relevant research article 	
	<ul style="list-style-type: none"> Use digital library. 	

Anterior Triangle of neck & its subdivisions	<ul style="list-style-type: none"> • Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group) 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page,999-1005). 		
	<ul style="list-style-type: none"> • Discuss the anatomical basis of torticollis 			
	<ul style="list-style-type: none"> • Discuss related clinicals. 	<ul style="list-style-type: none"> • https://youtu.be/hnLtAYvAMkw?si=EWZCqciSD2K91uo4 		
	<ul style="list-style-type: none"> • Discuss arteries in anterior cervical region (carotid system of arteries) 	<ul style="list-style-type: none"> • https://youtu.be/YOgE2pmXfZg?si=7hU-ZAw7wcaomUyI 		
	<ul style="list-style-type: none"> • Discuss veins in anterior cervical region 			
	<ul style="list-style-type: none"> • Discuss formation of cervical plexus 			
	<ul style="list-style-type: none"> • Enumerate branches of cervical plexus 			
	<ul style="list-style-type: none"> • Discuss area of distribution 			
	<ul style="list-style-type: none"> • Read relevant research article 			
	<ul style="list-style-type: none"> • Use digital library 			
Thyroid and para thyroid gland	<ul style="list-style-type: none"> ▪ Discuss anatomy & functions of thyroid& parathyroid gland 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1018-1021). 		
	<ul style="list-style-type: none"> ▪ Discuss blood supply of thyroid gland 			
	<ul style="list-style-type: none"> ▪ Discuss lymphatic drainage of thyroid gland 	<ul style="list-style-type: none"> • https://youtu.be/7_Rd7HEZPI?si=mhoplCBjHSUL6pwI 		
	<ul style="list-style-type: none"> ▪ Discuss nerve supply of thyroid gland 			
	<ul style="list-style-type: none"> ▪ Discuss related clinicals. 	<ul style="list-style-type: none"> • https://youtu.be/ruOirrIc6oY?si=frzfEV7Lqb52Pp6Q 		
	<ul style="list-style-type: none"> • Read a relevant research article 			
	<ul style="list-style-type: none"> • Use digital library 			
Soft palate, larynx	<ul style="list-style-type: none"> • Discuss the anatomy of soft palate. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1021-1032). 		
	<ul style="list-style-type: none"> • Along with attachment of muscles and their actions. 			
	<ul style="list-style-type: none"> • Describe boundaries of tonsillar fossa. 			
	<ul style="list-style-type: none"> • Discuss larynx in detail with its cartilages and muscles. 	https://youtu.be/eBn3PMX0tfk?si=hCg37nm5DsR6T1_s		
	<ul style="list-style-type: none"> • Discuss blood supply of larynx 	https://youtu.be/4SDETzyJCVI?si=zWSHGf-prTqR1kqi		
	<ul style="list-style-type: none"> • Discuss functions of larynx 			
	<ul style="list-style-type: none"> • Discuss trachea (revisit). 			
	<ul style="list-style-type: none"> ▪ Discuss related clinicals 			
	<ul style="list-style-type: none"> ▪ Read a relevant research article 			
	<ul style="list-style-type: none"> • Use digital library 			

Physiology Self Directed Learning (SDL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
(ON CAMPUS) Regulation of blood Glucose & Diabetes mellitus	<ul style="list-style-type: none"> Describe various factors regulating blood glucose concentration Discuss the importance of blood glucose regulation Discuss the pathophysiology of diabetes mellitus Explain the physiology of diagnosis of diabetes mellitus Explain the treatment of diabetes mellitus Differentiate between type I & type II diabetes mellitus Differentiate between diabetes mellitus & diabetes insipidus 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983) 	1. https://youtu.be/KY85BUcQZew 2. https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html 3. https://www.medicalnewstoday.com/articles/316427	C1 C2 C2 C2 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation
Abnormalities of adrenocortical hormone	<ul style="list-style-type: none"> Discuss in detail Cushing's syndrome Differentiate between Cushing disease and Cushing's syndrome Discuss adrenogenital syndrome Discuss the physiological anatomy of adrenal medulla Enumerate various hormones secreted by adrenal medulla Describe the steps involved in synthesis of catecholamines Explain the function of catecholamines Discuss stress response Describe pheochromocytoma 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 364-373) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) Physiological Basis of Medical Practice by Best & Taylor's.13th 	1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 2. https://youtu.be/pSeU9Ei-3u4 3. https://medlineplus.gov/adrenalglanddisorders.html	C2 C2 C2 C1 C1 C2 C2 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation

		<p>Edition. Section 07(Chapter 53,Page 874,875)</p> <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78, Page 969)</p>				
<p>Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)</p>	<ul style="list-style-type: none"> • Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> 1. https://www.orhobullets.com/basic-science/9031/rickets 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia 	<p>C2</p> <p>C1</p> <p>C1</p>	<p>SDL</p>	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based Aseessment,MS T based Assessment)</p> <p>OSPE</p> <p>SDL Evaluation</p>
<p>(OFF CAMPUS)</p> <p>Hypothalamic–pituitary axis & GH</p>	<ul style="list-style-type: none"> • Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary gland along with their secretion and function • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) 	<ul style="list-style-type: none"> • https://www.mdpi.com/2072-6694/15/15/3820 • https://youtu.be/fqz4W0wfz4Q <p>https://resources.wfsahq.org/atotw/the-hypothalamic-</p>	<ol style="list-style-type: none"> 1. C1 2. C1 3. C2 4. C1 5. C1 6. C2 7. C2 8. C2 	<p>SDL</p>	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based Aseessment,MS T based Assessment)</p> <p>OSPE</p>

	<p>growth hormone</p> <ul style="list-style-type: none"> • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion 	<p>(Chapter 23,Page 775)</p> <ul style="list-style-type: none"> • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929) 	<p>pituitary-axis-part-1-anatomy-physiology/</p>			SDL Evaluation
Introduction to endocrinology & Signal transduction	<ul style="list-style-type: none"> • Classify hormones according to solubility and chemical nature • Describe the nature& synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control& clearance of hormones • Differentiate different classes of hormones 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling <p>https://youtu.be/GHwMJnxaiys</p>	<p>C2</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C2</p>	SDL	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based Aseessment,MS T based Assessment)</p> <p>OSPE</p> <p>SDL Evaluation</p>
Insulin and glucagon:	<ul style="list-style-type: none"> • Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine 	<p>1. https://youtu.be/1c6a0BNsyek</p> <p>2. https://www.britannica.com/science/i</p>	<p>C1</p> <p>C1</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C2</p>	SDL	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based Aseessment,MS</p>

	<ul style="list-style-type: none"> • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon 	<p>Physiology (chapter 09, page 440,446)</p> <ul style="list-style-type: none"> • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982) 	<p>nsulin</p> <p>3. https://www.medicalnewstoday.com/articles/316427#overview</p>	<p>C1 C2 C2</p>		<p>T based Assessment) OSPE SDL Evaluation</p>
Aldosterone and cortisol	<ul style="list-style-type: none"> • Describe physiological anatomy of adrenal gland • Enumerate its various hormones • Describe synthesis, transport & metabolism of adrenocortical hormones • Describe mechanism, physiological actions of aldosterone • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-inflammatory actions of cortisol</p> <ul style="list-style-type: none"> • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955) 	<p>1. https://youtube/2-Z3Q6BZuBY</p> <p>1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109</p> <p>2. https://www.britannica.com/science/aldosterone</p>	<p>C1 C1 C1 C1 C1 C1 C2 C2 C1 C2 C1 C2</p>	<p>SDL</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE SDL Evaluation</p>

	<ul style="list-style-type: none"> • Discuss the actions of ACTH 					
Thyroid hormone:	<ul style="list-style-type: none"> • Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941) 	<ol style="list-style-type: none"> 1. https://youtu.be/afVX3mlNB80 2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 3. https://byjus.com/biology/thyroid-hormone/ 	C1 C2 C2 C1 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	<ul style="list-style-type: none"> • Enlist disorders of thyroid gland • Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism • Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism • Compare hypothyroidism with hyperthyroidism • Differentiate between pituitary dwarfism and cretinism 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861) • Textbook of Medical 	<ol style="list-style-type: none"> 1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaSI57c 	C1 C2 C2 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation

		Physiology by Guyton & Hall.14 th Edition..Section 14. (Chapter 77, Page 950)				
Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	<ul style="list-style-type: none"> • Discuss normal levels and metabolism of calcium and phosphate • Describe the effects of hypocalcemia & hypercalcemia • Explain the absorption and excretion of calcium and phosphate • Discuss in detail bone physiology • Describe the steps involved the activation of Vitamin D • Discuss the actions of vitamin D • Describe the physiological anatomy of parathyroid glands • Describe the chemistry & regulation of secretion of parathyroid hormone • Explain the actions of parathyroid hormones <p>Describe functions and regulation of calcitonin</p>	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 375-386) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991)</p>	<p>1. https://youtu.be/JYQL7JEsF_4</p> <p>2.https://teachmephysiology.com/biochemistry/electrolytes/calcium-regulation</p>	<p>C2</p> <p>C1</p> <p>C2</p> <p>C2</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C1</p> <p>C2</p> <p>C1</p>	SDL	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based Aseessment,MS T based Assessment)</p> <p>OSPE</p> <p>SDL Evaluation</p>

Biochemistry Self Directed Learning (SDL)

Topic	At The End Of SDL Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	Learning Resources
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Classification & Mechanism of action of Endocrine Hormones	<ul style="list-style-type: none"> Classify Endocrine Hormones 	C1	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 482-484 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 265-266 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6761896/ https://www.youtube.com/watch?v=KSclrkK_Ako
	<ul style="list-style-type: none"> Discuss the Mechanism of action of various Endocrine Hormones 	C2			
Formation & Mechanism of action of Thyroid Hormone	<ul style="list-style-type: none"> Elaborate the nature, formation, mechanism of action and related diseases of Thyroxin 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 492-493 and 498 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 29, pages 452-454 https://www.nature.com/articles/boneres201311 https://www.youtube.com/watch?v=cDGmsR2ZILE
Synthesis & Mechanism of Action of Adrenocortical Hormones	<ul style="list-style-type: none"> Describe synthesis, mechanism of action and functions of Aldosterone, Cortisol and Adrenal androgens Discuss related clinical disorders 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 485-488, 491- 492, and 495-496, 498-499 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 262-266 https://www.ncbi.nlm.nih.gov/books/NBK470339/ https://www.youtube.com/watch?v=JII5N2N4d-k https://www.sciencedirect.com/topics/medicine-and-dentistry/adrenal-medulla https://www.youtube.com/watch?v=afzWLmd72Rk
	<ul style="list-style-type: none"> Describe mechanism of action and role of Adrenal Medullary Hormones Discuss related diseases 	C2			
Synthesis & Mechanism of Action of Insulin & Glucagon	<ul style="list-style-type: none"> Explain formation, mechanism of action and role of Insulin and Glucagon Discuss related diseases 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter pages 493-494 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 23, pages 341-354 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6515536/ https://www.youtube.com/watch?v=1c6a0BNsyek https://www.youtube.com/watch?v=-3J6QRMerQE

Glucose Tolerance Test Curves Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State Online Clinical Evaluation	<ul style="list-style-type: none"> • Normal & abnormal curves of glucose tolerance test and factors effecting it. Interpretation of GTT curves for Diabetes Mellitus • Hypoglycemia, Hyperglycemia & Diabetic ketoacidosis 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32nd edition, chapter pages 719-720, 136-138 & 469-470 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapters 23 & 25, pages 350-354 & 375-387 https://www.ncbi.nlm.nih.gov/books/NBK532915/ https://www.youtube.com/watch?v=SRZIYdQWO3g https://www.ncbi.nlm.nih.gov/books/NBK279052/ https://www.youtube.com/watch?v=jCf7W1U4JKE https://www.ncbi.nlm.nih.gov/books/NBK534841/
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Histology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At the end of practical students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Histology of pituitary gland	• Identify the histological slide of the pituitary gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pituitary gland	C2		
	• Enlist two points of identification	C1		
Histology of adrenal gland	• Identify the histological slide of the adrenal gland	P	Skill Lab	OSPE VIVA
	• Illustrate the histological structure of the adrenal gland	C2		
	• Enlist two points of identification	C1		
Histology of thyroid and parathyroid gland	• Identify the histological slide of the thyroid and parathyroid gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the thyroid and parathyroid gland	C2		
	• Enlist two points of identification	C1		
Histology of pancreas	• Identify the histological slide of the pancreas	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pancreas	C2		
	• Enlist two points of identification	C1		

Physiology Practicals Skill Laboratory (SKL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy
Examination of pupillary reaction	<ul style="list-style-type: none"> • Principle • Procedure • Precautions • Clinical correlation OF Pupillary Reactions 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment
Checking for color vision	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Clinical correlation for color vision 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment
Revision of practical	<ul style="list-style-type: none"> • Revision 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Estimation of Blood Glucose	<ul style="list-style-type: none"> • Perform estimation of glucose by spectrophotometer 	P	Skill lab	OSPE
GTT	<ul style="list-style-type: none"> • Explain the procedure of practical, normal & abnormal curves of glucose and factors effecting it Interpret the result of GTT 	P	Skill lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

- **CBLs**
- **Vertical Integration LGIS**
- **Longitudinal Themes**
 - **Biomedical Ethics & Professionalism**
 - **Family Medicine**
 - **Artificial Intelligence (Innovation)**
 - **Integrated Undergraduate Research Curriculum (IUGRC)**

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	• Multi Nodular Goitre with Hypothyroidism	Apply basic knowledge of subject to study clinical case.	C3
	• Torticollis	Apply basic knowledge of subject to study clinical case.	C3
Physiology	• Adrenocortical Hormone	Apply basic knowledge of subject to study clinical case	C3
Biochemistry	• Thyrotoxicosis	Apply basic knowledge of subject to study clinical case.	C3
	• Addison's Disease	Apply basic knowledge of subject to study clinical case	C3

Vertical Integration LGIS Pathology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Pituitary disorders	• Discuss pathogenesis of pituitary adenomas	C2	LGIS	MCQ's
	• Causes of hypopituitarism and posterior pituitary syndromes	C2		
Calcium metabolism disorders	• Describe pathogenesis of Tetany	C2	LGIS	MCQ's
	• Causes of Hypoparathyroidism and	C2		
	• Hyperparathyroidism (primary and secondary)	C2		
	• Describe the pathogenesis of Rickets and	C2		
Adrenocortical disorders	• Osteomalacia	C2	LGIS	MCQ's
	• Describe the pathological features of Osteoporosis and osteopetrosis	C2		
	• Define and discuss pathogenesis of	C2		
	• Addison's disease and Conn's syndrome	C2		
	• Describe the pathogenesis of Cushing syndrome	C2	LGIS	MCQ's
	• Explain dexamethasone suppression test and its role in diagnosis	C2		
	• Define diabetes	C1		

Diabetes mellitus	• Classify diabetes	C2	LGIS	MCQ's
	• Discuss pathogenesis of type I and type II diabetes mellitus	C2		
Diagnosis of thyroid	• Define hypothyroidism and hyperthyroidism	C1	LGIS	MCQ's
	• Extract lab diagnosis of hypothyroidism and hyperthyroidism	C2		
	• Describe clinical features of hyper and hypothyroidism	C2		

Medicine

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Hypothyroidism and hyperthyroidism	• Discuss discuss pathophysiology, clinical manifestations of hypothyroidism and hyperthyroidism	C2	LGIS	MCQ
	• Workup and management	C2		
Hypocalcemia and hypercalcemia	• Discuss pathophysiology, clinical manifestations of hypocalcemia and hypercalcemia	C2	LGIS	MCQ
	• Workup and management	C2		
Diabetes mellitus	• Discuss pathophysiology, clinical manifestations of type I and type II diabetes mellitus	C2	LGIS	MCQ
	• Discuss Workup and management	C2		
Syndrome of inappropriate ADH secretion (SIADH).	• Define and discuss pathophysiology	C2	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		
Cushing syndrome	• Define and discuss pathophysiology	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		

Surgery

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Thyroid	• Enlist swellings infront of neck	C1	LGIS	MCQ
	• How to differentiate swellings in neck	C2		
	• Explain What is Hyperthyroidism	C2		
	• What is Hypothyroidism	C2		
	• Appreciate MNG	C2		
	• Appreciate Solitary Nodule	C2		
	• Appreciate Toxic Nodule	C2		
	• Outline the investigations for Thyroid pathologies	C2		
	• Outline the Management of different thyroid Pathologies	C2		
Adrenal Tumours	• Enlist hormones secreted by Adrenal Gland	C2	LGIS	MCQ
	• Describe Clinical Manifestations of different adrenal disease	C2		
	• Outline the management plan	C2		
Diabetic foot	• Describe Diabetic Foot	C2	LGIS	MCQ
	• Classify Diabetic foot	C1		
	• Describe Pathophysiology of Diabetic foot	C2		
	• Outline Management of Diabetic foot	C2		

Gynaecology & Obstetrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine disorders in pregnancy (diabetes mellitus,thyroid disorders)	Diabetes Mellitus:	C2	LGIS	MCQs
	• Know why pregnancy is a diabetogenic state			
	• Define gestational diabetes mellitus (GDM)	C1		
	• Correlate clinical features with pathophysiology of GDM	C2		
	• Outline brief management plan for these conditions	C2		
	• Know the methods for screening of diabetes in pregnancy	C2		

	• Thyroid disorders:	C1		
	• Know pathophysiology of common thyroid disorders during pregnancy	C2		
	• Understand clinical presentation of thyroid disorders in pregnancy	C2		
	• Comprehend effects of thyroid disorders on mother and fetus	C2		
Primary amenorrhoea/ delayed puberty	• Define primary amenorrhea, secondary amenorrhea and oligomenorrhoea.	C1	LGIS	MCQs
	• Enumerate the causes of amenorrhea: ➤ Hypothalamic ➤ Pituitary ➤ Ovarian ➤ Endometrial ➤ Structural	C1		
	• Understand physical and hormonal changes at puberty / secondary sexual characteristics	C2		
	• Know basic pathophysiology of disorders of puberty ➤ Precocious puberty ➤ Delayed puberty	C2		
	• Identify clinical features of precocious puberty	C1		

Peadiatrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine Problems	• Differentiate between the clinical features of hypothyroidism	C2	LGIS	MCQs
	• Interpret the investigations required for diagnosis of hypothyroidism	C2	LGIS	MCQs

Radiology & Artificial Inteligence

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Basics of Radiology	<ul style="list-style-type: none">• Categorize different tissues from most to least opaque on x-ray including: bone, soft tissue, air, metal, and fat	C2	LGIS	MCQs
	<ul style="list-style-type: none">• Distinguish between the different types of contrast used in imaging exams and the potential diagnostic benefits of each	C2	LGIS	MCQs

Behaveioural Sciences

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Psychosocial Assessment	<ul style="list-style-type: none">• To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases.	C2	LGIS	MCQs
Psychosocial Assessment	<ul style="list-style-type: none">• To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases.	C2	LGIS	MCQs

Biomedical Ethics & Professionalism

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	
History of Medical Ethics	<p>Discussion on Health Research ethics focusing;</p> <ul style="list-style-type: none"> •Historical perspective of Tuskegee studies, Willow brook Experiment •Codes of medical ethics: traditional foundations and contemporary practice •Nuremburg code, Belmont report, Declaration of Helsinki and importance of historical background of ethics in current research trends • General ethical principles including explanation of 04 basic principles of Beneficence, non-maleficence, respect and justice. <ul style="list-style-type: none"> - Interpretation research ethics for; - Informed consent and confidentiality in research HR 	<p>At the end of the session students should be able to;</p> <ul style="list-style-type: none"> • Explain the meaning of the term “ethics”. C1 • Describe the historical perspective of global development of medical ethics. C1 • Describe the codes of medical ethics and their implications. C1 • Recognize ethical issues relevant to the case situation and apply the ethical codes as appropriate. C2 • Discuss the development of indigenous ethical codes in the South-East Asian Region. C2. <ul style="list-style-type: none"> • Demonstrate sensitivity to cultural diversity in medical care. C3 	<p>LGIS</p> <p>1hr contact session in 2-4 parallel classes, Conducted by Senior faculty.</p>	<p>1 MCQs of level C1 to C3 will cover this session teachings in relevant block examination in pool of total 04 MCQs.</p> <p>Result / marks obtained will contribute towards Internal assessment (IA) in 1st Prof. MBBS exam.</p>	<p>Guidelines and Teachers Handbook for Introducing Bioethics to Medical and Dental Students</p> <p>http://nbcPakistan.org.pk/assets/may-16-bioethics-facilitator-book---may-16%2C-2017.pdf</p> <p>The Nuremberg Code:</p> <p>http://www.hhs.gov/ohrp/archiv e/nurcode.html</p> <p>10 WMA Declaration of Helsinki:</p> <p>http://www.wma.net/en/30publications/10policies/b3/</p> <p>CIOMS Guidelines:</p> <p>http://www.cioms.ch/publications/layout_guide2002.pdf .</p> <p>Nuffield Council on Bioethics Guidelines:</p> <p>http://www.sirc.org/news/nuffield.shtml</p>

Integrated Undergraduate Research Curriculum (IUGRC)

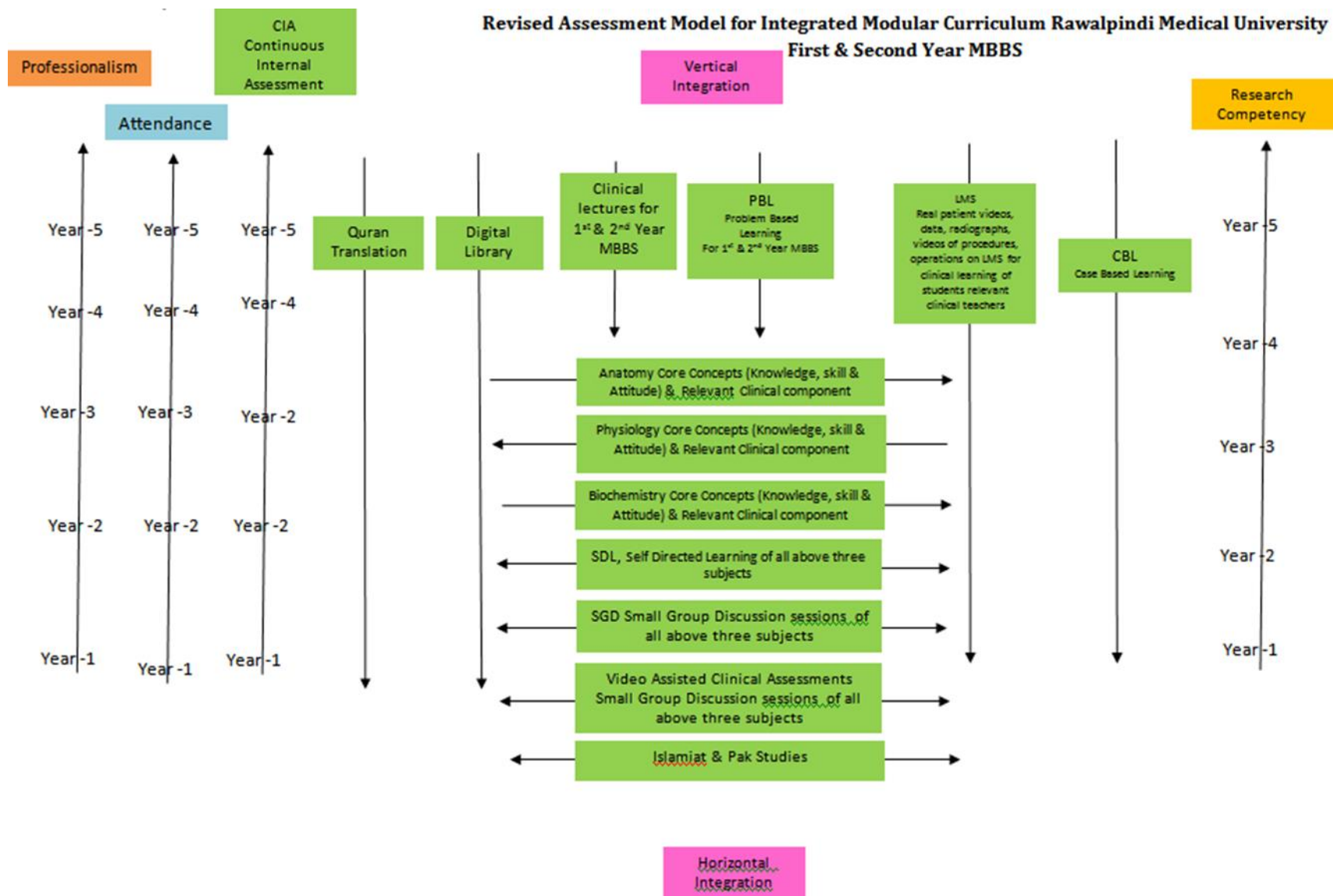
Topics	At the end of the session the student should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
Practice session 6	<ul style="list-style-type: none"> • Finalization of poster presentation • Submission at SJRMC/any other medical journal 	C3	Activity	MCQs

SECTION - IV

Assessment Policies

Contents

- **Assessment plan**
- **Types of Assessment:**
- **Modular Examinations**
- **Block Examination**
- **Table 4: Assessment Frequency & Time in Endocrinology Module**



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

90% is eligibility criteria for appearing in professional examination.

Assessment plan

University has followed the guidelines of Pakistan Medical and Dental Council for assessment. Assessment is conducted at the mid modular, modular and block levels.

Types of Assessment:

The assessment is formative and summative.

Formative Assessment	Summative Assessment
Formative assessment is taken at modular (2/3 rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given the share according to their hour percentage.	Summative assessment is taken at the mid modular (LMS Based), modular and block levels.

Modular Assessment

Theory Paper	Viva Voce
There is a module examination at the end of first module of each block. The content of the whole teaching of the module are tested in this examination. It consists of paper with objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module. (Annexure I attached)	Structured table viva voce is conducted including the practical content of the module.

Block Assessment

On completion of a block which consists of two modules, there is a block examination which consists of one theory paper and a structured viva with OSPE.

Theory Paper	Block OSPE
There is one written paper for each subject. The paper consists of objective type questions and structured essay questions. The distribution of the questions is based on the Table of Specifications of the module.	This covers the practical content of the whole block.

Table 4-Assessment Frequency & Time in Endocrinology Module

Block	Sr #	Module Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module Examinations LMS based (Anatomy, Physiology & Biochemistry)	Summative	30 Minutes	3 Hour 15 Minutes	45 Minutes	2 Formative	6 Summative
	2	Topics of SDL Examination on MS Team	Formative	30 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Anatomy Structured and Clinically Oriented Viva	Summative	10 Minutes				
	5	Physiology Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	15 Minutes				
	7	Assessment of Bioethics Lectures	Summative	2 Minutes				
	8	Assessment of IUGRC Lectures	Summative	10 Minutes				

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCiCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> https://youtu.be/2_owp8kNMus (Female Reproductive system) https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbzmAtg (Dr Najeeb lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32th edition. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> Lehninger Principle of Biochemistry 8th edition. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p> <ul style="list-style-type: none"> https://www.youtube.com/watch?v=A5u_TY1A0t8 https://www.youtube.com/watch?v=A5u_TY1A0t8

	<ul style="list-style-type: none">• https://www.youtube.com/watch?v=VXWyWzbigrg• https://www.youtube.com/watch?v=e2KFVvI8Akk• https://www.youtube.com/watch?v=n7Uec8Jtr4E• https://www.youtube.com/watch?v=J9jhg90A7Lw <p>E. HEC Digital Library</p> <ul style="list-style-type: none">• https://www.ncbi.nlm.nih.gov/books/NBK29/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/• https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/• https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/ <p>F. Biochemistry Journals</p> <ul style="list-style-type: none">• https://academic.oup.com/bmb/article/11/2/126/256755• https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone
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SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Endocrinology Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Endocrinology Module Team

Module Name : Endocrinology Module
 Duration of module : 04 Weeks
 Coordinator : Dr. Sidra Hamid
 Co-coordinator : Dr. Nayab
 Reviewed by : Module Committee

Module Committee			Module Task Force Team		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Sidra Hamid (Assistant Professor of Physiology)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Saira Aijaz (Senior Demonstrator)
3.	Convener Curriculum	Prof. Dr. Naeem Akhter	3.	Co-coordinator	Dr. Nayab (Senior Demonstrator of Biochemistry)
4.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf	4.	Co-Coordinator	Dr. Aneela Yasmin (Senior Demonstrator of Physiology)
5.	Additional Director DME	Prof. Dr. Ifra Saeed	5.	Co-coordinator	Dr. Sadia Baqir (APWMO of Anatomy)
6.	Chairperson Physiology	Prof. Dr. Samia Sarwar	DME Implementation Team		
7.	Chairperson Biochemistry	Dr. Aneela Jamil			
8.	Focal Person Anatomy Second Year MBBS	Prof. Dr. Ifra Saeed	1.	Director DME	Prof. Dr. Rai Muhammad Asghar
9.	Focal Person Physiology	Dr. Sidra Hamid	2.	Implementation Incharge 1st & 2 nd Year MBBS & Add. Director DME	Prof. Dr. Ifra Saeed
10.	Focal Person Biochemistry	Dr. Aneela Jamil	3.	Deputy Director DME	Dr Shazia Zaib
11.	Focal Person Pharmacology	Dr. Zunera Hakim	4.	Module planner & Implementation coordinator	Dr. Sidra Hamid
12.	Focal Person Pathology	Dr. Asiya Niazi	5.	Editor	Muhammad Arslan Aslam
13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			
16.	Focal Person Family Medicine	Dr. Sadia Khan			

Discipline wise Details of Modular Contents

Block	Subjects	Embryology	Histology	Histology Practical SKL. Lab.	Gross Anatomy	CBL	SDL
III	<ul style="list-style-type: none"> Anatomy 	<ul style="list-style-type: none"> Development of pituitary & pineal gland Developmnt of thyroid & parathyroid gland Developmnt adrenal gland and pancreas 	<ul style="list-style-type: none"> Pituitary & pineal gland Thyroid & parathyroid gland Adrenal gland and pancreas 	<ul style="list-style-type: none"> Pituitary Gland Thyroid & parathyroid gland Adrenal gland Pancreas 	<ul style="list-style-type: none"> Bones of neck. Hyoid Bone & Cervical vertebrae Fascias of Neck Superficial structurcs of neck Lateral-cervical region (muscles & triangles) Latera-cervical-region (neurovascular organization) Interior-cervical region(muscles) Interior-cervical region (vessels of neck & cervical plexus) Submandular region Soft palate Deep structures of neck Root of neck Thyroid&Parathyroid gland Larynx Pharynx pancreas 		<ul style="list-style-type: none"> Bones of neck SCM region & superficial & deep fascia lateral cervical region Anterior Triangle of neck & its subdivisions Thyroid and para thyroid gland Online SDL Evaluation soft palate, larynx
	<ul style="list-style-type: none"> Physiology 	<ul style="list-style-type: none"> Classification of hormones, Mechanism of action of different hormones Physiology of Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Role of Calcium & Phosphate 					
	<ul style="list-style-type: none"> Biochemistry 	<ul style="list-style-type: none"> Classification of hormones, Thyroid hormones, Adrenal hormones, Insulin and glucagon, Blood glucose regulation, Calcium revisit 					
	<ul style="list-style-type: none"> Biomedical Ethics 	<ul style="list-style-type: none"> History of Medical Ethics 					
	<ul style="list-style-type: none"> Behavioral Sciences 	<ul style="list-style-type: none"> Professionalism In Healthcare 					
	<ul style="list-style-type: none"> Research Club Activity 	<ul style="list-style-type: none"> Poster Presentation 					
	<ul style="list-style-type: none"> Radiology & Artificial Intelligence 	<ul style="list-style-type: none"> Basics of Radiology 					
	<ul style="list-style-type: none"> Family Medicine 	<ul style="list-style-type: none"> Approach to patient diabetes mellitus 					
	<ul style="list-style-type: none"> Vertical components 	<ul style="list-style-type: none"> The Holy Quran Translation Islamiayat 					

	<ul style="list-style-type: none">• Vertical Integration	<ul style="list-style-type: none">• Growth problems due to Endocrine causes (Peads)• Thyroid Disorders (Surgery)• Hypothyroidism and hyperthyroidism (Pathology)• Diabetes Mellitus (Medicine)• Endocrine Disorders In Pregnancy (Diabetes Mellitus, Thyroid Disorders) (Obs & Gynae)
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Categorization of Modular Contents

Anatomy

Category A*	Category B**	Category C***			
		Demonstrations / SGD	CBL	SKL/Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> Special Embryology 	<ul style="list-style-type: none"> Special Histology 	<ul style="list-style-type: none"> Bones of neck Hyoid Bone & Cervical vertebrae Fascias of Neck Superficial structures of neck Lateral-cervical region (Muscles & triangles) Lateral-cervical-region (Neurovascular organization) Anterior-cervical region (Muscles) Anterior-cervical region (Vessels of neck & cervical plexus) Submandibular region Soft palate Deep structures of neck Root of neck Thyroid & Parathyroid gland Larynx Pharynx Pancreas 	<ul style="list-style-type: none"> Multi Nodular Goitre with Hypothyroidism Torticollis 	<ul style="list-style-type: none"> pituitary gland Thyroid & parathyroid gland Adrenal gland pancreas 	<ul style="list-style-type: none"> Bones of neck SCM region & superficial & deep fascia lateral cervical region Anterior Triangle of neck & its subdivisions Thyroid and para thyroid gland Online SDL Evaluation SDL Anatomysoft palate, larynx

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

Sr .#	Designation of Teaching Staff / Human Resource	Total number of teaching staff
1.	Professor of Anatomy department	01
2.	Assistant professor of Anatomy department (AP)	01
3.	Demonstrators of Anatomy department	04

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$6 \times 2 = 12$
2.	Small Group Discussions (SGD)	$15 \times 2 + 2 \times 1 = 32$
3.	Practical / Skill Lab	$20 \times 1.5 = 30$

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 \times 6 = 06$ hours
2.	Small Group Discussions (SGD)	$2 \times 15 = 32$ hours
3.	Practical / Skill Lab	$1.5 \times 4 = 06$ hours
4.	Self-Directed Learning (SDL)	$2 \times 4 = 08$ hours

Physiology

Category A	Category B	Category C
Thyroid hormone: Production, storage and release (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Hypothalamic–pituitary axis& GH (By Dr. Kamil)	CBL: Adrenocortical Hormone
Physiology of accommodation and clinical abnormalities (By Prof. Dr. Samia Sarwar / Dr. Uzma)	Abnormalities of growth hormone secretion (By Dr. Kamil)	PBL:
Physiological role of thyroid hormone (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Insulin and glucagon:	Practical: 1. Examination of pupillary reaction 2. Checking for color vision 3. Revision of practica
	Structure and metabolic functions (By Dr. Fareed)	SGD: 1. Signal transduction & Growth hormone. 2. Thyroid Hormones 3. Insulin and Glucose Metabolism 4. Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism 5. Insulin and Glucagon:Structure and metabolic functions (Second week) 6. Adrenal gland and its hormones (Fourth week)
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Hormones of posterior pituitary gland (oxytocin and ADH) (By Dr. Kamil)	SDL: (ON CAMPUS) 1. Regulation of blood Glucose & Diabetes mellitus 2. Abnormalities of adrenocortical hormone 3. Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism) (OFF CAMPUS) 1. Hypothalamic–pituitary axis & GH 2. Introduction to endocrinology & Signal transduction 3. Insulin and glucagon 4. Aldosterone and cortisol 5. Thyroid hormone 6. Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) 7. Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin
	Regulation of blood Glucose & Diabetes mellitus (By Dr.Fareed)	
` Introduction to endocrinology & Signal transduction -I (By Dr. Shmyla)	Aldosterone and cortisol (By Dr.Sheena)	
	Abnormalities of adrenocortical hormone (By Dr.Sheena)	
	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin) (By Dr.Fahad)	
Introduction to endocrinology & Signal transduction- II (By Dr. Shmyla)		

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

Sr . #	Designation of Teaching Staff / Human Resource	Total Number Of Teaching Staff
1.	Professor of Physiology department	01
2.	Assistant professor of Physiology department (AP)	01
3.	Associate professor of Physiology department	01 (DME)
4.	Demonstrators of Anatomy department	07
5.	Residents of physiology department (PGTs)	08

Contact Hours (Faculty) & Contact Hours (Students)

Sr . #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1. 14 * 1= 14 hours
2.	Small Group Discussions (SGD) Case based learning (CBL)	1.5 * 4 = 6 hours + 2 hrs = 8 hours
3.	Problem based learning (PBL)	--
4.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
5.	Self- Directed Learning	3x1=3hours (on campus) + 7x1=7hours (off campus) = 10hours

Biochemistry

Category A*: By HOD and Assistant Professor

Category B**: By All (HOD, Assistant Professors, Senior Demonstrators)

Category A*		Category B**		Catogery C***			
LGIS		Sr. #	LGIS	PBL	CBL	Practical's	SGD
• Insulin & Glucagon			Designation of Teaching Staff	Human Resource		Total number of teaching staff	
			• Classification & mechanism of action of hormones, Calcium metabolism (Revisit)		• Thyrotoxicosis	• Blood Glucose Estimation	• Classification & mechanism of action of Endocrine Hormones
			• Thyroid Hormones		• Addison's Disease	• Glucose Tolerance Test	• Adrenocortical Hormones
			• Adrenocortical Hormones			• Glucose Tolerance Test Revision	
			• Blood Glucose Regulation			• Practical Revision/Completion of practical notebooks	

Category C***: (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

1	Assistant professor of biochemistry department (AP)	01
2	Demonstrators of biochemistry department	07

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	2 * 8= 16hours	08
2.	Small Group Discussions (SGD)	1.5 * 5 = 7.5*4=30 hrs	6
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	1.5 * 5 = 7.5*4=30 hrs	6
5.	Self-Directed Learning (SDL)	-----	07

Endocrinology Module (First Week)
(18-09-2023 To 23-09-2023)

Date / Day	8:00am-9:30am			9:30am – 10:20am			10:20am-11:10am			11:10am-12:00pm			12:00pm-12:20pm	12:20pm – 2:00pm		Home Assignments(2HRS)	
18-09-2023 Monday	Practical & CBL/SGD Topic mentioned at the end			PHYSIOLOGY LGIS			ANATOMY LGIS			Paper Discussion by Departments			Break	SGD/DISSECTION		SDL Anatomy lateral cervical region	
				Introduction to endocrinology & Signal transduction-I		Hypothalamic–pituitary axis& GH		Development of pituitary& pineal gland						Histology of pituitary& pineal gland			Bones of neck Hyoid bone& Cervical Vertebrae
				Dr.Shmyla (Even)		Dr.Kamil (Odd)		Asst Prof Dr. Maria Tasleem (Even)						Prof. Dr Ifra Saeed (Odd)			
19-09-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end			PHYSIOLOGY LGIS			ANATOMY LGIS			BIOCHEMISTRY LGIS				SGD/DISSECTION		SDL Biochemistry Classification of endocrine hormones	
				Hypothalamic–pituitary axis& GH		Introduction to endocrinology & Signal transduction-I		Histology of pituitary & pineal gland		Development of pituitary& pineal gland		Classification & Mechanism of action of Endocrine Hormone,		Thyroid Hormone			
				Dr Kamil (Even)		Dr. Shmyla (Odd)		Asst Prof Dr. Maria Tasleem (Even)		Prof. Dr Ifra Saeed (Odd)		Dr. Isma (Even)		Dr. Almas (Odd)			
20-09-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end			PHYSIOLOGY LGIS			RESEARCH ACTIVITY							CBL/DISSECTION		SDL physiology Hypothalamic–pituitary axis& GH	
				Introduction to endocrinology & Signal transduction-II		Abnormalities of growth hormone secretion		Poster Presentaion Supervised by Dr. Sdira Hamid						Superficial structures of neck (Stnocleido mastoid region of neck, posteripor cervical region suboccipital trangle)			
				Dr. Shmyla (Even)		Dr. Kamil (Odd)		Dr. Imran (Even)			Dr. Abdul Qadoos						
21-09-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end			PHYSIOLOGY LGIS			RADIOLOGY			PBL SESSION-I				SGD/DISECTION		SDL Physiology Introduction to endocrinology & Signal transduction	
				Abnormalities of growth hormone secretion		Abnormalities of growth hormone secretion		Basics of Radiology			SECOND YEAR TEAM Supervised by Dr. Sdira Hamid			Lateral cervical region (Muscles)			
				Dr. Kamil (Even)		Dr. Shmyla (Odd)		Dr Fiza (even)		Dr Zeenat (odd)							
22-09-2023 Friday	8:00 AM – 9:00 AM			9:00 AM – 10:00 AM			10:00 – 11:00AM			11:00AM – 12:00PM			Break	SDL Anatomy SCM region & superficial & deep fascia			
	BEHAVIOURAL SCIENCES LGIS			PHYSIOLOGY (LGIS)			SGD/DISECTION										
	Professionalism in healthcare			Insulin and Glucagon:Structure and metabolic functions		Hormones of posterior pituitary gland (Oxytocin and ADH)		Lateral cervical region (Neurovasscular Organization)									
	Dr. Zarnain Umar (even)		Dr. SadiaYasir (odd)		Dr. Fareed (Even)		Dr. Kamil (Odd)										
23-09-2023 Saturday	Practical & CBL/SGD Topic mentioned at the end			PEADS			ANATOMY			Physical Activity			Break	SGD/DISECTION		SDL Biochemistry Mechanism of Action of Hormones	
				Growth problems due to Endocrine causes			Development of thyroid and parathyroid gland		Histology of thyroid and para thyroid gland					Anterior cervical region (Anterior Triangles of neck)			
				Dr. Hina Sattar			Dr. Prof. Ifra Saeed (Even)		Asst Prof Dr. Maria Tasleem (Odd)								

Topics For Practical With Venue

Topics For Small Group Discussion& CBLs With Venue

<ul style="list-style-type: none">• Pituitary gland (Anatomy, Histology Practical)• Blood glucose estimation (Biochemistry practical)• Examination of pupillary reaction (Physiology practical)						<ul style="list-style-type: none">• Anatomy CBL: Torticollis• Physiology SGD: Signal transduction & Growth hormone.• Biochemistry SGD: Classification of Endocrines Hormone & Adrenocortical Hormone				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04	
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3	
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03	
Saturday	A	E	C	D	B					
VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers		New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none">• Classification of Hormones										
<ul style="list-style-type: none">• Mechanism of Action of Hormones										

Endocrinology Module (Second Week)
(25-09-2023 To 30-09-2023)

Date /Day	8:00am-9:30am	9:30am – 10:20am		10:20am-11:10am		11:10am-12:00pm		12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)
25-09-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS)		ANATOMY LGIS		BIOCHEMISTRY LGIS		Break	SGD/DISSECTION	SDL Anatomy lateral cervical region
		Hormones of posterior pituitary gland (Oxytocin and ADH)	Insulin and Glucagon:Structure and metabolic functions	Histology of thyroid parathyroid gland	Development of thyroid ¶thyroid gland	Thyroid Hormone	Classification & Mechanism of action of Endocrine Hormone,		Anterior cervical region (Vessels of Neck)	
		Dr. Kamil (Even)	Dr. Fareed (Odd)	Asst Prof Dr. Maria Tasleem (Even)	Prof. Dr Ifra Saeed (Odd)	Dr. Almas (Even)	Dr. Isma (Odd)			
26-09-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOCHEMISTRY (LGIS)		PBL SESSION II			SGD/DISSECTION	SDL Anatomy Anterior Triangle of neck & its subdivisions
		Regulation of blood Glucose & Diabetes mellitus	Aldosterone and Cortisol	Insulin & Glucagon - I	Parathyroid Hormone & Calcitonin	Second year PBL team Supervised by Dr. Sdira Hamid			Neves of Neck	
		Dr.Fareed (Even)	Dr. Sheena (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)					
27-09-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		RESEARCH CLUB ACTIVITY					SGD/DISSETION	SDL Physiology Insulin and Glucagon
		Aldosterone and Cortisol	Regulation of blood Glucose & Diabetes mellitus	Poster Presentation Supervised by Dr. Sdira Hamid					Submandibular region	
		Dr. Sheena (Even)	Dr.Fareed (Odd)	Dr. Imran (Odd)		Dr. Abdul Qadoos (Even)				
28-09-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOMEDICAL ETHICS		SGD/DISSECTION			SGD/DISSECTION	SDL Physiology Aldosterone and Cortisol
		Thyroid hormone: Production, storage and release	Abnormalities of adrenocortical hormone	History of Medical Ethics Supervised by Dr. Sdira Hamid		Root of neck (arteries, veins & nerves)		Deep structures of neck, prevertebral muscles		
		Prof. Dr.Samia Sarwar/ Dr. Iqra (Even)	Dr. Sheena (Odd)	Dr. Arsalan Even	Dr. Maria Odd					
29-09-2023 Friday	National Holiday (12 th Rabi ul Awal)								SDL Biochemistry Synthesis & Mechanism of Action of Adrenocortical Hormones	
Saturday 30-09-2023	Practical & CBL/SGD Topic mentioned at the end	PATHOLOGY		PHYSIOLGY (LGIS)		SGD/DISSECTION		Break	CBL/DISECTION	SDL Biochemistry Type I & II Diabetes Mellitus Glucose Tolerance Test Curves
		Hypothyroidism and hyperthyroidism		Abnormalities of Adrenocortical hormone	Thyroid hormone: Production, storage and release	Soft palate			Thyriod & Parathyroid glands	
		Dr. Nida Fatima (even)	Dr. Faiza Zafar (Odd (odd)	Dr. Sheena (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)					

Topics For Praactical With Venue	Topics For Small Group Discussion& CBLs With Venue
<ul style="list-style-type: none"> Thyroid & Parathyroid gland (Anatomy, Histology) 	<ul style="list-style-type: none"> Anatomy CBL: Multi Nodular Goitre with Hypothyroidism

<ul style="list-style-type: none">Practical G.T.T (Biochemistry practical)Checking for color vision (Physiology practical) (Physiology practical)						<ul style="list-style-type: none">Physiology SGD: Thyroid HormonesBiochemistry CBL: Addison’s Disease				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 04	
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3	
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03	
Saturday	A	E	C	D	B					
VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue		Biochemistry	Physiology					
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin	
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil	3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman	
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir	
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none">Type I & II Diabetes Mellitus										
<ul style="list-style-type: none">Glucose Tolerance Test Curves										

Endocrinology Module (Third Week)
(02-10-2023 To 07-10-2023)

Date / Day		8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm-12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)		
02-10-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		GYNAE & OBS		Break	SGD/DISSECTION	SDL Physiology Thyroid Hormones
		Physiological role of thyroid hormone	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Development of adrenal gland and pancreas	Histology of adrenal gland & pancreas	Endocrine disorders in pregnancy (diabetes mellitus,thyroid disorders)			Larynx & trachea	
		Prof. Dr.Samia Sarwar/ Dr. Iqra(Even)	Dr. Fahad (Odd)	Prof. Dr Ifra Saeed (Even)	Asst Prof Dr. MariaTasleem (Odd)	Dr. Sabeen Ashraf (Even)	Dr. Saba Yusaf (Odd)			
03-10-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOCHEMISTRY LGIS		FAMILY MEDICINE			SGD/DISSECTION	SDL Biochemistry Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State
		Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Physiological role of thyroid hormone	Parathyroid Hormone & Calcitonin	Insulin & Glucagon - I	Approach to Patient Diabetes mellitus			Alimentary layer Pharynx, esophagus	
		Dr. Fahad (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)	Dr. Isma(Even)	Dr. Aneela (Odd)	Dr. Sadia Khan				
04-10-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS			SGD/DISSECTION	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa
		Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Histology of adrenal gland and pancreas	Development of adrenal gland and pancreas	Adrenocortic al Hormones - I	Insulin & Glucagon - II	Dissection		
		Prof. Dr.Samia Sarwar/ Dr. Iqra (Even)	Dr. Fahad (Odd)	Assist. Prof. Dr. Maria (Even)	Prof. Dr. Ifra Saeed (Odd)	Dr. Isma (Even)	Dr. Aneela (Odd)			
05-10-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY (LGIS)		BIOCHEMISTRY LGIS		BIOCHEMISTRY LGIS		SGD/DISSECTION	SDL Anatomy Thyroid and para thyroid gland Online clinical Evaluation	
		Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Insulin & Glucagon - II	Adrenocortical Hormones - I	Blood Glucose Regulation	Adrenocortical Hormones - II	Pancrease		
		Dr. Fahad (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)	Dr. Uzma Zafar (Even)	Dr. Isma (Odd)			
06-10-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM	10:00 – 11:00AM	11:00AM – 12:00PM			SDL Physiology Abnormalities of		
	BIOCHEMISTRY LGIS		ISLAMIA YAT	SGD/DISECTION						
	Adrenocortica l Hormones - II	Blood Glucose Regulation	Revision Class			Adrenal gland (revisit)				
	Dr. Isma (Even)	Dr. Uzma Zafar (Odd)	Mufti Naeem Sherazi							
Saturday 07-10-2023	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY SDL No.01		SGD/DISECTION			Break	SGD/DISSECTION	SDL Anatomysoft palate ,larynx	
		Regulation of blood Glucose & Diabetes mellitus		Disection/ Spooting				Disection/ Spooting		
		Dr Fareed (Even)	Dr Maryam (Odd)							
	Topics For Practical with Venue				Topics For Small Group Discussion& CBLs With Venue					
	● Endocrinology, Adrenal gland & Pancrease (Anatomy, Histology Practical) ● G.T.T / Revision (Biochemistry practical)				● Physiology SGD: Insulin and Glucose Metabolism					

● CBL: Adrenocortical hormones (Practical batch) student’s presentations Lab						● Biochemistry CBL: Thyrotoxicosis				
Schedule For Practical / Small Group Discussion						Venue For First Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04	
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3	
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03	
Saturday	A	E	C	D	B					
VENUE FORR VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no		Names of Teachers
									Biochemistry	Physiology
Batches	Roll No	`Venue		Name						
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL)						
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)		Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY						Next week will be assessment week. The detail of assessment week will be shared once finalized.				
● Synthesis of Adrenocortical hormones										
● Mechanism of Action of Adrenocortical Hormones										

Endocrinology Module (Fourth Week)
(9-10-2023 To 14-10-2023)

Date / Days	Tentative Schedule for Endocrinology Sesnes Module Assessment	Time
09-10-2023 Monday	Assessment week	08:00am - 02:00pm
10-10-2023 Tuesday		08:00am - 02:00pm
11-10-2023 Wednesday		08:15am - 09:15am
12-10-2023 Thursday		08:15am - 09:15am
13-10-2023 Friday		08:15am - 09:15am
14-10-2023 Saturday		

Note: Timetable Subject to Change According to The Current Circumstances.

SECTION-VI

Table of Specification (TOS) For Endocrinology Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
						No. of items	Marks					
			C1	C2	C3			C1	C2	C3		
1.	Anatomy	25	15	5	5	5	25	1	2	2	60	110
2.	Physiology	30	18	9	3	4	20	1	2	1	25	75
3.	Biochemistry	7	4	3	-	2	15	0.5	1.5	-	-	24
4.	Bioethics & Professionalism	6	-	3	3	-	-	-	-	-	-	6
5.	Research & Artificial Intelligence and Innovation	10	-	5	5	-	-	-	-	-	-	10
6.	Family Medicine	2	-	1	1	-	-	-	-	-	-	5
7.	Pathology	4	-	2	2	-	-	-	-	-	-	4
8.	Obs & Gynae	4	-	2	2	-	-	-	-	-	-	4
9.	Radiology	3	-	2	1							
10.	The Holy Quran Translation	10										
Grand Total											238	

Annexure I

(Sample MCQ, SEQ & OSPE)

Rawalpindi Medical University Department of Anatomy
MCQs 2nd Year MBBS
Endocrinology Module

1. A patient presents with hoarseness of voice. On indirect laryngoscopy, he is unable to abduct the vocal cords. The muscle paralysed is
 - a. posterior cricoarytenoid
 - b. vocalis
 - c. cricothyroid
 - d. aryepiglotticus
 - e. thyroepiglottic
2. During dissection of the pharynx a medical student observes a structure passing through the gap between superior and middle constrictors of pharynx. This structure is
 - a. auditory tube
 - b. glossopharyngeal nerve
 - c. recurrent laryngeal nerve
 - d. levator veli palatini
 - e. internal laryngeal nerve
3. The only muscle of the soft palate that is supplied by the 5th cranial nerve is
 - a. musculus uvulae
 - b. platoglossus
 - c. tensor veli palati
 - d. palatopharyngeus
 - e. levator palati
4. Muscles are important in opening the Eustachian tube for maintenance of barometric pressure. The nasopharyngeal opening of the auditory tube contains
 - a. Salpingopharyngeus
 - b. levator veli palatini
 - c. Palato glossus
 - d. Palato pharyngeus
 - e. musculus uvulae
5. A dengue patient presented with epistaxis. The doctor found that it was an anterior bleed from
 - a. pterygoid plexus
 - b. woodruff's plexus
 - c. pharyngeal plexus
 - d. kiessel back's plexus
 - e. palatal plexus

Rawalpindi Medical University Department of Anatomy
SEQs 2nd Year MBBS
Endocrinology Module

Q.1 A surgeon is performing total thyroidectomy for a patient of Thyroid carcinoma.

- a. What is the vascular supply of thyroid and parathyroid glands? (3)
- b. How can damage to right recurrent laryngeal nerve be avoided? (1)
- c. What are the features of recurrent laryngeal nerve damage? (1)

Q.3 A patient has been diagnosed with pituitary adenoma.

- a. Describe the development of pituitary gland. (2.5)
- b. Draw the structures that are related to the pituitary gland. (1.5)
- c. Which structure can be damaged because of the tumour? (1)

Rawalpindi Medical University Department of Physiology
MCQs 2nd Year MBBS
Endocrinology Module

1. Pituitary adenoma causes lesion of :
 - a. Optic nerve
 - b. Optic chiasm
 - c. Optic tract
 - d. Optic radiation
 - e. Visual cortex
2. The sour taste is caused by:
 - a. ketones
 - b. alcohol
 - c. amides
 - d. glycols
 - e. acids
3. A young boy was diagnosed with congenital anosmia, a rare disorder in which an individual is born without the ability to smell. Odorant receptors are:
 - a. located in the olfactory bulb
 - b. located on dendrites of tufted cells
 - c. located on neurons that project directly to the olfactory cortex
 - d. located on neurons in the olfactory epithelium
 - e. located on sustentacular cells
4. Following is true regarding Presbyopia:
 - a. occurs in infants
 - b. occurs because of progressive denaturation of the lens proteins
 - c. the lens grows & becomes far more elastic
 - d. power of accommodation increases
 - e. ability of the lens to change shape increases with age
5. In the utricle, tip links in hair cells are involved in:
 - a. formation of perilymph
 - b. depolarization of the stria vascularis
 - c. movements of the basement membrane
 - d. perception of sound
 - e. regulation of distortion-activated ion channels

Rawalpindi Medical University Department of Physiology
SEQs 2nd Year MBBS
Endocrinology Module

- Q.1 Give a brief account of formation and functions of aqueous humor. What is glaucoma? (2,2,1)
- Q.3 Enlist factors affecting Anti-Diuretic Hormone secretion? What do you know about Diabetes insipidus? (3,2)
- Q.2 Name the hormones produced by adrenal gland. Enlist the physiological actions of epinephrine. (2,3)

Rawalpindi Medical University Department of Biochemistry
MCQs 2nd Year MBBS
Endocrinology Module

1. Progesterone is a precursor in the formation of which one of the following:

- a. Mineralocorticoids
- b. Insulin
- c. Angiotensin II
- d. Follicle – stimulating hormone (FSH)
- e. Luteinizing hormone

3. Parathyroid hormone leads to:

- a. Low calcium in urine
- b. Low phosphate in urine
- c. Increase calcium in urine
- d. Both calcium and phosphate are increased in urine
- e. Both calcium and phosphate are decreased in plasma

2. Adrenal steroid hormone:

- a. Is synthesized in adrenal medulla
- b. Precursor is tyrosine
- c. Synthesis is not regulated
- d. Synthesis is stimulated by ACTH
- e. Are not synthesized from pregnenolone

4. Blood glucose level is decreased by the following hormone:

- a. Glucagon
- b. Insulin
- c. Thyroxin
- d. Cortisol
- e. Growth hormone

SEQ

Q. Describe role of insulin and glucagon in blood glucose regulation. 05

Rawalpindi Medical University Department of Bioethics
MCQs 2nd Year MBBS
Endocrinology Module

1. ----Includes rules of conduct that may be used to regulate our activities concerning the biological world.
 - a. Bio-piracy
 - b. Biosafety
 - c. Bioethics
 - d. Bio-patents
 - e. Bio-logistic
2. The right of patients having self-decision is called.
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
3. Following is not code of ethics.
 - a. Integrity
 - b. Objectivity
 - c. Confidentiality
 - d. Behaviour
 - e. Autonomy
4. -----in the context of medical ethics, if it's fair and balanced
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity
5. -----Principle requiring that physicians provide, positive benefits
 - a. Justice
 - b. Autonomy
 - c. Beneficence
 - d. Veracity
 - e. Fidelity

Rawalpindi Medical University Department of Anatomy
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 1 Min 30secs

Histology sketch copy will be assessed for

- a. Complete index (1)
- b. Complete and signed diagrams (1)
- c. 2 ID points mentioned with each diagram (1)

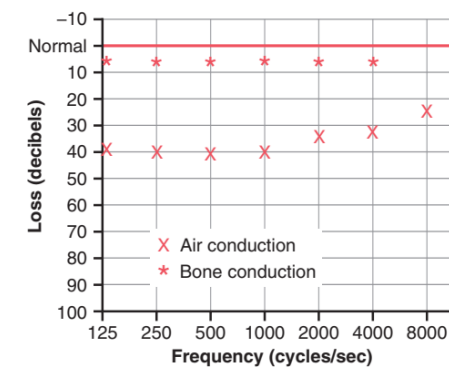
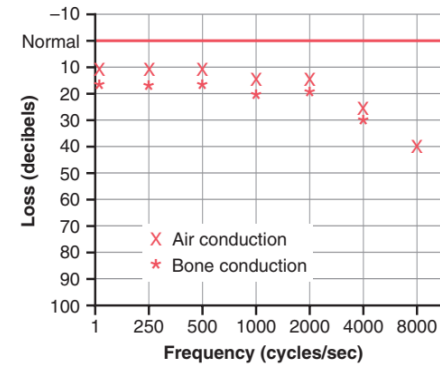
Station No. 2 Time Allowed: 1 Min 30 secs

- a. Identify **red** and give its nerve supply. (1)
- b. Identify **green** and write down its action. (1)
- c. Identify **yellow** and write down the name of the structure opening here (1)

Rawalpindi Medical University Department of Physiology
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 3 Minutes

- 1. A man consulted his doctor for difficulty in hearing, his doctor decided to perform Tuning Fork test. Which tuning fork will he select ; (1)
- 2. Match the audio grams for given scenarios (2)

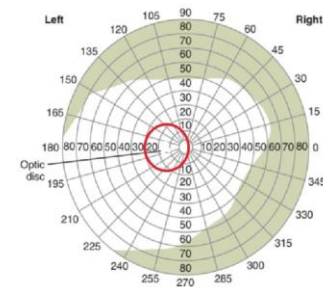


Scenario- 1: Rinnes negative in right ear

Scenario- 2: Weber Lateralized in right ear

Station No. 2 Time Allowed: 3 Minutes

- 1. Identify the apparatus & give its use. (0.5)
- 2. Give two precautions for this test. (0.5)
- 3. This tracing was obtained after examining a patient with visual disturbances, Interpret the graph provided. (2)



Rawalpindi Medical University Department of Biochemistry
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1

Time Allowed: 2 Mins

	Patient value	Reference range
T3	1.4 nmol/L	1.2-2.8nmol/L
T4	95 nmol/L	77-155 nmol/L
TSH	10 mU/L	0.4-4 mU/L

1. Interpret the above laboratory report. 01
2. Give any two causes. 02

Station No. 1

Time Allowed: 2 Mins

1. What are indications of Oral Glucose Tolerance Test? 03

SECTION-III

Assessment Model





**THE INTEGRATED & CLINICALLY ORIENTED ASSESSMENT MODEL FOR UNDER
GRADUATES**

RAWALPINDI MEDICAL UNIVERSITY

“MUMTAHIN” “ممتحن” (THE EXAMINER)

Foreword by the Vice Chancellor of Rawalpindi Medical University:

Educators have explored the specialized needs of assessments for decades. Good quality assessment not only contributes to student's learning. It provides important data to determine the program effectiveness, improves developing educational concepts. Historically, assessment programs were meant to foster curricular accountability for learning goals. These two aspects of the assessment process are now merging to form ultimately guarantee educational quality. Rawalpindi medical university is one of the leading public sector structured model of assessment. It is a big challenge to develop and implement modern document related to integrated and subject based approach towards assessment with incorporation of integrated teaching and model of assessment keeping in view the international standards and the outcome which should not be



satisfies the needs of accreditation but also the teaching program, and helps in improvements or to demonstrate tougher accreditation standards that universities, where we are following assessment. This model reflects an learning strategies. We prepared this compromised.

Prof. Muhammad Umar

(Sitar-e-Imtiaz)

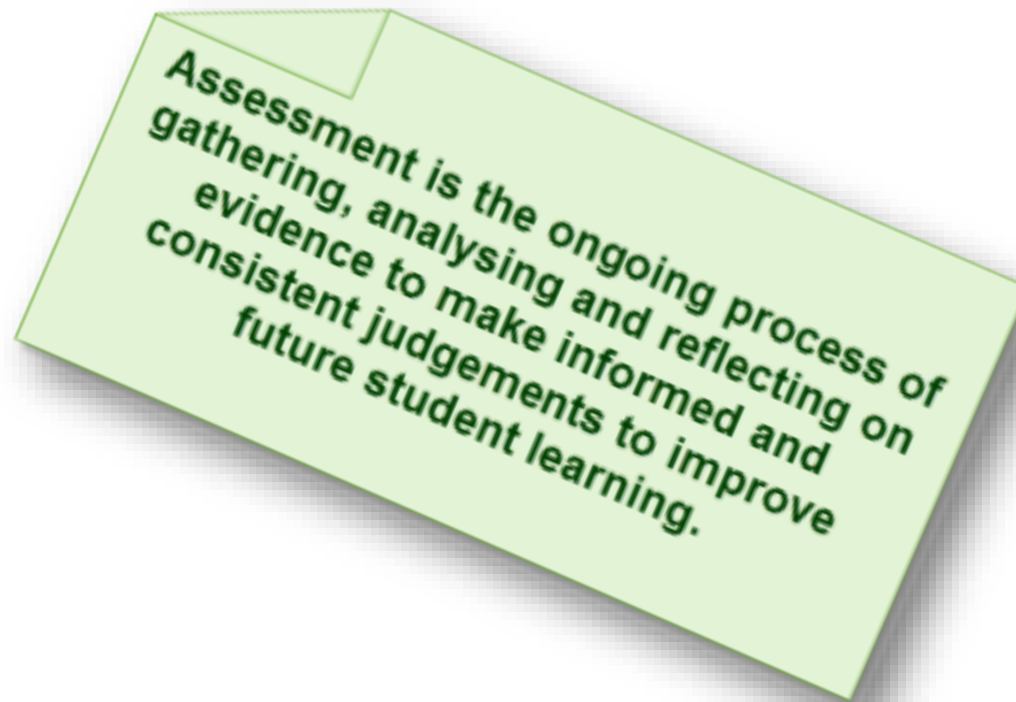
(MBBS, MCPS, FCPS, FACG, FRCP (Lon), FRCP (Glasg), AGAF)

Vice Chancellor

Rawalpindi Medical University & Allied Hospitals



Rawalpindi

Overall write up, structuring & vision under the guidance of the Vice Chancellor of Rawalpindi Medical University. (In addition to the component of Physiology for the First & Second Year MBBS)



Prof. Dr. Samia Sarwar
Head/ Professor of Physiology
Rawalpindi Medical University
Rawalpindi

Contributions

Sr. No	Heads of The Departments / Deans	Subjects
1.	 Prof. Dr. Tehzeeb ul Hassan Head of Anatomy Deptt	Component of Anatomy for 1 st & 2 nd Year MBBS
2.	 Dr. Tehmina Qamar Head of Biochemistry Deptt	Component of Biochemistry for 1 st & 2 nd Year MBBS

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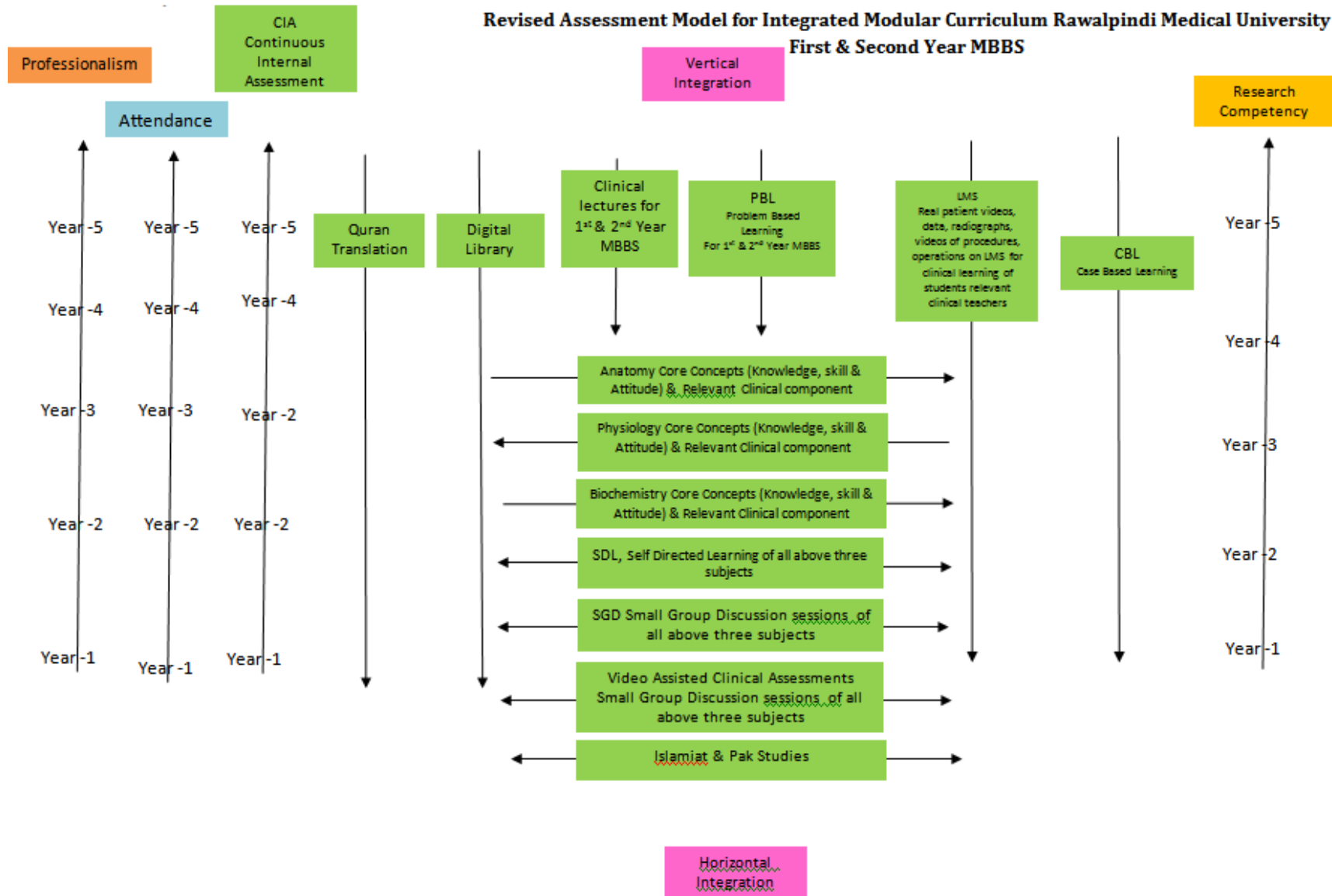
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I. Diagrammatic Presentation of Various Components of Clinically Oriented Integrated Modular Curriculum of Rawalpindi Medical University



Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 - 74%	*75 - 80%	81 - 100%

*75% is eligibility criteria for appearing in professional examination.

II. Details of Teaching Hours for the subject of Physiology, Anatomy & Biochemistry as per Pakistan Medical Commission (PMC) Guidelines 2022:

Reference: Guidelines for Undergraduates Medical Education Curriculum (MBBS) 2022 (Section-II Clause 2.4)

Web reference: [https://www.pmc.gov.pk/Documents/Examinations/Guidelines%20for%20Undergraduate%20Medical%20Education%20Curriculum%20\(MBBS\).pdf](https://www.pmc.gov.pk/Documents/Examinations/Guidelines%20for%20Undergraduate%20Medical%20Education%20Curriculum%20(MBBS).pdf)

Subject	Details of Teaching Hours					
	Total	%	1 st Year MBBS	%	2 nd Year MBBS	%
Anatomy	500	41%	250	41%	250	41%
Physiology	450	37%	225	37%	225	37%
Biochemistry	250	22%	125	22%	125	22%
Total	1200	100%	600	100%	600	100%

III. Details of Marks Distribution for the subject of Physiology, Anatomy & Biochemistry:

Subject	Details of Marks Distribution					
	Total	%	1 st Year MBBS	%	2 nd Year MBBS	%
Anatomy	750	41%	375	41%	375	41%
Physiology	660	37%	330	37%	330	37%
Biochemistry	390	22%	195	22%	195	22%
Total	1800	100%	900	100%	900	100%

IV. Total Marks in Each Year (1st & 2nd Year MBBS) for the subject of Physiology, Anatomy & Biochemistry:

Subject	Total marks	70% (Final Exam)	30 % (Continuous Internal Assessment)
Anatomy	375	263 (262.5)	112 (112.5)
Physiology	330	231	99
Biochemistry	195	137 (136.5)	58 (58.5)

V. Block wise distribution of Continuous Internal Assessment C.I.A (30%) three Subjects every year

Subject	Total marks	Block -I	Block -II	Block -III
Anatomy	112	37	37	38
Physiology	99	33	33	33
Biochemistry	58	19	19	20

VI. Module wise distribution of C.I.A (30%) three Subjects every year

Subject	Block -I		Block -II		Block -III		Total marks
	Module - 1	Module - 2	Module - 3	Module -4	Module - 5	Module - 6	
Anatomy	18.5	18.5	18.5	18.5	19	19	112
Physiology	16.5	16.5	16.5	16.5	16.5	16.5	99
Biochemistry	9.5	9.5	9.5	9.5	10	10	58

1. SECTION- A

Details of Assessment of Physiology First Year MBBS

1.1 No. of Assessments of Physiology for First Year MBBS (Block- I):

Block	Sr. #	Module – 1 Foundation Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block - I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total				3 Hours		5 Assessments	
	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &45 Minutes	20 Minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes Physiology 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) *						
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			4 Hours & 05 Minutes		7Assessments		

1.2 No. of Assessments of Physiology for First Year MBBS (Block- II):

Block	Sr. #	Module – 3 MSK-II Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block - II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours			5 Assessments	
	Sr. #	Module – 4 Blood & Immunity Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 Minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes Physiology 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			4 Hours & 05 Minutes				

1.3 No. of Assessments of Physiology for First Year MBBS (Block- III):

Block	Sr. #	Module – 5 CVS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block - III	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours			5 Assessments	
	Sr. #	Module – 6 Respiration Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 Minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes Physiology 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
			Total		4 Hours & 05 Minutes			7 Assessments

1.4 Total Time of Physiology Assessments for First Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
Foundation Module	2 Hours&40 minutes	20 Minutes	3 Hours
MSK-I Module	3 Hours &45 Minutes	20 Minutes	4 Hours &05 Minutes
MSK-II Module	2 Hours&40 minutes	20 Minutes	3 Hours
Blood & Immunity Module	3 Hours &45 Minutes	20 Minutes	4Hours &05 Minutes
CVS Module	2 Hours&40 minutes	20 Minutes	3 Hours
Respiration Module	3Hours &45 Minutes	20 Minutes	4Hours &05 Minutes
Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours &45 Minutes	2 Hour	28 Hours & 45 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	225 hours:	28 Hours &45 Minutes
	8:1	

1.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Physiology for First Year MBBS:

Components	Block - I		Total (33 marks)
	Module – I (16.5 marks)	Module – II (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33
Components	Block - II		Total (33 marks)
	Module – III (16.5 marks)	Module – IV (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33
Components	Block - III		Total (33 marks)
	Module – V (16.5 marks)	Module – VI (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33

1.6 List of Topics for Each Block for First Year MBBS

Block	Module Name	Domain
Block 1	Foundation module	Functional Organization of the Human Body and Control of the “Internal Environment
		The Cell and Its Functions
		Genetic Control of Protein Synthesis, Cell Function, and Cell Reproduction
		Transport of Substances Through the Cell Membrane
	Musculoskeletal-I module	Nerve physiology, membrane potential & action potential, Neuromuscular junction
Block 2	Musculoskeletal-II module	Contraction of Skeletal Muscle, Excitation of Skeletal Muscle
		Contraction and Excitation of Smooth Muscle
		Cardiac muscle, action potential and excitation contraction coupling in cardiac muscle, (chapter 9 Guyton & Hall 14 th edition, excluding cardiac cycle) Specialized excitatory and conductive system of the heart
		Comparison between Skeletal, Smooth & Cardiac Muscles
	Blood & Immunity module	Red Blood Cells, Anemia, and Polycythemia
		Resistance of the Body to Infection: I. Leukocytes, Granulocytes, the Monocyte-Macrophage System, and Inflammation
		Resistance of the Body to Infection: II. Immunity and Allergy
		Blood Types; Transfusion; Tissue and Organ Transplantation, Hemostasis and Blood Coagulation
		Skin & Temperature regulation
Block 3	CVS module	The Heart as a Pump and Function of the Heart Valves& regulation of heart pumping, cardiac cycle
		Electrocardiogram, its interpretation & its abnormalities
		Medical Physics of Pressure, Flow, and Resistance, Vascular Distensibility and Functions of the Arterial and Venous Systems
		Microcirculation and the Lymphatic System, Local and Humoral Control of Blood Flow by the Tissues
		Nervous Regulation of the Circulation, and Rapid & Long-Term Control of Arterial Pressure, hypertension
		Cardiac Output, Venous Return, and Their Regulation
		Muscle Blood Flow and Cardiac Output During Exercise; the Coronary& regional circulation
		Cardiac Failure, Circulatory Shock
		Heart Valves and Heart Sounds; Dynamics of Valvular and Congenital Heart Defects
	Respiration module	Pulmonary Ventilation, Pulmonary Volumes and Capacities, Alveolar Ventilation, Functions of the Respiratory Passageways
		Pulmonary Circulation, Pulmonary Edema, Physical Principles of Gas Exchange; Diffusion of Oxygen and Carbon Dioxide Through the Respiratory Membrane
		Transport of Oxygen and Carbon Dioxide in Blood and Tissue Fluids
		Regulation of Respiration
		Useful Methods for Studying Respiratory Abnormalities, Respiratory Insufficiency, Hypoxia & Oxygen Therapy, Hypercapnia & Artificial Respiration
		Respiratory changes during Exercise, Aviation, Space & Deep-Sea Diving Physiology

1.7 Physiology Table of Specification (TOS) for Theory Examination forFirst Year MBBS Modules during running academic session:

Sr. #	Modules	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Total Marks	Block Wise Total Marks
						No. of items	Marks					
			C1	C2	C3			C1	C2	C3		
1.	Foundation Module	20	12	6	2	4	20	1	2	1	40	90
2.	MSK-I Module	30	18	9	3	4	20	1	2	1	50	
3.	MSK-II Module	30	18	9	3	4	20	1	2	1	50		100
4.	Blood & Immunity Module	30	18	9	3	4	20	1	2	1	50	
5.	CVS Module	40	24	12	4	4	20	1	2	1	60	110
6.	Respiration Module	30	18	9	3	4	20	1	2	1	50	
Grand Total											300	

1.8 Table of specification for OSPE First Year MBBS during running academic session:

Sr. No	Block	Topic	Knowledge (C1, C2, C3)	Skill (P3)	Attitude (A3)	Station No.	Marks
1.	Block – I (Foundation & MSK-I)	Introduction to compound microscope	30%	50%	20%	1 A	1.5
2.		Apparatus identification (Introduction to Neubauer’s chamber, Red Blood Cell (RBC) pipettes& White Blood Cell (WBC) pipette				1 B	1.5
3.		Introduction to Wintrobe&Westergen tube				2 A	1.5
4.		Determination of Hematocrit (HCT)				2 B	1.5
5.		Apparatus identification (Introduction to centrifuge machine)				3	3
6.		Determination of Hemoglobin concentration				4	3
7.		Determination of Erythrocyte Sedimentation Rate (ESR)				5	3
8.		Practical note book / sketch copy				6	3
						Total	18
1.	Block – II (MSK-II & Blood Module)	Determination of Total leukocyte Count (TLC)	30%	50%	20%	1 A	1
2.		Estimation of Red Blood Cell (RBC) count				1 B	1
3.		Determination of platelet count				1 C	1
4.		Determination of Differentiate leukocyte Count (DLC)				2	3
5.		Determination of ABO blood groups				3 A	1.5
6.		Determination of Rh blood groups				3 B	1.5
7.		Determination of Clotting Time (CT)				4 A	1.5
8.		Determination of Bleeding Time(BT)				4 B	1.5
9.		Recording of body temperature				5 A	1.5
10.		Demonstration of Triple response				5 B	1.5
11.		Practical note book / sketch copy				6	3
						Total	18
1.	Block – III (CVS & Respiration Module)	Determination of arterial pulse	30%	50%	20%	1 A	1.5
2.		Determination of Jugular Venous Pulse (JVP)				1 B	1.5
3.		Clinical examination of chest for CVS				2 A	1
4.		Clinical examination of chest for respiration				2 B	1
5.		Cardio Pulmonary Resuscitation (CPR)				2 C	1
6.		Determination of Blood Pressure (BP)				3 A	1.5
7.		Effect of exercise and posture on arterial blood pressure				3 B	1.5
8.		Recording of electrocardiography (ECG)				4	3

9.		Measurement of different lung volume and capacities with help of spirometer				5 A	1.5
10.		Recording of normal and modified movement of respiration (Stethography)				5 B	1.5
11.		Practical note book / sketch copy				6	3
						Total	18

2. SECTION - B

Details of Assessment of Physiology Second Year MBBS

2.1 No. of Assessments of Physiology for Second Year MBBS (Block-I):

Block	Sr. #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block - I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours			5 Assessments	
	Sr. #	Module – 2 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes Physiology 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) *						
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
Total			4 Hours & 05 Minutes			7 Assessments		

2.2 No. of Assessments of Physiologyfor Second Year MBBS (Block-II):

Block	Sr. #	Module – 3 Reproduction Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
Block - II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 minutes	2 Formative	3 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	5	Assessment of Clinical Lectures	Formative	10 Minutes					
	Total			3 Hours			5 Assessments		
	Sr. #	Module – 4 CNS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 minutes	2 Formative	5 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes Physiology 12 minutes)					
		Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE							
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes					
	7	Assessment of Clinical Lectures	Formative	10 Minutes					
	Total			4 Hours & 05 Minutes					7 Assessments

2.3 No. of Assessments of Physiology for Second Year MBBS (Block-III):

Block	Sr. #	Module – 5 Special Senses Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block - II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours			5 Assessments	
	Sr. #	Module – 6 Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE	Summative	Combined 35 Minutes Physiology 12 minutes)				
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			4 Hours & 05 Minutes				

2.4 Total Time of Physiology Assessments for Second Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
GIT Module	2 Hours & 40 minutes	20 Minutes	3 Hours
Renal Module	3 Hours &45 Minutes	20 Minutes	4 Hours &05 Minutes
Reproduction Module	2 Hours & 40 minutes	20 Minutes	3 Hours
CNS Module	3 Hours &45 Minutes	20 Minutes	4 Hours &05 Minutes
Special Senses Module	2 Hours & 40 minutes	20 Minutes	3 Hours
Endocrinology Module	3 Hours &45 Minutes	20 Minutes	4 Hours &05 Minutes
Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours &45 Minutes	2 Hour	28 Hours &45 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	225 hours:	28 Hours &45 Minutes
	8:1	

2.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Physiology for Second Year MBBS:

Components	Block - I		Total (33 marks)
	Module – I (16.5 marks)	Module – II (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33
Components	Block - II		Total (33 marks)
	Module – III (16.5 marks)	Module – IV (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33
Components	Block - III		Total (33 marks)
	Module – V (16.5 marks)	Module – VI (16.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	7	7	14
Structured & Clinically oriented Viva voce	5	5	10
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	16.5	16.5	33

2.6 List of Topics for Each Block for Second Year MBBS

Block	Module	Topics
Block – I	GIT module	General Principles of Gastrointestinal Function—Motility, Nervous Control, and Blood Circulation,
		Propulsion and Mixing of Food in the Alimentary Tract
		Secretory Functions of the Alimentary Tract&Digestion and Absorption in the Gastrointestinal Tract
		Physiology of Gastrointestinal Disorders
	Renal Module	The Body Fluid Compartments: Extracellular and Intracellular Fluids; Edema
		Urine Formation by the Kidneys: Glomerular Filtration, Renal Blood Flow, and Their Control, Tubular Reabsorption and Secretion
		Urine Concentration and Dilution; Regulation of Extracellular Fluid Osmolarity and Sodium Concentration
		Renal Regulation of Potassium, Calcium, Phosphate, and Magnesium; Integration of Renal Mechanisms for Control of Blood Volume and Extracellular Fluid VolumeAcid-Base Regulation
		Diuretics, Kidney Diseases
Block – II	Reproduction Module	Reproductive and Hormonal Functions of the Male (and Function of the Pineal Gland)
		Female Physiology Before Pregnancy and Female Hormones
		Pregnancy and Lactation
		Fetal and Neonatal Physiology
	CNS Module	Organization of the Nervous System, Basic Functions of Synapses, and Neurotransmitters
		Sensory Receptors, Neuronal Circuits for Processing Information
		Somatic Sensations: I. General Organization, the Tactile and Position Senses, Sensory pathways
		Somatic Sensations: II. Pain, Headache, and Thermal Sensations, and their pathways
		Motor Functions of the Spinal Cord; the Cord Reflexes
		Cortical and Brain Stem Control of Motor Function and vestibular sensation & maintenance of equilibrium
		Contributions of the Cerebellum and Basal Ganglia to Overall Motor Control
		Cerebral Cortex, Intellectual Functions of the Brain, Learning, and Memory
		Behavioral and Motivational Mechanisms of the Brain—The Limbic System and the Hypothalamus
		States of Brain Activity—Sleep, Brain Waves, Epilepsy, Psychoses
		The Autonomic Nervous System and the Adrenal Medulla
		Cerebral Blood Flow, Cerebrospinal Fluid, and Brain Metabolism
Block – III	Special Senses Module	The Eye: I. Optics of Vision
		The Eye: II. Receptor and Neural Function
		The Eye: III. Central Neurophysiology of V
		The Sense of Hearing
		The Chemical Senses - Taste and Smell
	Endocrinology Module	Introduction to Endocrinology
		Pituitary Hormones and Their Control by the Hypothalamus
		Thyroid Metabolic Hormones
		Adrenocortical Hormones
		Insulin, Glucagon, and Diabetes Mellitus

		Parathyroid Hormone, Calcitonin, Calcium and Phosphate Metabolism, Vitamin D, Bone, and Teeth
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2.7 Physiology Table of Specification (TOS) for Theory Examination forSecond Year MBBS Modules during running academic session:

Sr. #	Modules	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Total Marks	Block Wise Total Marks	CIA
			C1	C2	C3	No. of items	Marks	C1	C2	C3			
1.	GIT Module	20	12	6	2	4	20	1	2	1	40	90	
2.	Renal Module	30	18	9	3	4	20	1	2	1	50		
3.	Reproduction Module	30	18	9	3	4	20	1	2	1	50	110	
4.	CNS Module	40	24	12	4	4	20	1	2	1	60		
5.	Special Senses Module	30	18	9	3	4	20	1	2	1	50	100	
6.	Endocrinology Module	30	18	9	3	4	20	1	2	1	50		
Grand Total											300		

2.8 Table of specification for OSPE Second Year MBBS during running academic session:

Sr. No	Block	Topics	Knowledge (C1, C2, C3)	Skill (P3)	Attitude (A3)	Station No.	Marks
1.	Block – I (GIT & Renal)	Examination of sense of taste	30%	50%	20%	1	3
2.		Examination of sense of smell				2	3
3.		Examination of superficial reflexes				3	3
4.		Examination of deep reflexes				4	3
5.		Estimation of specific gravity of urine				5	3
6.		Practical note book / sketch copy				6	3
					Total		18
1.	Block – II (Reproduction & CNS Module)	Examination of sensory system	30%	50%	20%	1	3
2.		Examination of motor system				2	3
3.		Examination of cerebellar functions				3	3
4.		Examination of cranial nerves				4	3
5.		Performance of pregnancy test				5	3
6.		Practical note book / sketch copy				6	3
					Total		18
1.	Block – III (Special Senses & Endocrinology)	Performance of hearing test / vestibular functions (VIII nerve)	30%	50%	20%	1	3
2.		Determination of field of vision				2	3
3.		Estimation of visual acuity				3	3
4.		Examination pupillary reactions / Eye movements (III, IV, VI nerves)				4	3
5.		Checking for color vision				5 A	1.5
6.		Opthalmoscopy				5 B	1.5
7.		Practical note book / sketch copy				6	3
					Total		18

3. SECTION - C

Details of Assessment of Anatomy First Year MBBS

3.1 No. of Assessments of Anatomy for First Year MBBS (Block-I):

Block	Sr #	Module – 1 Foundation Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours &10 Minutes			6 Assessments	
	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &45 Minutes	30 Minutes	3 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)				
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	8	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			4 Hours &15 Min			8 Assessments	

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

3.2 No. of Assessments of Anatomy for First Year MBBS (Block-II)

Block	Sr #	Module – 3 MSK-II Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
Block-II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes					
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	6	Assessment of Clinical Lectures	Formative	10 Minutes					
	Total			3 Hours &10 Minutes			6 Assessments		
	Sr. #	Module – 4 Blood & Immunity Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &45 Minutes	30 Minutes	3 Formative	5 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes					
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)					
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE							
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes					
	8	Assessment of Clinical Lectures	Formative	10 Minutes					
	Total			4 Hours & 15 Min			8 Assessments		

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

3.3 No. of Assessments of Anatomy for First Year MBBS (Block-III):

Block	Sr #	Module – 5 CVS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-III	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours &10 Minutes			6 Assessments	
	Sr. #	Module – 6 Respiration Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &45 Minutes	30 Minutes	3 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)				
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	8	Assessment of Clinical Lectures	Formative	10 Minutes				
Total			4 Hours & 15 Min			8 Assessments		

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

3.4 Total Time of AnatomyAssessments for First Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
Foundation Module	2 Hours&40 minutes	30 Minutes	3 Hours&10 minutes
MSK-I Module	3 Hours &45 Minutes	30 Minutes	4 Hours&15 minutes
MSK-II Module	2 Hours&40 minutes	30 Minutes	3 Hours& 10 minutes
Blood & Immunity Module	3 Hours &45 Minutes	30 Minutes	4 Hours&15 minutes
CVS Module	2 Hours&40 minutes	30 Minutes	3 Hours& 10 minutes
Respiration Module	3 Hours &45 Minutes	30 Minutes	4 Hours&15 minutes
*Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
*First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours &45 Minutes	3 Hours	29 Hours &45 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	250 hours:	29 Hours & 45 Minutes
	8:1	

3.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Anatomy for First Year MBBS:

Components	Block - I		Total (37 marks)
	Module – I (18.5 marks)	Module – II (18.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	18.5	18.5	37
Components	Block - II		Total (37 marks)
	Module – III (18.5 marks)	Module – IV (18.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	18.5	18.5	37
Components	Block - III		Total (38 marks)
	Module – V (18.5 marks)	Module – VI (18.5 marks)	
Mid Module Examination LMS based assessments	1.5	1.5	3
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	19	19	38

3.6 List of Topics of Anatomy For Theory / Dissection Teaching First Year MBBS During Running Academic Session:

Block	Module Name	Domain
Block 1	Foundation module & Musculoskeletal-I module	Gross Anatomy <ul style="list-style-type: none"> Bones and Joints of upper limb Pectoral Region & Breast Axillary Region Bones and Joints of Arm, Forearm Muscles and Neurovascular of Anterior Compartment of Arm Muscles and Neurovascular of Posterior Compartment of Arm Muscles and Neurovascular of Anterior Compartment of Forearm Muscles and Neurovascular of Posterior Compartment of Forearm Muscles and Neurovascuature of Hand Radiology of Upper Limb Embryology <ul style="list-style-type: none"> Development of Fertilisation to Eighth Week Development of Placenta, foetal membranes, Multiple pregnancy and estimation of fetal age. Histology <ul style="list-style-type: none"> Microscopic anatomy of Epithelia Microscopic anatomy of Connective Tissue
Block 2	Musculoskeletal-II module & Blood & Immunity module	Gross Anatomy <ul style="list-style-type: none"> Bones and Joints of Hip and thigh Region Muscles and Neurovascular of Hip Muscles and Neurovascular of Anterior and medial Compartment of Thigh Muscles and Neurovascular of Posterior Compartment of Thigh Bones and Joints of knee and leg Muscles and Neurovascular of Anterior Compartment of Leg Muscles and Neurovascular of Lateral and Posterior Compartment Bones and Joints of ankle and Foot Muscles and Neurovascular of Foot Radiology of Lower Limb Embryology <ul style="list-style-type: none"> Development of Musculoskeletal System, vertebral column and limbs

		<ul style="list-style-type: none">• Development of Lymphoid Organs <p>Histology</p> <ul style="list-style-type: none">• Microscopic anatomy of muscle and skin• Microscopic anatomy of Lymphoid Organs•
Block 3	CVS module & Respiration module	<p><u>Gross Anatomy</u></p> <ul style="list-style-type: none">• Anterior Thoracic wall• Posterior Thoracic wall• Mediastinum• Heart external features and Vasculature• Heart internal features atria• Heart internal features ventricles• Great Vessels and Azygos system• Thoracic aperture and diaphragm• Lung• Radiology of Thorax <p>Embryology</p> <ul style="list-style-type: none">• Development of Heart• Development of Vasculature <p>Histology</p> <ul style="list-style-type: none">• Microscopic anatomy of Heart• Microscopic anatomy of Vessels•

3.7 Anatomy TOS for Theory Examination forFirst Year Modulesduring running academic session:

Sr. #	Modules	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Block Wise Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3	
1	Foundation Module	25	15	5	5	5	25	1	2	2	50+50=100
2	MSK-I Module	25	15	5	5	5	25	1	2	2	
3	MSK-II Module	25	15	5	5	5	25	1	2	2	50+50=100
4	Blood & Immunity Module	25	15	5	5	5	25	1	2	2	
5	CVS Module	25	15	5	5	5	25	1	2	2	50+50=100
6	Respiration Module	25	15	5	5	5	25	1	2	2	
Grand Total											300

3.8 TOS for OSPE First Year Modules during Running Academic Session (Gross OSPE)

Sr. # / Station No		Topics	Knowledge	Skill	Attitude	Marks
Block 1- Upper Limb						
1	Bones and Joints		30%	50%	20%	3
2	Pectoral Region & Breast					3
3	Axillary Region					3
4	Bones and Joints of Arm, Forearm					3
5	Muscles and Neurovascular of Anterior Compartment of Arm					3
6	Muscles and Neurovascular of Posterior Compartment of Arm					3
7	Muscles and Neurovascular of Anterior Compartment of Forearm					3
8	Muscles and Neurovascular of Posterior Compartment of Forearm					3
9	Muscles and Neurovascuature of Hand					3
10	Radiology of Upper Limb					3
Total						30
Block 2- Lower Limb						
1	Bones and Joints of Hip and thigh Region		30%	50%	20%	3
2	Muscles and Neurovascular of Hip					3
3	Muscles and Neurovascular of Anterior and medial Compartment of Thigh					3
4	Muscles and Neurovascular of Posterior Compartment of Thigh					3
5	Bones and Joints of knee and leg					3
6	Muscles and Neurovascular of Anterior Compartment of Leg					3
7	Muscles and Neurovascular of Lateral and Posterior Compartment					3
8	Bones and Joints of ankle and Foot					3
9	Muscles and Neurovascular of Foot					3
10	Radiology of Lower Limb					3
Total						30
Block 3- Thorax						
1	Anterior Thoracic wall					3
2	Posterior Thoracic wall					3
3	Mediastinum					3
4	Heart external features and Vasculature					3
5	Heart internal features atria					3
6	Heart internal features ventricles					3
7	Great Vessels and Azygos system					3
8	Thoracic aperture and diaphragm					3
9	Lung					3
10	Radiology of Thorax					3

Total	30
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3.9 TOS for OSPE first year modules during running academic session (Integrated OSPE)

Sr. # / Station No	Topics	Knowledge	Skill	Attitude	Marks
Block 1- Foundation and MSK-I					
1	Development of Fertilisation to Eighth Week	30%	50%	20%	3
2	Development of Placenta, foetal membranes, Multiple pregnancy and estimation of fetal age.				3
3	Microscopic anatomy of Epithelia				3
4	Microscopic anatomy of Connective Tissue				3
5	Practical Copy				3
Total					15
Block 2- MSK-II and Blood & Immunity					
1	Development of Musculoskeletal System, vertebral column and limbs	30%	50%	20%	3
2	Development of Lymphoid Organs				3
3	Microscopic anatomy of muscle and skin				3
4	Microscopic anatomy of Lymphoid Organs				3
5	Practical Copy				3
Total					15
Block 3- Thorax					
1	Development of Heart	30%	50%	20%	3
2	Development of Vasculature				3
3	Microscopic anatomy of Heart				3
4	Microscopic anatomy of Vessels				3
5	Practical Copy				3
Total					15

4. SECTION - D

Details of Assessment of Anatomy Second Year MBBS

4.1 No. of Assessments of Anatomy for Second Year MBBS (Block - I):

Block	Sr #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours &10 Minutes			6 Assessments	
	Sr. #	Module – 2 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &45 Minutes	30 Minutes	3 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)				
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	8	Assessment of Clinical Lectures	Formative	10 Minutes				
		Total			4 Hours & 15 Min			8 Assessments

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

4.2 No. of Assessments of Anatomy for Second Year MBBS (Block - II):

Block	Sr #	Module – 3 Reproduction Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours &10 Minutes			6 Assessments	
	Sr. #	Module – 4 CNS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	30 Minutes	3 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)				
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	8	Assessment of Clinical Lectures	Formative	10 Minutes				
		Total							4 Hours & 15 Min			8 Assessments

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

4.3 No. of Assessments of Anatomy for Second Year MBBS (Block - III):

Block	Sr #	Module – 5 Special Senses Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-III	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	30 Minutes	3 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours &10 Minutes			6 Assessments	
	Sr. #	Module – 6 Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	30 Minutes	3 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously Day-2 OSPE Gross Anatomy (total 9 stations) *	Summative	Combined 35 Minutes (Anatomy 12 minutes)				
		Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	7	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	8	Assessment of Clinical Lectures	Formative	10 Minutes				
		Total			4 Hours & 15 Min			8 Assessments

*18 minutes for gross OSPE anatomy will be included in time calculation of the assessment in the subject of anatomy in the next section.

4.4 Total Time of AnatomyAssessments for Second Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
GIT Module	2 Hours&40 minutes	30 Minutes	3 Hours&10 minutes
Renal Module	3 Hours & 45 Minutes	30 Minutes	4 Hours& 15 minutes
Reproduction Module	2 Hours&40 minutes	30 Minutes	3 Hours& 10 minutes
CNS Module	3 Hours & 45 Minutes	30 Minutes	4 Hours& 15 minutes
Special Senses Module	2 Hours&40 minutes	30 Minutes	3 Hours& 10 minutes
Endocrinology Module	3 Hours & 45 Minutes	30 Minutes	4 Hours& 15 minutes
*Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
*First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours & 45 Minutes	3 Hours	29 Hours & 45 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	250 hours:	29 Hours & 45 Minutes
	8 :1	

4.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Anatomy for Second Year MBBS:

Components	Block - I		Total (37 marks)
	Module – I (18.5 marks)	Module – II (18.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	18.5	18.5	37
Components	Block - II		Total (37 marks)
	Module – III (18.5 marks)	Module – IV (18.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	18.5	18.5	37
Components	Block - III		Total (38 marks)
	Module – V (18.5 marks)	Module – VI (18.5 marks)	
Mid Module Examination LMS based assessments	1.5	1.5	3
End Module Examinations (SEQ & MCQs Based)	8	8	16
Structured & Clinically oriented Viva voce	6	6	12
OSPE	3	3	6
Video Assisted Assessment	0.5	0.5	1
Total	19	19	38

4.6 List of Topics of Anatomy for Second Year MBBS during running academic session:

Block	Module Name	Domain
Block 1	GIT Module	<u>GIT Module</u> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Bones, Joints, Muscles, Neurovasculature of anterior abdominal wall; Peritoneum; Viscera of the gastrointestinal tract (esophagus, stomach, small and large intestines, anal canal) and associated viscera (liver, gall bladder, biliary apparatus and pancreas); associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of viscera of the gastrointestinal tract (esophagus, stomach, small and large intestines, anal canal) and associated viscera (liver, gall bladder, biliary apparatus and pancreas); associated clinical correlates. • <u>Embryology</u> Development of viscera of the gastrointestinal tract (esophagus, stomach, small and large intestines, anal canal) and associated viscera (liver, gall bladder, biliary apparatus and pancreas); associated clinical correlates.
	Renal Module	<u>Renal Module</u> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Bones, Joints, Muscles, Neurovasculature of posterior abdominal wall; Viscera of the renal system i.e. kidney, ureter, urinary bladder and urethra; associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of kidney, ureter, urinary bladder and urethra; associated clinical correlates. • <u>Embryology</u> Development of kidney, ureter, urinary bladder and urethra; associated clinical correlates.
Block 2	Reproduction Module	<u>Reproduction Module</u> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Bones, Joints, Muscles, Neurovasculature of male and female perineum; Structures of the male reproductive (testes, epididymis, vas deference, prostate, seminal vesicles, bulbourethral glands) and female reproductive system (ovaries, fallopian tube, uterus, vagina); associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of male reproductive system (testes, epididymis, vas deference, prostate, seminal vesicles, bulbourethral glands) and female reproductive system (ovaries, fallopian tube, uterus, vagina); associated clinical correlates. • <u>Embryology</u> Development of male reproductive system (testes, epididymis, vas deference, prostate, seminal vesicles, bulbourethral glands) and female reproductive system (ovaries, fallopian tube, uterus, vagina); associated clinical correlates.
	CNS Module	<u>CNS Module</u> <ul style="list-style-type: none"> • <u>General anatomy</u>

		<p>General organization of central and peripheral nervous system and Autonomic nervous systems.</p> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Skull (Cranial fossae) and Meninges; Structures and tracts of the Spinal Cord and Brain (brain stem, cerebellum, diencephalon, cerebral hemispheres); Ventricles of the brain and cerebrospinal fluid; Blood supply of brain; Cranial nerves; associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of the Neurons, neuroglia, Spinal Cord and Brain (cerebrum and cerebellum); associated clinical correlates. • <u>Embryology</u> Development of Spinal Cord, Brain (Forebrain, midbrain and hindbrain) and peripheral nervous system; associated clinical correlates.
Block 3	Special Senses Module	<p><u>Special Senses Module</u></p> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Skull, face, scalp, temporal, parotid and mandibular regions; Structure of Eye and Ear; associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of Eye (conjunctiva, corneal, sclera, uveal tract, retina) and ear (external ear, middle ear, vestibular apparatus, cochlea); associated clinical correlates. • <u>Embryology</u> Development of pharyngeal apparatus, face, nose, tongue, eye and ear; associated clinical correlates.
	Endocrinology Module	<p><u>Endocrine Module</u></p> <ul style="list-style-type: none"> • <u>Gross Anatomy</u> Bones, Joints, Muscles, Neurovasculature of neck; associated clinical correlates. • <u>Histology</u> Microscopic Anatomy of pituitary, pineal, thyroid, parathyroid and adrenal glands; associated clinical correlates. • <u>Embryology</u> Development of pituitary, pineal, thyroid, parathyroid and adrenal glands; associated clinical correlates.

4.7Anatomy TOS for Theory Examination forSecond Year Modules during running academic session:

Sr. #	Modules	No of MCQs (%)	No of MCQs according to cognitive domain			No of SEQs (%)		No of SEQs according to cognitive domain			Block Wise Total Marks
			C1	C2	C3	No of items	Marks	C1	C2	C3	
1	GIT	25	15	5	5	5	25	1	2	2	50+50=100
2	Renal	25	15	5	5	5	25	1	2	2	
3	Reproduction	25	15	5	5	5	25	1	2	2	50+50=100
4	CNS	25	15	5	5	5	25	1	2	2	
5	Special Senses	25	15	5	5	5	25	1	2	2	50+50=100
6	Endocrinology	25	15	5	5	5	25	1	2	2	
Grand Total											300

4.8 Table of specification for Second Year MBBS during running academic session (For Integrated OSPE):

Sr. # / Station No	Topics	Knowledge	Skill	Attitude	Marks
Block 1- GIT & Renal					
1	Development of Gastrointestinal Tract	30%	50%	20%	3
2	Development of Renal System				3
3	Microscopic anatomy of Gastrointestinal Tract				3
4	Microscopic anatomy of Renal System				3
5	Practical Copy				3
Total					15
Block 2- Reproduction & CNS					
1	Development of Reproductive System	30%	50%	20%	3
2	Development of Nervous System				3
3	Microscopic anatomy of Reproductive System				3
4	Microscopic anatomy of Nervous System				3
5	Practical Copy				3
Total					15
Block 3- Endocrinology & Special Senses					
1	Development of Endocrine Organs	30%	50%	20%	3
2	Development of Special Senses				3
3	Microscopic anatomy of Endocrine Organs				3
4	Microscopic anatomy of Special Senses				3
5	Practical Copy				3
Total					15

4.9 Table of specification for OSPE Second Year MBBS during running academic session (Gross OSPE):

Sr. # / Station No	Topics	Knowledge	Skill	Attitude	Marks
Block 1- Abdomen					
1	Anterior Abdominal Wall	30%	50%	20%	3
2	Stomach				3
3	Liver and gall bladder				3
4	Intestines				3
5	Lumbar Vertebrae				3
6	Posterior Abdominal Wall				3
7	Kidney and Ureter				3
8	Urinary Bladder				3
9	Rectum and Anal Canal				3
10	Radiology of Abdomen				3
Total					30
Block 2- Pelvis and Brain					
1	Bones of pelvis	30%	50%	20%	3
2	Structures of Male pelvis				3
3	Structures of Female pelvis				3
4	External genitalia				3
5	Radiology of Pelvis				3
6	Meningies				3
7	Brain Stem and cerebellum				3
8	Diencephalon and telencephalon				3
9	Cranial fossae				3
10	Radiology of Skull (cranial fossae)				3
Total					30
Block 3- Neck and Special Senses					
1	Bones of Neck	30%	50%	20%	3
2	Submandibular region				3
3	Anterior Triangles of Neck				3
4	Posterior Triangle of neck				3
5	Radiology of the neck				3
6	Eye				3
7	Ear				3
8	Nose and paranasal sinuses				3
9	Trachea and Larynx				3
10	Radiology of Skull (Special senses)				3

5. SECTION - E

Details of Assessment of Biochemistry First Year MBBS

5.1 No. of Assessments of Biochemistry for First Year MBBS (Block-I):

Block	Sr. #	Module – 1 Foundation Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total				3 Hours		5 Assessments	
	Sr. #	Module – 2 MSK-I Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 35 Minutes	20 Minutes	2 Formative	4 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE						
	5	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
		Total			3 Hours & 55 Minutes		6 Assessments	

5.2 No. of Assessments of Biochemistry for First Year MBBS (Block-II):

Block	Sr. #	Module – 3 MSK-II Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 30 minutes	20 Minutes	2 Formative	2 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	No Viva	-	-				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			2 Hours 50 Minutes			4 Assessments	
	Sr. #	Module – 4 Blood & Immunity Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 Minutes	2 Formative	5 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry) 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) *						
	Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE							
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	7	Assessment of Clinical Lectures	Formative	10 Minutes				
			Total	4 Hours & 05 Minutes			7Assessments	

5.3 No. of Assessments of Biochemistry for First Year MBBS (Block-III):

Block	Sr. #	Module – 5 CVS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments					
				Assessment Time	Summative Assessment Time	Formative Assessment Time						
Block-III	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 30 minutes	20 Minutes	2 Formative	2 Summative				
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes								
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours								
	4	No Viva	-	-								
	5	Assessment of Clinical Lectures	Formative	10 Minutes								
	Total			2 Hours 50 Minutes			4 Assessments					
	Sr. #	Module – 6 Respiration Module Components	Type of Assessments	Total Assessments Time			No. of Assessments					
				Assessment Time	Summative Assessment Time	Formative Assessment Time						
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 35 Minutes	20 Minutes	2 Formative	4 Summative				
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes								
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours								
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry 12 minutes)								
		Day-2 OSPE Gross Anatomy (total 9 stations) *										
	Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE											
	5	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes								
	6	Assessment of Clinical Lectures	Formative	10 Minutes								
			Total		3 Hours & 55 Minutes			6 Assessments				

5.4 Total Time of Biochemistry Assessments for First Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
Foundation Module	2 Hours& 40 minutes	20 Minutes	3 Hours
MSK-I Module	3 Hours &35 Minutes	20 Minutes	3 Hours & 55 Minutes
MSK-II Module	2 Hours&30 minutes	20 Minutes	2 Hours& 50 minutes
Blood Module	3 Hours & 45 Minutes	20 Minutes	4 Hours &05 Minutes
CVS Module	2 Hours&30 minutes	20 Minutes	2 Hours& 50 minutes
Respiration Module	3 Hours &35 Minutes	20 Minutes	3 Hours & 55 Minutes
Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours &05 Minutes	2 hours	28 Hours &05 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	125 hours:	28 Hours &05 Minutes
	4:1	

5.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Biochemistry for First Year MBBS:

Components	Block - I		Total (19 marks)
	Module – I (9.5 marks)	Module – II (9.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	9.5	9.5	19
Components	Block - II		Total (19 marks)
	Module – III (9.5 marks)	Module – IV (9.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	9.5	9.5	19
Components	Block - III		Total (20 marks)
	Module – V(10 marks)	Module – VI (10 marks)	
Mid Module Examination LMS based assessments	1.5	1.5	3
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	10	10	20

5.6 List of Topics of Biochemistry for theory First Year MBBS during running academic session:

Block	Module	Topics
Block - I	Foundation	<ul style="list-style-type: none"> • Introduction to laboratory techniques and precautions while working in the laboratory • Demonstrate mechanism of surface tension • Demonstrate process of adsorption • Demonstrate effects of solutions of different tonicity on red cells
	MSK I	<ul style="list-style-type: none"> • Estimate the level of calcium • Estimate the level of vitamin C • Perform the color tests for the detection of amino acids
Block - II	MSK II	<ul style="list-style-type: none"> • Perform the color tests for the detection of proteins • Separate proteins by precipitation reactions (precipitation by full and half saturation with ammonium sulphate) • Separate proteins by Chromatography
	Blood	<ul style="list-style-type: none"> • Demonstrate use of photometer and spectrophotometer • Demonstrate use of pH meter, centrifuge machine and flame photometer • Illustrate method and precautions to draw blood • Describe preparation, shape and clinical significance of hemin crystals • Describe principal, method, normal blood level and clinical significance of serum proteins • Perform estimation of serum bilirubin
Block - III	CVS	<ul style="list-style-type: none"> • Describe Physical and chemical properties of lipids (solubility, saponification Emulsification and Acrolein test) • Illustrate detection of cholesterol and shape of cholesterol crystals • Perform Tests for the detection of carbohydrates and reducing sugars (Molisch's, iodine and Benedict's tests) • Perform Tests for differentiation between Mono and disaccharides Aldo and keto sugars (Barford's and Salvinoff's test and hydrolysis of sucrose) • Perform Hydrolysis of starch • Perform Identification of individual sugar by formation of osazone (osazone tests)
	Respiration	<ul style="list-style-type: none"> • Illustrate Henderson Hasselbalch equation • Illustrate buffer actions and buffer zone

5.7 Biochemistry TOS for Theory Examination for First Year Modules during running academic session:

Sr. #	Modules	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			OSPE Marks	Block Wise Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3		
1	Foundation Module	20	10	9	1	3	15	0.5	1.5	-	10	55
2	MSK-I Module	10	5	4	1	3	15	-	1	-		
3	MSK-II Module	7	4	3	-	3	15	-	1	-	10	45
4	Blood & Immunity Module	13	7	5	1	3	15	0.5	1.5	-		
5	CVS Module	7	4	3	-	3	15	0.5	1.5	-	10	37
6	Respiration Module	5	3	2	-	3	15	-	1	-		
Grand Total												137

5.8 Biochemistry Table of specification for OSPE First Year MBBS during running academic session:

Sr. No	Block	Topic	Knowledge	Skill	Attitude	Station No.	Marks
1.	Block – I (Foundation & MSK-I)	Adsorption	100%			1A	1
2.		Surface tension				1B	1
3.		Tonicity				2A	1
4.		Introduction to glassware	100%			2B	1
5.		Calcium estimation				3	2
6.		Ascorbic estimation					
7.		Casein detection by isoelectric pH					
8.		Color test for amino acids(observed)		90%	10%	4	2
9.		Practical note book		80%	20%	5	2
					Total		10
1.	Block – II (MSK-II & Blood Module)	Color test for amino acids(observed)		90%	10%	1	2
2.		Biuret test and ninhydrin	100%			2	2
3.		Quantitative estimation of serum total proteins					
4.		Heat coagulation					
5.		Paper chromatography	100%			3	2
6.		Blood draw technique					
7.		Quantitative estimation of serum bilirubin					
8.		Hemin crystal	100%			4	2
9.		instruments					
10.		Practical note book		80%	20%	5	2
					Total		10
1.	Block – III (CVS & Respiration Module)	Molisch’s test		90%	10%	1	2
2.		Iodine test					
3.		Benedict’s test	100%			2	2
4.		Selvinoff’s test					
5.		Lipid solubility	100%			3	2
6.		Emulsification					
7.		Acrolein test	100%			4	2
8.		buffers					
9.		Practical note book		80%	20%	5	2
						Total	10

6. SECTION – F

Details of Assessment of Biochemistry Second Year MBBS

6.1 No. of Assessments of Biochemistry for Second Year MBBS (Block-I):

Block	Sr. #	Module – 1 GIT Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
Block-I	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 40 minutes	20 Minutes	2 Formative	3 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	5	Assessment of Clinical Lectures	Formative	10 Minutes				
	Total			3 Hours			5 Assessments	
	Sr. #	Module – 2 Renal Module Components	Type of Assessments	Total Assessments Time			No. of Assessments	
				Assessment Time	Summative Assessment Time	Formative Assessment Time		
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 35 Minutes	20 Minutes	2 Formative	4 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours				
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry 12 minutes)				
		Day-2 OSPE Gross Anatomy (total 9 stations) *						
	Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE							
	5	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes				
	6	Assessment of Clinical Lectures	Formative	10 Minutes				
			Total		3 Hours & 55 Minutes			6 Assessments

6.2 No. of Assessments of Biochemistry for Second Year MBBS (Block-II):

Block	Sr. #	Module – 3 Reproduction Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
Block-II	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 30 minutes	20 Minutes	2 Formative	2 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	No Viva	-	-					
	5	Assessment of Clinical Lectures	Formative	10 Minutes					
	6	Quran translation (MS team / Viva voce)	Formative	10 Minutes					
	7	Research club activity	Formative	30 Minutes					
	Total				2 Hours 50 minutes			4 Assessments	
	Sr. #	Module – 4 CNS Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours & 45 Minutes	20 Minutes	2 Formative	5 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry 12 minutes)					
		Day-2 OSPE Gross Anatomy (total 9 stations) *							
	Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE								
	5	Structured & Clinically oriented Viva voce	Summative	10 Minutes					
6	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes						
7	Assessment of Clinical Lectures	Formative	10 Minutes						
		Total			4 Hours & 05 Minutes			7Assessments	

6.3 No. of Assessments of Biochemistryfor Second Year MBBS (Block-III):

Block	Sr. #	Module – 5 Special Senses Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
Block-III	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	2 Hours & 30 minutes	20 Minutes	2 Formative	2 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	No Viva	-	-					
	5	Assessment of Clinical Lectures	Formative	10 Minutes					
	Total				2 Hours &50 Minutes			4 Assessments	
	Sr. #	Module – 6 Endocrinology Module Components	Type of Assessments	Total Assessments Time			No. of Assessments		
				Assessment Time	Summative Assessment Time	Formative Assessment Time			
	1	Mid Module (when 2/3 rd content is covered) Examinations LMS based combined with Anatomy & Biochemistry	Summative	30 Minutes	3 Hours &35 Minutes	20 Minutes	2 Formative	4 Summative	
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	10 Minutes					
	3	End Module Examinations (SEQ & MCQs Based)	Summative	2 Hours					
	4	Day-1 integrated OSPE with Anatomy (embryo & histo) & Biochemistry total 15 station, 5 for each subject (50% content of Module –I & 50% content of Module-2) at 3 venues simultaneously	Summative	Combined 35 Minutes (Biochemistry 12 minutes)					
		Day-2 OSPE Gross Anatomy (total 9 stations) * Note: the both batches will switch between integrated OSPE/Gross anatomy OSPE							
	5	Integrated Clinically Video Assisted Assessment (10 items, 4 Physiology, 4 Anatomy 2 Biochemistry) 50% from both modules)	Summative	30 minutes					
	6	Assessment of Clinical Lectures	Formative	10 Minutes					
			Total		3 Hours &55 Minutes			6 Assessments	

6.4 Total Time of Biochemistry Assessments for Second Year MBBS:

Module	Summative Assessment Time	Formative Assessment Time	Total Assessments Time
GIT Module	2 Hours&40 minutes	20 Minutes	3 Hours
Renal Module	3 Hours &35 Minutes	20 Minutes	3 Hours &55 Minutes
Reproduction Module	2 Hours&30 minutes	20 Minutes	2 Hours 50 minutes
CNS Module	3 Hours & 45 Minutes	20 Minutes	4 Hours &05 Minutes
Special Senses Module	2 Hours&30 minutes	20 Minutes	2 Hours &50 Minutes
Endocrinology Module	3 Hours &35 Minutes	20 Minutes	3 Hours &55 Minutes
Send Up Examination	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
First Professional	3 Hours & 45 Minutes	.....	3 Hours & 45 Minutes
Grand Total	26 Hours &05 Minutes	2 hours	28 Hours &05 Minutes

Total Teaching Hours vs Total Assessment Hours

Ratio of Teaching Hours to Assessments Hours	Grand Total Teaching Hours	Grand Total Assessment Hours
	125 hours:	28 Hours &05 Minutes
	4:1	

6.5 Distribution (Breakup) of Continuous Internal Assessment (CIA) marks among different components of a module in Biochemistry for Second Year MBBS:

Components	Block - I		Total (19 marks)
	Module – I (9.5 marks)	Module – II (9.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	9.5	9.5	19
Components	Block - II		Total (19 marks)
	Module – III (9.5 marks)	Module – IV (9.5 marks)	
Mid Module Examination LMS based assessments	1	1	2
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	9.5	9.5	19
Components	Block - III		Total (20 marks)
	Module – V(10 marks)	Module – VI (10 marks)	
Mid Module Examination LMS based assessments	1.5	1.5	3
End Module Examinations (SEQ & MCQs Based)	5.5	5.5	11
Structured & Clinically oriented Viva voce	-	-	-
OSPE	2	2	4
Video Assisted Assessment	1	1	2
Total	10	10	20

6.6 List of Topics for Each Block for Second Year MBBS

Block	Module	Topics
Block – I	GIT module	1. Carbohydrate Metabolism
		2. Digestion & Absorption (GIT Hormones & Secretions also)
		3. Nutrition
		4. LFTs
		5. Protein Metabolism
	Renal Module	6. Water & Electrolytes
		7. Acid Base Imbalance
Block – II	Reproduction Module	1. Sex Hormones
	CNS Module	2. Nucleic Acid Metabolism
		3. Lipid Metabolism
Block – III	Special Senses Module	1. Receptors
		2. Signal Transduction
		3. Neurotransmitters
		4. Vitamin A
	Endocrinology Module	5. Endocrinology
		6. Calcium Balance
		7. Glucose Regulation

6.7 Biochemistry Table of Specification (TOS) for Theory Examination for Second Year MBBS Modules during running academic session:

Sr. #	Modules	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			OSPE Marks	Block Wise Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3		
1	GIT Module	18	9	8	1	2	15	0.5	1.5	-	10	55
2	Renal Module	12	6	5	1	1		-	0.5	0.5		
3	Reproduction Module	8	4	3	1	1	15	-	1	-	10	45
4	CNS Module	12	6	5	1	2		0.5	1.5	-		
5	Special Senses Module	5	3	2	-	1	15	-	1	-	10	37
6	Endocrinology Module	7	4	3	-	2		0.5	1.5	-		
Grand Total											137	

6.8 Biochemistry Table of specification for OSPE Second Year MBBS during running academic session:

Sr. No	Block	Topics	Knowledge	Skill	Attitude	Station No.	Marks
1.	Block – I (GIT & Renal)	Bile	100%			1	2
2.		Introduction to instruments					
3.		Quantitative estimation of Serum Alkaline Phosphatase (ALP) by spectrophotometer	100%			2	2
4.		Quantitative estimation of Serum Alanine Transaminase (ALT) by spectrophotometer					
5.		Urine analysis		90%	10%	3	2
6.		Urine report					
7.		Quantitative estimation of serum Urea	100%			4	2
8.		Quantitative estimation of Serum Creatinine					
9.		Practical note book		80%	20%	5	2
					Total		10
1.	Block – II (Reproduction & CNS Module)	Quantitative estimation of Serum Uric Acid	100%			1	2
2.		Quantitative estimation of Serum Cholesterol	100%			2	2
3.		Quantitative estimation of Serum HDL Cholesterol		90%	10%	3	2
4.		Quantitative estimation of Serum LDL Cholesterol					
5.		Quantitative estimation of Serum Triglycerides (TAG)	100%			4	2
6.		Practical note book		80%	20%	5	2
					Total		10
1.	Block – III (Special Senses & Endocrinology)	Glucose estimation	100%			1	2
2.		Glucose Tolerance Test (GTT)	100%			2	2
3.		PCR Electrophoresis	100%			3	2
4.		Hormonal Profile	100%			4	2
5.		Practical note book		80%	20%	5	2

6. Section: G

Details about Research, Quran Translation & Ethics

Details about Research, Quran Translation & Ethics for First Year MBBS

Sr. No	Domain	Professionalism / Ethics / Behavioral Sciences	Research	Islamic Studies	Quran Translation
1	Teachings hours per year	12 Hours	3 Hours	7 Hours	13 Hours
2	Teachings Method	Large Group Interactive Session (LGIS)	Large Group Interactive Session (LGIS) Research club activity	Large Group Interactive Session (LGIS)	Large Group Interactive Session (LGIS)
3	Assessment Method Summative Assessment	5% MCQs incorporated in MCQs paper of Anatomy, Biochemistry & Physiology separately in end module on campus exam (in all 6 modules) Structured viva with special marks for professionalism	5% MCQs incorporated in MCQs paper of Anatomy, Biochemistry & Physiology separately in end module on campus exam (in all 6 modules)	SEQ based exam at the end of academic year	1 SEQ based exam in every module
	Formative Assessment	MCQs based paper on MS teams	MCQs based paper on MS teams		
		Scoring sheet for skill lab (practical copy) with specific domain of professionalism Scoring sheet for SGD (sketch copy) with specific domain of professionalism			
4	Assessment Time	30 minutes	30 minutes	1 Hour	1 Hour
5	Ratio of Teaching Hours to Assessment Hours	24:1	6:1	7:1	13:1

Details about Research, Quran Translation & Ethics for Second Year MBBS

Sr. No	Domain	Professionalism / Ethics / Behavioral Sciences	Research	Pak Studies	Islamic Studies	Quran Translation
1	Teachings hours per year	4 Hours	2 Hours	16.5 Hours	8.5 Hours	14 Hours
2	Teachings Method	Large Group Interactive Session (LGIS)	Large Group Interactive Session (LGIS) Research club activity	Large Group Interactive Session (LGIS)	Large Group Interactive Session (LGIS)	Large Group Interactive Session (LGIS)
3	Assessment Method Summative Assessment	5% MCQs incorporated in MCQs paper of Anatomy, Biochemistry & Physiology separately in end module on campus exam (in all 6 modules) Structured viva with special marks for professionalism	5% MCQs incorporated in MCQs paper of Anatomy, Biochemistry & Physiology separately in end module on campus exam (in all 6 modules)	SEQ based exam at the end of academic year	SEQ based exam at the end of academic year	1 SEQ based exam in every module
	Formative Assessment	MCQs based paper on MS teams	MCQs based paper on MS teams			
		Scoring sheet for skill lab (practical copy) with specific domain of professionalism Scoring sheet for SGD (sketch copy) with specific domain of professionalism				
4	Assessment Time	30 minutes	30 minutes	1 Hour	1 Hour	1 Hour
5	Ratio of Teaching Hours to Assessment Hours	8:1	4:1	16.5:1	8.5: 1	14:1

7. SECTION- H

Detailed Calculation of Hours of Teaching for First Year MBBS for Various Modules of Physiology, Anatomy & Biochemistry

7.1 Teaching Hours First Year MBBS:

Subject	Foundation Module	MSK-I Module	MSK-II Module	Blood Module	CVS Module	Respiration Module	Grand Total (Hours)
Anatomy	48.5	54	27.5	39.5	52.5	30	252
Physiology	37.5	45	33.5	50.5	91.5	40.5	298.5
Biochemistry	48.5	35	26.5	44.5	76.5	34.5	265.5
Pharmacology	11.5	1	1	2			15.5
Pathology	7.5	2		4	3		16.5
Medical Education	8						8
Community Medicine	5	1	1	1	1	3	12
Research		1		1	1		3
Behavioral Sciences	2	2	2	2	2	2	12
Radiology		1		1	1		3
Medicine		1		2	2	2	7
Pediatrics		1		1		1	3
Surgery			1		1	1	3
Neurosurgery		1		1			2
Orthopedics		1					1
Obs & Gynae					1	1	2
ENT					1	1	2
Islamic Studies	1	4				2	7
Quran Translation	1		4	4	4		13
Pak Studies							
SDL (others)			15.5				15.5
Grand Total	170.5	150	112	153.5	237.5	118	941.5

7.2 Modules Hours / Summary for First Year MBBS Modules in various teaching strategies / methods

Subjects	LGIS	Skill	SGDs	SDLs	PBLs	CBLs	Total (hrs)
	(hrs)	(hrs)	(hrs)	(hrs)	(hrs)	(hrs)	
Anatomy	66	39	124	50	0	8	302.16
Physiology	132	39	43	51	8	0	290.66
Biochemistry	79	39	39	50	0	0	222.66
Pharmacology	12.5	0	0	0	0	0	12.5
Pathology	21.5	0	0	0	0	0	21.5
Medical Education	6	0	0	0	0	0	7
Community Medicine	12	0	0	0	0	0	12
Research	5	0	0	0	0	0	5
Behavior Sciences	12	0	0	0	0	0	12
Radiology	3	0	0	0	0	0	3
Medicine	26	0	0	0	0	0	26
Pediatrics	5	0	0	0	0	0	5
Surgery	20	0	0	0	0	0	20
Neurosurgery	0	0	0	0	0	0	0
Orthopedics	1	0	0	0	0	0	1
Obs/Gynae	10	0	0	0	0	0	10
Islamic Studies	1	0	0	0	0	0	1
Quran translation	20	0	0	0	0	0	21
Pak Studies	0	0	0	0	0	0	0
SDL for Assessment	0	0	0	94	0	0	94
Eye	5	0	0	0	0	0	5
ENT	6	0	0	0	0	0	6
Clinical Evaluation	0	0	0	0	0	0	1
	443	117	206	245	8	8	1078.48

8. SECTION – I

Detailed Calculation of Hours of Teaching for Second Year MBBS for Various Modules of Physiology, Anatomy & Biochemistry

8.1 Teaching Hours Second Year MBBS:

Subject	GIT Module	Renal Module	Reproduction Module	CNS Module	Sp Senses Module	Endocrinology Module	Grand Total (Hours)
Anatomy	39.1	35.5	36	58	39	38.5	246.1
Physiology	46.1	58.5	39	99	56	63.5	362.1
Biochemistry	49.1	51.5	33	67	33.7	49.5	283.8
Pharmacology	1						1
Pathology	2	1	1	1		1	6
Medical Education							
Community Medicine	2	1	2				7
Research				1		1	2
Behavioral Sciences	2			1		1	4
Radiology	1	1		2			4
Medicine						1	1
Pediatrics	1			1			2
Surgery							
Neurosurgery							
Orthopedics							
Obs & Gynae			2				2
ENT					2		2
Urology		1					1
Eye					3		3
Islamic Studies	4	4		3	3	2.5	16.5
Pak Studies				3	3	2.5	8.5
Quran Translation			4	6	4		14
Grand Total	147.3	155.5	117	242	143.7	160.5	966

8.2 Modules Hours / Summary for Second Year MBBS Modules in various teaching strategies / methods

Subjects	LGIS	Skill	SGDs	SDLs	PBLs	CBLs	Total (hrs)	Percentage
	(hrs)	(hrs)	(hrs)	(hrs)	(hrs)	(hrs)		
Anatomy	58	33	33	56	0	33	219.9	24
Physiology	104	33	36	56	6	33	274.9	30
Biochemistry	61	33	33	56	0	33	222	24
Pharmacology	6	0	0	0	0	0	6	1
Pathology	20	0	0	0	0	0	20	2
Medical Education	0	0	0	0	0	0	0	0
Community Medicine	4	0	0	0	0	0	4	0
Research	4	0	0	0	0	0	4	0
Behavior Sciences	10	0	0	0	0	0	10	1
Radiology	6	0	0	0	0	0	6	1
Medicine	20	0	0	0	0	0	20	2
Pediatrics	10	0	0	0	0	0	10	1
Surgery	24	0	0	0	0	0	24	3
Neurosurgery	0	0	0	0	0	0	0	0
Orthopedics	0	0	0	0	0	0	0	0
Obs/Gynae	10	0	0	0	0	0	10	1
Islamic Studies	22	0	0	0	0	0	22	2
Quran Translation	15	0	0	0	0	0	15	2
Pak Studies	22	0	0	0	0	0	22	2
Eye	10	0	0	0	0	0	10	1
ENT	10	0	0	0	0	0	10	1
Grand Total	416	99	102	168	6	99	909.8	100

9. SECTION – J

Breakup (Distribution) of (70%) Marks of Send Up / Professional Examinations of Physiology, Anatomy & Biochemistry

9.1 Suggested Subject Wise Final Professional Assessment / Send up Examination Format:

9.1.1 Total Marks allocation for three basic subjects:

Subject	Written	OSPE/Viva	Total assessment (70%)	Internal Assessment (30%)	Total
Anatomy	130	OSPE: 63 Viva: 70 Total: 133	263	B1: 37 B2: 37 B3: 38 Total: 112	375 (41%)
Physiology	121	OSPE: 50 Viva: 60 Total: 110	231	B1: 33 B2: 33 B3: 33 Total: 99	330 (37%)
Biochemistry	75	OSPE: 22 Viva: 40 Total: 62	137	B1: 19 B2: 19 B3: 20 Total: 58	195 (22%)
Total			631 (70%)	269 (30%)	900 (100%)

9.1.2 Paper format:

Anatomy:

Paper	Item	No. of Items	Marks
Written	MCQ	40	40
	SAQ	9	90
OSPE	Items	Marks	63
	Histology Slides	20	
	Histology Copy	5	
	Sketch book	5	
	OSPE Station	33	
Viva	Viva Internal	35	70
	Viva External	35	
Total			263

Physiology:

Paper	Item	No. of Items	Marks
Written	MCQ	41	41
	SAQ	8	80
OSPE	Items	Marks	50
	Physiology Copy - I	5	
	Physiology Copy – II	5	
	OSPE	30	
	Procedure	10	
Viva	Viva Internal	30	60
	Viva External	30	
Total			231

Biochemistry:

Paper	Item	No. of Items	Marks
Written	MCQ	35	35
	SAQ	8	40
OSPE	Items	Marks	22
	Biology Copy	5	
	OSPE	12	
	Procedure	5	
Viva	Viva Internal	20	40
	Viva External	20	
Total			137

Note: In Addition to quality assurance there is system of continuous quality improvement for this assessment model.

10. SECTION – K (List of Annexure)

Model Documents for Convenience of the readers:

- Structured Essay Questions Physiology (SEQs)
- Multiple Choice Questions with key (MCQs Single best type) Physiology
- Objectively Structured Practical Examination Physiology (OSPE)
- Video Assisted & Clinically Oriented Integrated Assessment Physiology
- Format of Lectures for Physiology (applicable to all other subjects)
- Structured Viva Voce format Physiology
- Student Academic Record Monitoring Card for Physiology
- Students Scoring Performa for Case Based Learning (CBL), Small Group Discussion (SGD) / Tutorial Assessment
- Students Scoring Performa for Skill Lab / Practical Assessment
- Detailed result with Analysis of First Year MBBS (Blood Module)
- Detailed result with Analysis of Second Year MBBS (CNS Module)
- Detailed Attendance with Analysis of First Year MBBS (Blood Module)
- Detailed Attendance with Analysis of Second Year MBBS (CNS Module)
- Detailed analysis of LMS Results of First & Second Year MBBS

SAMPLE OF MCQS PAPER OF FIRST YEAR MBBS (CVS MODULE)

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI

CVS MODULE MCQS PAPER FOR FIRST YEAR MBBS

Total Marks:20

Date:17-10-2022

Roll No. _____

Encircle the single best response

1. In the ECG repolarization of the ventricles is represented by:

a. P wave

b. QRS complex

c. T wave*

d. PR interval

e. QT interval

2. The blood vessels called as the resistance vessels are:

a. Arteries

b. Arterioles*

c. Capillaries

d. Venules

e. Veins

3. Percentage of end-diastolic volume pumped by each ventricle per beat is:

a. Stroke volume

b. Ejection fraction*

c. Filtration fraction

d. Cardiac output

e. Cardiac index

4. Reynold's number is decreased by the following factor:

a. Decrease in blood viscosity

b. Increase in blood velocity

c. Vasoconstriction

d. Polycythemia*

e. Fall in hematocrit

5. The condition expected to decrease mean systemic filling pressure is:

a. Norepinephrine administration

b. Increased blood volume

c. Increased sympathetic stimulation

d. Increased venous compliance*

e. Skeletal muscle contraction

6. An increase in shear stress in a blood vessel results in the following changes:

a. Decreased endothelin production

b. Decreased cGMP production

c. Increased Nitric Oxide release*

d. Increased renin production

e. Decreased prostacyclin production

7. Sympathetic stimulation results in:

a. Vasoconstriction of venous reservoirs *

b. Decrease in heart rate

c. Decrease in arteriolar resistance

d. Decrease in venous resistance

e. Increase in epicardial flow

8. Constriction of the renal artery leads to:

a. Decrease angiotensin II

b. Decrease in arterial pressure

c. Increase in renin release*

d. Increase in sodium excretion

e. Increase in urine output

9. Cardiac output is decreased by:

a. Beriberi

b. AV shunts

c. Amputation of both arms & legs*

d. Hypertthyroidism

e. Anemia

10. The following vasoactive agent is the most important controller of coronary blood flow:

a. Adenosine*

b. Bradykinin

c. Potassium ions

d. Carbon dioxide

e. Prostaglandins

11. Chemoreceptors are located in:

a. Bifurcation of common carotid artery*

b. Descending aorta

c. Sub-clavian artery

d. Bifurcation of common iliac artery

e. Wall of aortic arch

12. Pread to the heart is increased in:

a. Hypertension

b. Aortic stenosis

c. Increased venous return*

d. Hypovolemic shock

e. Ischemic heart disease

13. An increase in stroke volume leads to increased:

a. End systolic volume

b. Cardiac output*

c. End diastolic volume

d. After load

e. Heart rate

14. A final year medical student was asked to perform examination of cardiovascular system. She wrongly palpated both carotid arteries simultaneously due to which patient got unconscious. This condition is called as:

a. Carotid sinus syndrome*

b. Patent ductus arteriosus

c. Long QT syndrome

d. Coronary artery disease

e. Stokes -Adams syndrome

15. A new born baby was admitted in neonatal intensive care unit soon after delivery due to cyanosis and dyspnoea. He had raised right ventricular pressure, right ventricular hypertrophy and left to right shunt on echocardiography. This congenital anomaly is called as:

a. Patent ductus arteriosus

b. Tetralogy of Fallot *

c. Acute respiratory distress syndrome

d. Coarctation of aorta

e. Atrial septal defect

16. A newly inducted house officer at the first day of his job in operation theatre became unconscious after observing immense blood loss during surgery. This was because of:

a. Neurogenic shock

b. Hypovolemic shock

c. Carotid sinus syndrome

d. Vasovagal syncope*

e. Cardogenic shock

17. A 65 -years male presented in Rawalpindi Institute of Cardiology with complaints of chest pain, shortness of breath and generalized swelling of the body. His ECG showed high voltage QRS complexes which are likely to be caused by:

a. Cardiac tumors

b. Myocardial infarction

c. Hypertrophy of cardiac muscles*

d. Cardiac arrhythmias

e. Cardiac arrest.

18. In patients of cardiac failure digitalis increases the force of heart contractions because it primarily inhibits the

a. Sodium -potassium ATPase pump*

b. Acetylcholine gated sodium channels

c. Calcium pump

d. Voltage gated calcium channels

e. Potassium leak channels

19. A 21 year old pregnant woman having nephritic syndrome is admitted in the ward. She goes into labour and has a still birth. Following this, she develops disseminated intra vascular coagulation. Treating doctors are sceptical about her prognosis. How will you proceed about informing her regarding her baby's demise?

a. Inform her immediately as it's her right to know

b. Inform her attendants but not tell her as her condition may get worse due to stress

c. Inform her in a step wise manner carefully observing how she's reacting to the info*

d. Conceal the information completely

e. None of the above

20. The purpose of research is to:

a. study and explore knowledge

b. start with a conclusion

c. fill the gaps in the knowledge*

d. define clear objectives

e. achieve insights of a concept

DETAILED ANALYSIS OF SAMPLE OF MCQS PAPER OF FIRST YEAR MBBS (CVS MODULE)

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
CVS MODULE MCQS PAPER FOR FIRST YEAR MBBS

DATED 17th October 2022

Table- 1: Detailed Analysis of MCQs Paper In Context with Level of Cognition & Integration

Sr. #	Domains of Assessment	Level of Integration	Cognitive domain	Question number	Percentage
1.	Physiological Anatomy	Horizontal Integration	C1	Q11,	5%
2.	Physiological Biochemistry	Horizontal Integration	C1	Q10	5%
3.	Core Concepts	Core Concepts of Physiology only	C1	Q1, Q2, Q3	15%
			C2	Q4, Q5, Q6, Q7, Q8, Q9, Q12, Q13, Q18,	45%
4.	Clinical Concepts	Vertical Integration	C3	Q14, Q15, Q16, Q17	20%
5.	Research Year I	Longitudinal running modules	C1	Q20	5%
6.	Ethics Year I	Longitudinal running modules	C3	Q19	5%

Table- 2: Aggregate of various cognitive domains

1.	Horizontal Integration	10%
2.	Core Concepts	60%
3.	Vertical integration	20%
4.	Research	5%
5.	Ethics	5%

Table- 3: Syllabus of CV's Module

Sr. #	Topics of Physiology	Topic of Research
1.	The Heart as a Pump and Function of the Heart Valves& regulation of heart pumping, cardiac cycle	Introduction to Research
2.	Electrocardiogram, its interpretation & its abnormalities	
3.	Medical Physics of Pressure, Flow, and Resistance, Vascular Distensibility and Functions of the Arterial and Venous Systems	
4.	Microcirculation and the Lymphatic System, Local and Humoral Control of Blood Flow by the Tissues	Topic of Ethics
5.	Nervous Regulation of the Circulation, and Rapid & long term Control of Arterial Pressure, hypertension	
6.	Cardiac Output, Venous Return, and Their Regulation	Breaking Bad News
7.	Muscle Blood Flow and Cardiac Output During Exercise; the Coronary & regional circulation	
8.	Cardiac Failure, circulatory shock	
9.	Heart Valves and Heart Sounds; Dynamics of Valvular and Congenital Heart Defects	

Date: 5th October 2022

Dr. Samia Sarwar
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SAMPLE PAPER OF SEQs OF FIRST YEAR MBBS

DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
CVS MODULE SEQ PAPER FOR FIRST YEAR MBBS

Total Marks: 25

Date:17-10-2022

Attempt all questions

Q.1 In an experimental study, the heart rate of athletes and non- athletes were compared which exhibited bradycardia in athletes even at rest.

- a) Define bradycardia 1
- b) What is the effect of bradycardia on duration of cardiac cycle? 1
- c) Explain the period of Isovolumic (Isometric) relaxation of the cardiac cycle. 3

Q.2 A 55 years male presented to medical specialist for routine medical checkup. Detailed history and examination revealed that he had an unhealthy life style with lack of physical activity. His mean arterial pressure was greater than 110 mm Hg. With a systolic pressure greater than 135 mm Hg & diastolic blood pressure greater than 90 mm Hg recorded on various occasions.

- a) What is the most likely diagnosis? 1
- b) Enlist the general classes of drugs which can be used to treat this patient. 1
- c) Briefly outline the physiological role of baroreceptor reflex in controlling high blood pressure. 3

Q.3 A 60 years female presented in emergency department of Rawalpindi Institute of Cardiology with complaints of severe chest pain radiating to neck & left arm, shortness of breath, sweating and nausea. Her ECG showed ST segment elevation and cardiac enzymes were raised.

- a) What is the diagnosis? 1
- b) Name the cardiac enzymes which would be raised in this patient. 1
- c) Explain the physiologic anatomy of coronary blood supply with the help of a diagram. 3

Q.4 A 20-years boy presented in surgical emergency with complaints of high-grade fever, severe abdominal pain, dizziness and altered state of consciousness. His blood pressure was 80/50mmHg and his abdominal ultrasound showed ruptured appendix with fluid in peritoneal cavity.

- a) Define circulatory shock. 1
- b) Diagnose the type of shock is this patient. 1
- c) Briefly outline the physiology of treatment in shock. 3

Q.5 A 10-years child presented in pediatric emergency with shortness of breath, fever, and chest discomfort. He had previous history repeated throat infections. Echocardiography report revealed increased thickness of the valves on left side of heart and the patient had mitral stenosis and aortic regurgitation.

- a) What is the most likely diagnosis? 1
- b) Which type of murmurs would you hear while auscultating the chest? 1
- c) What are the normal heart sounds? Briefly write their physiologic cause of origin. 3

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
CVS MODULE SEQS PAPER FOR FIRST YEAR MBBS

DATED 17th October 2022

Table- 1: Detailed Analysis of SEQs Paper In Context with Level of Cognition & Integration

Sr. #	Domains of Assessment	Level of Integration	Cognitive domain	Question number & marks (25)	Percentage
1.	Physiological Anatomy	Horizontal Integration	C2	Q.3c (3)	12%
2.	Physiologic Biochemistry	Horizontal Integration	C1	Q.3b (1)	4%
3.	Core Concepts	Core Concepts of Physiology only	C1	Q.1a (1)	4%
			C2	Q.1b (1), Q.1c (3) Q.2 c(3), Q.4c(3), Q.5c(3)	52%
4.	Clinical Concepts	Vertical Integration	C1	Q.2b (1), Q.4a(1)	8%
			C3	Q.2a (1), Q.3a (1) Q.4b (1), Q.5a(1), Q.5b (1)	20%

Table- 2: Aggregate of various cognitive domains

1. Horizontal Integration		16%
2. Core Concepts of physiology only		56%
3. Vertical integration		28%

Table- 3::Syllabus of CVS Module

Sr. #	Topics of Physiology
1.	The Heart as a Pump and Function of the Heart Valves& regulation of heart pumping, cardiac cycle
2.	Electrocardiogram, its interpretation & its abnormalities
3.	Medical Physics of Pressure, Flow, and Resistance, Vascular Distensibility and Functions of the Arterial and Venous Systems
4.	Microcirculation and the Lymphatic System, Local and Humoral Control of Blood Flow by the Tissues
5.	Nervous Regulation of the Circulation, and Rapid &long term Control of Arterial Pressure, hypertension
6.	Cardiac Output, Venous Return, and Their Regulation
7.	Muscle Blood Flow and Cardiac Output During Exercise; the Coronary & regional circulation
8.	Cardiac Failure, circulatory shock
9.	Heart Valves and Heart Sounds; Dynamics of Valvular and Congenital Heart Defects

Date: 5th October 2022

Dr. Samia Sarwar
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SAMPLE MCQS PAPER OF SECOND YEAR MBBS(SPECIAL SENSES MODULE)

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
SPECIAL SENSES MODULE MCQS PAPER FOR SECOND YEAR MBBS

Total Marks:20

Date:13-10-2022

Roll No. _____

Enter circle the single best response

1. The aqueous humor of the eyes flow through the canal of Schlemm into the:
a. Anterior chamber d. Trabeculae
b. Lens e. Aqueous veins *
c. Posterior chamber
2. The condition in which ciliary muscle is completely relaxed and light rays are focused on the retina is known as:
a. Emmetropia* d. Astigmatism
b. Hyperopia e. Presbyopia
c. Myopia
3. The light sensitive pigment present in rods is:
a. Rhodopsin* d. Retinol
b. Photopsin e. Cis retinal
c. All trans retinal
4. The movement of eyes in which eyes remain fixed on a moving object is called:
a. Fixation d. Accommodation
b. Strabismus e. Saccadic movement
c. Pursuit movement*
5. Destruction of optic chiasm leads to:
a. Color blindness d. Astigmatism
b. Myopia e. Cataract
c. Bitemporal hemianopia*
6. In myopia, when ciliary muscle is completely relaxed, the light rays coming from distant object are focused in front of retina because of:
a. Too much refractive power*
b. Short eyeball
c. Opacity in the lens
d. Different curvatures of lens in different planes
7. During accommodation the eye focuses on nearer objects because of:
a. Contraction of ciliary muscles by parasympathetic nerves** 17.
b. Shortening of the eyeballs
c. Thinning of the lens
d. Dilation of the pupils
e. Decreased refractive power
8. Astigmatism is corrected by using the following lens:
a. Convex d. Cylindrical *
b. Concave e. Biconcave
c. Spherical
9. A 55 years male presented in Ophthalmology department with complaint of blurring and decreased vision. On fundoscopic examination a cloudy & opaque area was seen in the lens. This condition is known as:
a. Cataract* d. Keratitis
b. Glaucoma e. Conjunctivitis
c. Presbyopia
10. A very small pupil is associated with:
a. Increase in aqueous humor production
b. Activation of sympathetic nerve fibres
c. Contraction of pupillary dilator muscle
d. Excellent depth of focus*
e. Improved vision in dim light
11. A 40 years male presented in Ophthalmology department with complaints of sudden loss of vision in both eyes. On fundoscopic examination retinal detachment was diagnosed which is most likely caused by:
a. Fluid collecting between neural retina and pigment epithelium *
b. Relaxation of fine collagenous fibrils in the vitreous humor
c. Low intra ocular pressure
d. Opaque areas in the lens
e. Loss of accommodation by the lens
12. The scala media is filled with a fluid called:
a. Endolymph* d. Perilymph
b. Lymphatic fluid e. Interstitial fluid
c. Cerebrospinal fluid
13. Place principle is used to detect different sound frequencies by determining their:
a. Position along the basilar membrane that are stimulated the most*
b. Changes in intensities
c. Endocochlear potential
d. Changes in loudness
e. Stimulation at helicotrema
14. Endocochlear potential is generated by:
a. Repolarization of hair cells
b. Continual secretion of potassium ions into the scala media*
c. Influx of calcium ions
d. Upward movement of basilar filiers
e. Movement of stereocilia
15. A 35 years male presented to otorhinolaryngology (ENT) department with complaints of inability to hear sounds which he developed after using some antibiotic for the treatment of tuberculosis. The drug responsible for the deafness in this patient is:
a. Streptomycin* d. Azithoprine
b. Clarithromycin e. Cyclosporine
c. Ciprofloxacin
16. A common type of deafness caused by fibrosis in the middle ear after repeated infection is most likely to be:
a. Otitis media d. Otitis interna
b. Otitis externa e. Labyrinthitis
c. Otosclerosis*
17. A substance used frequently by psychologists for demonstrating taste blindness is:
a. Phenylthiocarbamide*
b. Phenylthiourea
c. Potassium H tartrate
d. Chloroform
e. Pilocarpine
18. After olfactory cells bind to odour molecules, a sequence of intracellular events occur that results in the entrance of specific ions that depolarize the olfactory receptor cell. The ion responsible for this depolarization is:
a. Calcium
b. Chloride
c. Hydrogen
d. Potassium
e. Sodium *
19. Researcher wants to determine prevalence of a Disease X in community. Study design appropriate for this purpose is:
a. Case control
b. Cross sectional *
c. Cohort
d. Case series
e. Experimental study
20. The organization, identification and interpretation of sensory information in order to understand the environment is:
a. Adaptation
b. Attention
c. Illusion
d. Perception*
e. Transduction

DETAILED ANALYSIS OF MCQS PAPER OF SECOND YEAR MBBS (SPECIAL SENSES MODULE)

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
SPECIAL SENSES MODULE MCQS PAPER FOR SECOND YEAR MBBS

DATED 13th October 2022

Table- 1: Detailed Analysis of MCQS Paper In Context with Level of Cognition & Integration

Sr. #	Domains of Assessment	Level of Integration	Cognitive domain	Question number	Percentage
1.	Physiological Anatomy	Horizontal Integration	C1	Q.1	5%
2.	Physiological Biochemistry	Horizontal Integration	C1	Q17	5%
3.	Core Concepts	Core Concepts of Physiology only	C1	Q.2, Q3, Q.4, Q.12	20%
			C2	Q.5, Q.6, Q.7, Q.8, Q.10, Q.13, Q.14 Q.18	40%
4.	Clinical Concepts	Vertical Integration	C3	Q.9, Q.11, Q.15, Q.16	20%
5.	Research Year II	Longitudinal running modules	C3	Q.19	5%
6.	Ethics Year II	Longitudinal running modules	C1	Q.20	5%

Table- 2: Aggregate of various cognitive domains

1.	Horizontal Integration	10%
2.	Core Concepts	60%
3.	Vertical integration	20%
4.	Research	5%
5.	Ethics	5%

Table- 3::Syllabus of Special Senses Module

Sr. #	Topics of Physiology	Topics of Research	Topics of Ethics
1.	The Eye: I. Optics of Vision		
2.	The Eye: II. Receptor and Neural Function of retina		
3.	The Eye: III. Central Neurophysiology of Vision	Study Designs	Perception
4.	The Sense of Hearing		
5.	The Chemical Senses - Taste and Smell		

Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

Date: 29th September 2022

SAMPLE PAPER OF SEQs SECOND YEAR MBBS (SPECIAL SENSES MODULE)

DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
SPECIAL SENSES MODULE SEQ PAPER FOR SECOND YEAR MBBS

Total Marks: 25

Date: 13-10-2022

Attempt all questions

- Q.1** A 52 years car driver presented to ophthalmology clinic with 4 days history of impaired vision in dim light. He had blurred vision while driving in the dark and was unable to see pedestrians walking during night time. 1
- a) What is the most probable diagnosis? 1
- b) Which vitamin in your opinion could be deficient in this patient? 1
- c) Briefly outline the mechanism of excitation of rods when Rhodopsin is activated by light energy? 3
- Q.2** A 61 years female, retired school teacher presented to medical emergency with complaints of severe pain in her right eye, associated with sudden blurred vision and mild redness. Her blood pressure was 120/80 mmHg. An ophthalmologist was called in the emergency department for his consultation regarding this case. Her detailed examination revealed reduced visual acuity and an intraocular pressure of 35 mmHg in the affected eye. 1
- a) What is the most likely diagnosis? 1
- b) Briefly write the pathophysiology of this condition. 1
- c) Explain the mechanism of formation and flow of aqueous humor with the help of a diagram. 3
- Q.3** A student of class four feels difficulty in reading from the blackboard while sitting in back benches of the class. After detailed eye examination by an ophthalmologist he was diagnosed as myopic. 1
- a) Define myopia. 1
- b) How will you correct this refractive error. 1
- c) Give a brief account of the mechanism of accommodation. 3
- Q.4** A 15 years teenager presented to otolaryngology clinic with complaints of impaired hearing in left ear. His detailed past history revealed that he had repeated ear infections, cold, flu and was allergic to pollen. His Rinne's test was negative with bone conduction greater than air conduction. The Weber's test was lateralized to the affected ear. 2
- a) Define the two types of deafness. 1
- b) Which type of deafness is the patient suffering from? 1
- c) Give a brief account of attenuation reflex. 2
- Q.5** A 16 years teenager presented to ENT clinic with complaint of anosmia. He had a history of nasal congestion, fever and flu for the whole last week. The attending physician advised him COVID testing which came out to be positive. 4
- a. Explain how the sense of smell is perceived and transmitted to central nervous system? 4
- b. What is affective nature of smell? 1

DEPARTMENT OF PHYSIOLOGY, RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
SPECIAL SENSES MODULE SEQs PAPER FOR SECOND YEAR MBBS

DATED 13th October 2022

Table- 1: Detailed Analysis of SEQs Paper In Context with Level of Cognition & Integration

Sr. #	Domains of Assessment	Level of Integration	Cognitive domain	Question number & marks (25)	Percentage
1.	Physiological Anatomy	Horizontal Integration	C1	Q.2c (3)	12%
2.	Physiologic Biochemistry	Horizontal Integration	C1	Q.1b (1)	4%
3.	Core Concepts	Core Concepts of Physiology only	C1	Q.3a (1), Q.4a,(2) Q.5b (1)	16%
			C2	Q.1c,(3) Q.3c, (3) Q.4c,(2) Q.5a (4)	48%
4.	Clinical Concepts	Vertical Integration	C2	Q.2b,(1) Q.3b (1)	8%
			C3	Q.1a, (1) Q.2a, (1) Q.4b (1)	12%

Table- 2: Aggregate of various cognitive domains

1.	Horizontal Integration		16%
2.	Core Concepts		64%
3.	Vertical integration		20%

Table- 3::Syllabus of Special Senses Module

Sr. #	Topics of Physiology
1.	The Eye: I. Optics of Vision
2.	The Eye: II. Receptor and Neural Function of retina
3.	The Eye: III. Central Neurophysiology of Vision
4.	The Sense of Hearing
5.	The Chemical Senses - Taste and Smell

Date: 29th September 2022

Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

**COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS
Physiology Station No.1
(CELL COUNTS)**

Sr. #	Question number	Cognitive domain	Psychomotor domain	affective domain	Level of Integration	Total Marks
1	a	C1	P3	A3	Horizontal Integration	1
2	b	C1	P3	A3	Horizontal Integration	1
3	c	C2	P3	A3	Vertical Integration	1

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
1.	Determination of Total leukocyte Count (TLC)	1 A
2.	Estimation of Red Blood Cell (RBC) count	1 B
3.	Determination of platelet count	1 C
4.	Determination of Differentiate leukocyte Count (DLC)	2
5.	Determination of ABO blood groups	3 A
6.	Determination of Rh blood groups	3 B
7.	Determination of Clotting Time (CT)	4 A
8.	Determination of Bleeding Time (BT)	4 B
9.	Recording of body temperature	5 A
10.	Demonstration of Triple response	5 B
11.	Practical note book / sketch copy	6

Physiology Station No.1

For Organizer:

Requirements:

1. Response Sheet
2. Pen/Ball Point
3. Table
4. Chair/Stool
5. Neubauer Slide & All Three Diluting Fluids

Cut along the dotted line

Station No.

Time Allowed: 2 Minutes

For Candidate:

- What is the preferred dilution ratio for red blood cells count & platelet count?
(0.5, 0.5) (1)
- Write the composition of Hayem's Fluid.
(1)
- How would you interpret a platelet count of 80,000 /mm³?
(1)

Cut along the dotted line

Station No.

For Examiner:

Key

- a. 1:200, 1:100
b. NaCl, NaSO₄HgCl
c. Thrombocytopenia

INTEGRATED MODULAR CURRICULUM

Physiology Station No.2

(DIFFERENTIAL LEUKOCYTE COUNT)

For Organizer:

Requirements:

1. Response Sheet
2. Pen/Ball Point
3. Table
4. Chair/Stool
5. Microscope with differential leukocyte count slides, Pictures of Neutrophil (A) & Lymphocyte (B)

Cut along the dotted line

Station No.

For Candidate:

Time Allowed: 2 Minutes

- Identify the cells labeled A & B.
- Points of Identification.
- What is the power of objective lens used for identifying the cells and how much was the total magnification achieved?

Cut along the dotted line

Station No.

For Examiner:

Key

- Neutrophil (A) & Lymphocyte (B) (0.25,0.25)
- Granular / Agranular cytoplasm, multilobed / Large nucleolus, eosinophilic & basophilic granules, rim of cytoplasm (1.5)
- x100, x1000 (0.5,0.5)

COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS
Physiology Station No.2

(DIFFERENTIAL LEUKOCYTE COUNT)

Sr. #	Question number	Cognitive domain	Psychomotor domain	affective domain	Level of Integration	Total Marks
1	a	C2	P3	A3	Horizontal Integration	0.5
2	b	C1	P3	A3	Horizontal Integration	1.5
3	c	C1	P3	A3	Horizontal Integration	1

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
12.	Determination of Total leukocyte Count (TLC)	1 A
13.	Estimation of Red Blood Cell (RBC) count	1 B
14.	Determination of platelet count	1 C
15.	Determination of Differentiate leukocyte Count (DLC)	2
16.	Determination of ABO blood groups	3 A
17.	Determination of Rh blood groups	3 B
18.	Determination of Clotting Time (CT)	4 A
19.	Determination of Bleeding Time (BT)	4 B
20.	Recording of body temperature	5 A
21.	Demonstration of Triple response	5 B
22.	Practical note book / sketch copy	6

OSPE

DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI

INTEGRATED MODULAR CURRICULUM

Physiology Station No.3
(BLOOD GROUPS)

For Organizer:

Requirements:

1. Response Sheet 2. Pen/Ball Point 3. Table 4. Chair/Stool
5. Slide Showing AB+ve blood group

Cut along the dotted line

Station No.

For Candidate:

Time Allowed: 2 Minutes

- a. Interpret the blood group displayed on the given slide? (0.5)
- b. Which antibodies will be present in the plasma of this person? (0.5)
- c. If this person requires blood transfusion, what will be your choice? (0.5)
- d. How will you perform procedure of cross matching? (1.5)

Cut along the dotted line

Station No.

For Examiner:

Key

- a. AB+ve (0.5)
- b. None (0.5)
- c. AB+ve, O+ve (0.5)
- d. Donor red blood cells & Recipient Plasma are mixed. If agglutination is observed this indicates a mismatch blood group and if agglutination is not observed this indicate matched blood group. (1.5)

**COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS
Physiology Station No.3
(BLOOD GROUPS)**

Sr. #	Question number	Cognitive domain	Psychomotor domain	affective domain	Level of Integration	Total Marks
1	a	C2	P3	A3	Vertical Integration	0.5
2	b	C2	P3	A3	Horizontal Integration	0.5
3	c	C3	P3	A3	Vertical Integration	0.5
4	d	C3	P3	A3	Vertical Integration	1.5

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
23.	Determination of Total leukocyte Count (TLC)	1 A
24.	Estimation of Red Blood Cell (RBC) count	1 B
25.	Determination of platelet count	1 C
26.	Determination of Differentiate leukocyte Count (DLC)	2
27.	Determination of ABO blood groups	3 A
28.	Determination of Rh blood groups	3 B
29.	Determination of Clotting Time (CT)	4 A
30.	Determination of Bleeding Time (BT)	4 B
31.	Recording of body temperature	5 A
32.	Demonstration of Triple response	5 B
33.	Practical note book / sketch copy	6

OSPE
DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI

INTEGRATED MODULAR CURRICULUM

Physiology Station No.4
(BLEEDING TIME & CLOTTING TIME)

For Organizer:

Requirements:

1. Response Sheet 2. Pen/Ball Point 3. Table 4. Chair/Stool
5. Blotting Paper for Bleeding Time, Capillary tubes for Clotting Time

Cut along the dotted line

Station No.

For Candidate:

Time Allowed: 2 Minutes

Give your clinical diagnosis after interpreting the given profile of these three patients:
(1,1,1)

Patients	(a) Mr. Ali 42-year male	(b) Mr. Ijaz 30-year male	(c) Ms. Sana 45-year female
Platelet count	150,000	60,000	50,000
Bleeding time	>10 minutes	>12 minutes	>12 minutes
Clotting time	3 minutes	2 minutes	>7 minutes

Cut along the dotted line

Station No.

For Examiner:

Key

- a. Thrombosthenia, Scurvy (Mr. Ali) (1)
b. Thrombocytopenia (Mr. Ijaz) (1)
c. Disseminated Intravascular Coagulopathy (Ms. Sana) (1)

**COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS
Physiology Station No.4**

(BLEEDING TIME & CLOTTING TIME)

Sr. #	Question number	Cognitive domain	Psychomotor domain	affective domain	Level of Integration	Total Marks
1	a	C3	P3	A3	Vertical Integration	1
2	b	C3	P3	A3	Vertical Integration	1
3	c	C3	P3	A3	Vertical Integration	1

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
34.	Determination of Total leukocyte Count (TLC)	1 A
35.	Estimation of Red Blood Cell (RBC) count	1 B
36.	Determination of platelet count	1 C
37.	Determination of Differentiate leukocyte Count (DLC)	2
38.	Determination of ABO blood groups	3 A
39.	Determination of Rh blood groups	3 B
40.	Determination of Clotting Time (CT)	4 A
41.	Determination of Bleeding Time (BT)	4 B
42.	Recording of body temperature	5 A
43.	Demonstration of Triple response	5 B
44.	Practical note book / sketch copy	6

OSPE
DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI

INTEGRATED MODULAR CURRICULUM

Physiology Station No.5
(RECORDING OF BODY TEMPERATURE)

For Organizer:

Requirements:

1. Response Sheet 2. Pen/Ball Point 3. Table 4. Chair/Stool
5. Thermometer showing 104⁰ Fahrenheit

Cut along the dotted line

Station No.

For Candidate:

Time Allowed: 2 Minutes

A patient was received in the emergency department of Benazir Bhutto Hospital, Rawalpindi, with chills and fever, his temperature record is being provided to you on the given clinical thermometer.

- a. What is the reading shown on the provided thermometer? (0.5)
b. Name two thermo regulatory responses which might be invoked in this patient. (0.5)
c. Which part of hypothalamus is active in this patient? (1.5)
d. What is the preferred site for recording of body temperature in an unconscious patient? (0.5)

Cut along the dotted line

Station No.

For Examiner:

Key

- a. 104⁰ Fahrenheit (0.5)
b. Vasodilatation, sweating (0.5)
c. Anterior hypothalamus (1.5)
d. Axilla / Groin (0.5)

COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS

Physiology Station No.5

(RECORDING OF BODY TEMPERATURE)

Sr. #	Question number	Cognitive domain	Psychomotor domain	affective domain	Level of Integration	Total Marks
1	a	C2	P3	A3	Vertical Integration	0.5
2	b	C2	P3	A3	Horizontal Integration	0.5
3	c	C2	P3	A3	Horizontal Integration	1.5
4	d	C1	P3	A3	Horizontal Integration	0.5

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
45.	Determination of Total leukocyte Count (TLC)	1 A
46.	Estimation of Red Blood Cell (RBC) count	1 B
47.	Determination of platelet count	1 C
48.	Determination of Differentiate leukocyte Count (DLC)	2
49.	Determination of ABO blood groups	3 A
50.	Determination of Rh blood groups	3 B
51.	Determination of Clotting Time (CT)	4 A
52.	Determination of Bleeding Time (BT)	4 B
53.	Recording of body temperature	5 A
54.	Demonstration of Triple response	5 B
55.	Practical note book / sketch copy	6

DEPARTMENT OF PHYSIOLOGY
COGNITIVE LEVELS OF BLOCK II OSPE PAPER
FOR FIRST YEAR MBBS
 Dated: 10th September-2022

Sr .#	Physiology Station number	Topic	Question number	Cognitive domain	Psychomotor Domain	Affective Domain	Level of Integration	Total Marks (Out of 15)	Percentage
1	1	Cell Counts	a	C1	P3	A3	Horizontal	1	6.6%
			b	C1	P3	A3	Horizontal	1	6.6%
			c	C2	P3	A3	Vertical	1	6.6%
2	2	DLC	a	C2	P3	A3	Horizontal	0.5	3.3%
			b	C1	P3	A3	Horizontal	1.5	10%
			c	C1	P3	A3	Horizontal	1	6.6%
3	3	Blood groups	a	C2	P3	A3	Vertical	0.5	3.3%
			b	C2	P3	A3	Horizontal	0.5	3.3%
			c	C3	P3	A3	Vertical	0.5	3.3%
			d	C3	P3	A3	Vertical	1.5	10%
4	4	Bleeding time & clotting time	a	C3	P3	A3	Vertical	1	6.6%
			b	C3	P3	A3	Vertical	1	6.6%
			c	C3	P3	A3	Vertical	1	6.6%
5	5	Recording of body temperature	a	C2	P3	A3	Vertical	0.5	3.3%
			b	C2	P3	A3	Horizontal	0.5	3.3%
			c	C2	P3	A3	Horizontal	1.5	10%
			d	C1	P3	A3	Horizontal	0.5	3.3%

Horizontal Integration	53%
Vertical Integration	47%

Block – II (MSK-II & Blood Module) OSPE

Sr #	Topic	Station #
1.	Determination of Total leukocyte Count (TLC)	1 A
2.	Estimation of Red Blood Cell (RBC) count	1 B
3.	Determination of platelet count	1 C
4.	Determination of Differentiate leukocyte Count (DLC)	2
5.	Determination of ABO blood groups	3 A
6.	Determination of Rh blood groups	3 B
7.	Determination of Clotting Time (CT)	4 A
8.	Determination of Bleeding Time (BT)	4 B
9.	Recording of body temperature	5 A
10.	Demonstration of Triple response	5 B
11.	Practical note book / sketch copy	6

Dr. Samia Sarwar
 Head / Professor of Physiology
 Rawalpindi Medical University
 Rawalpindi

Date: 8th September 2022

Video Assisted & Clinically Oriented Integrated Assessment For Block – II of First Year MBBS

Compiled, Supervised & Implemented by Department of Physiology

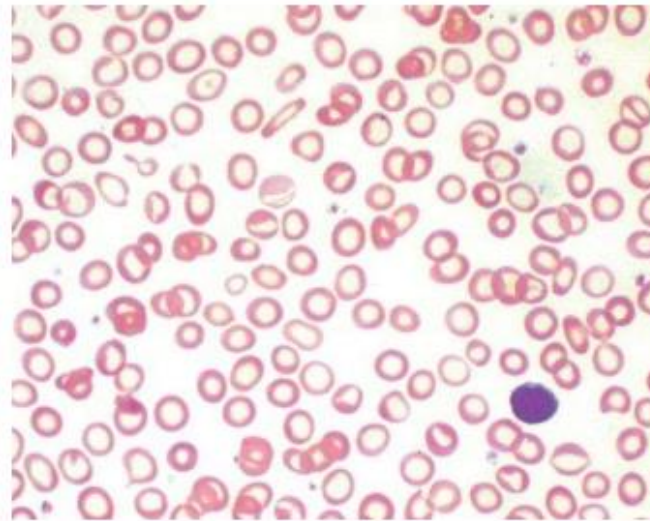
8th September 2022

Time of Assessment 10:00 to 10:30am
(Vertical Integration)

Dr. Samia Sarwar
Head / Professor of Physiology
Dean Allied Health sciences
Rawalpindi Medical University,
Rawalpindi

A 42 years female presented to medical specialist with complaints of fatigue, lethargy and shortness of breath. She had history of increased blood loss during menstrual cycle. On examination she was pale and her Complete Blood Count revealed that she was suffering from anemia.

- 1. Identify the type of anemia shown in the picture (1)**
- 2. Enlist the diagnostic findings in the picture (2)**
- 3. Write down the pathophysiology of this type of anemia. (2)**



Key – Slide 1

Q. Identify the type of anemia shown in the picture (1)

Ans: Iron deficiency anemia

Q. Enlist the diagnostic findings in the picture (2)

Ans: Microcytosis, Hypochromia, Anisocytosis, Poikilocytosis

Q. Write down the pathophysiology of this type of anemia. (2)

Ans: Excessive blood loss results in Iron deficiency, which inhibits the production of Heme. Normally heme incorporates an Iron in its structure. Decreased heme level leads to decreased hemoglobin production and hence Iron deficiency Anemia.

A five years boy had difficulty in rising from a lying and sitting position. He had waddling gait and history of frequent falls. His growth was also delayed and had learning disabilities. The detailed investigations and muscle biopsy revealed he was suffering from Duchene Muscular Dystrophy.

1. Why does this disease affects only males?
(1)
2. Name the defective protein in this case (1)
3. Write down the pathophysiology of this disease (3)



Key – Slide 2

Q. Why does this disease affect only males? (1)

Ans: Because it is an X linked recessive disorder

Q. Name the defective protein in this case (1)

Ans: Dystrophin

Q. Write down the pathophysiology of this disease (3)

Ans: Dystrophin stabilizes the sarcolemma by attaching the actin cytoskeleton to the extracellular matrix through the dystrophin-associated glycoprotein complex. The absence of dystrophin leads to damage to muscle cells.

Format for Lectures of Physiology (Applicable for others also)

S.No	Headings	Domains / Type of integration	Approximate %
1	Title	-----	
2	Learning Objectives		
3	Physiological Anatomy	Brain storming/ Horizontal integration interactive	5%
4	Histology	(if applicable) Brain storming/ Horizontal integration interactive	
5	Physiological Biochemistry		5%
6	Core Concepts of the topic	Horizontal integration	45%
7	Pathophysiology	Vertical Integration	20%
8	Clinical aspects along with pictures	Vertical Integration	10%
9	Relevant investigation, Management/ treatment	(if applicable) Vertical Integration	5%
10	Clinical Scenarios relevant to the topic 1or 2 with key	Vertical Integration interactive	5%
11	Chunk from Relevant to the topic from Journal article with reference	Sensitization to Research Culture Use of Digital Library Self Directed Learning	3%
12	Ethics		2%
13	References		

Dr. Samia Sarwar
Professor & Head
Department of Physiology
Rawalpindi Medical University Rawalpindi

Structured Viva Voce format Physiology

DEPARTMENT OF PHYSIOLOGY RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI UPDATED STRUCTURED PERFORMA FOR VIVA VOCE OF MODULE / BLOCK EXAMINATION

TOPIC: _____ MODULE: _____ TOTAL MARKS: _____ DATE: _____ TEACHER NAME: _____ SIGNATURE _____

Sr. No.	Roll No.	Students Name	Definition (3 Marks) Q=2 C1	Physiological Mechanism (6 Marks) Q=2 C2	Pathophysiological Mechanism (5 Marks) Q=2 C2	Related Diseases (2 Marks) Q=1 C3	Diagnostic Parameters (2 Marks) Q=1 C3	Management / Treatment Guidelines (2 Marks) Q=1 C3	Professionalism & Behavior Components; • Appropriate dressing & white coat • College ID card with picture • Behavior • Level of Confidence/ Non verbal Body language • Communication Skills • Language of Communication • Volume of voice • Clarity & fluency of speech • Understanding of questions • Prioritizing the answers (3 Marks) A3	Extraordinary questions for distinction (2 marks) Q=1 C3	Total marks obtained out of 25
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											

Updated on:
14th September 2022

Dr. Samia Sarwar
Head / Professor of Physiology
Dean Allied Health Sciences
Rawalpindi Medical University
Rawalpindi

RMU MODEL OF PROBLEM BASED LEARNING (PBL)

INTRODUCTION

PBL is an effective way of delivering content of integrated medical curriculum and offers several advantages over traditional teaching methods. It is founded on principles of adult learning theory and involves student motivation encouraging them to set own learning goals. It is based upon multidisciplinary approach and different themes can be used to create a case scenario.

AT RAWALPINDI MEDICAL UNIVERSITY

- At Rawalpindi Medical University, PBL sessions are conducted as part of modular integrated curriculum.
- PBL sessions are conducted within each module of first and second year MBBS (a total of 12 modules of both classes class every year)
- A specified number of large group interactive sessions (LGIS) are also conducted before the session to introduce the topics and providing overview of relevant difficult concepts.

HARDEN INTEGRATION LADDER

- Introduction of integrated sessions as part of curriculum makes the university stand at **LEVEL 8 of Harden Integration Ladder** **“The Complementary programme”** where the focus of teaching is theme or a topic where different disciplines can contribute.

TEACHING AND LEARNING STRATEGY:	<ul style="list-style-type: none"> • Small group activity (conducted in 10 batches of each class) • Student centered approach
OBJECTIVES:	Acquisition of knowledge
	Active participation of each and every student
	Integration of core curriculum
	Develop generic competencies and attitudes among students <ul style="list-style-type: none"> • Team work • Chairing a group • Listening • Recording • Cooperation • Respect for colleagues' views • Critical evaluation of literature • Self directed learning and use of resources • Creativity • Problem solving & critical thinking • Communication skill • Presentation skills • Group dynamics • Time management
	Activate deep learning
	Constructivist approach

CONDUCTION OF PBL

THE PBL PROCESS AT RMU

SESSION I
"STRUCTURING"

- Trigger as paper based case scenario
- Formulation of learning objectives by students

SESSION II
"IMPLEMENTATION"

- Discussion of learning objectives by the students
- Students' presentations

SELF DIRECTED LEARNING AT HOME

DESIGNING A CASE SENARIO:

Cases of PBL sessions are constructed based on real life cases of prevalent conditions. Different disciplines are involved in construction of the particular case on a particular theme/topic. These themes/topics are chosen keeping in mind the provoking element for the students to provide a suitable trigger. For example PBL based on Iron deficiency anemia has been given title/ theme **"KAHANI GHAR GHAR KI"**. Similarly, another theme used for PBL session based upon Goiter is **"GALA PAR GYA GALEY"**.

Tutor key is also formulated by taking into consideration the input of all the relevant disciplines. This key includes:

1. Learning objectives
2. Content related to these objectives

3. Question and answers related to the case scenario
4. Conclusion

“This case with tutor key is handed over to the facilitator 1 week prior to the first session of PBL.”

SESSION I: “STRUCTURING”

- A predesigned **Paper Based Case Scenario** is introduced as a **“TRIGGER”** to the students during session I. (Tutor key is not provided to the students)
- Teacher act as a facilitator.
- Group leader, scribe and time keeper are assigned and their duties declared.
- Group leader ensures group dynamics to be followed including respect for other, allowing everyone to participate, giving importance to each other’s views, well disciplined class and time management.
- Session starts with introduction to key words and explanation.
- Students formulate their own learning objectives based upon different disciplines like physiology, anatomy, biochemistry, pharmacology, pathology, medicine, surgery etc

“7 JUMP STRATEGY”	
STEP 1	Identify and clarify unfamiliar terms presented in the scenario
STEP 2	Define the problem or problems to be discussed
STEP 3	“Brainstorming” session to discuss the problem, suggesting possible explanations on basis of prior knowledge
STEP 4	Review and arrange explanations into tentative solutions
STEP 5	Formulate learning objectives
STEP 6	Self -directed learning by the students at home
STEP 7	Presentation of the learning objectives and content studied

SELF-DIRECTED LEARNING (AT HOMES)

SESSION II: “IMPLEMENTATION”

- The learning objectives formulated in Session I are discussed in Session II. (as the students have studied and prepared it privately at homes)
- Students are instructed to make presentation of the required learning objectives and the the related content.
- The difficult areas are focused by the group and possible explanations are discussed.

FEEDBACK OF PBL SESSION:

- **“Feedback”** by the students as well as facilitator is given.
- Conclusion and ending remarks by the facilitator.

ASSESSMENT OF PBL SESSION:

Students during the session are assessed for the following components:

1. Knowledge (prior knowledge as well as contribution by self directed learning)
2. Active participation
3. Time management
4. Group dynamics
5. Generic skills including presentation skills, communication skills

RMU MODEL OF CASE BASED LEARNING (CBL)

INTRODUCTION

Case Based Learning (CBL) is one of the latest teaching and learning strategy being used in the medical education. The ultimate aim of CBL is to prepare the students for clinical practice by using the real life case scenarios. It puts theory into practice by applying knowledge to clinical cases. With case-based teaching, students develop skills in analytical thinking and reflective judgment by reading and discussing complex, real-life scenarios. This method is student-centered with intense interaction between participants as they build their knowledge and work together as a group to examine the case. CBL is **discipline specific** and the learning objectives are formulated according to the subject under consideration.

AT RAWALPINDI MEDICAL UNIVERSITY

- At Rawalpindi Medical University, CBL sessions are conducted as part of modular integrated curriculum.
- CBL sessions are conducted within each module of first and second year MBBS (a total of 12 modules of both classes class every year)
- CBL sessions are adjusted in time tables along with slots of skill labs and Small Group Discussions (SGD).
- A specified number of large group interactive sessions (LGIS) are also conducted before the session to introduce the topics and providing overview of relevant difficult concepts.

HARDEN INTEGRATION LADDER

- CBL sessions conducted during the course of integrated modular curriculum makes the university stand at **LEVEL 8 of Harden Integration Ladder “The Complementary programme”** where the focus of teaching is theme or a topic where different disciplines can contribute.

TEACHING AND LEARNING STRATEGY:	<ul style="list-style-type: none"> • Small group activity single session activity (conducted in 5 batches of each class with further subdivisions of each batch into 4 sub-batches) • Student centered approach
OBJECTIVES:	Acquisition of knowledge and clinical reasoning
	Active participation of each and every student
	Clinical relevance to core subjects of basic sciences
	Develop generic competencies and attitudes among students <ul style="list-style-type: none"> • Team work • Chairing a group • Listening • Recording • Cooperation • Respect for colleagues' views • Critical evaluation of literature • Self directed learning and use of resources • Creativity • Problem solving & critical thinking • Communication skill • Presentation skills • Group dynamics • Time management
	Activate deep learning
	Provide opportunities for development of clinical reasoning and judgment
	Self directed learning

CONDUCTION OF CBL

THE CBL PROCESS AT RMU (SINGLE SESSION)

CBL cases are designed pre-hand and provided to the students on MS teams/ LMS with clearly defined learning objectives of the relevant subject of basic sciences

SELF DIRECTED LEARNING AT HOME

- **Paper based clinical case scenarios with leaning objectives (subject specific)**
- **Case discussion**
- **Identification of the learning resources**
- **Clinical relevance of the cases provided to the core knowledge of the subject**

DESIGNING A CASE SENARIO:

Case is designed based on real life clinical case scenarios. The cases are designed having a **theme like “cough”**. The learning objectives are focused towards a specific discipline of basic sciences like physiology, anatomy, biochemistry etc. It brings theory into practice. It induces more critical thinking skills. In CBL, both the student and faculty prepare in advance, and there is guidance to the discussion so that important learning points are covered. This is an example of integration within a subject. Students use higher order of cognition by the use of clinical case relevant to the topic taught resulting in achieving better learning outcomes. This also encourages active learning.

The case is provided by the facilitator to the students before the session. Learning objectives are provided in advance for a more focused study by the students and come well prepared for session.

Tutor key is also formulated by subject specialist of the relevant

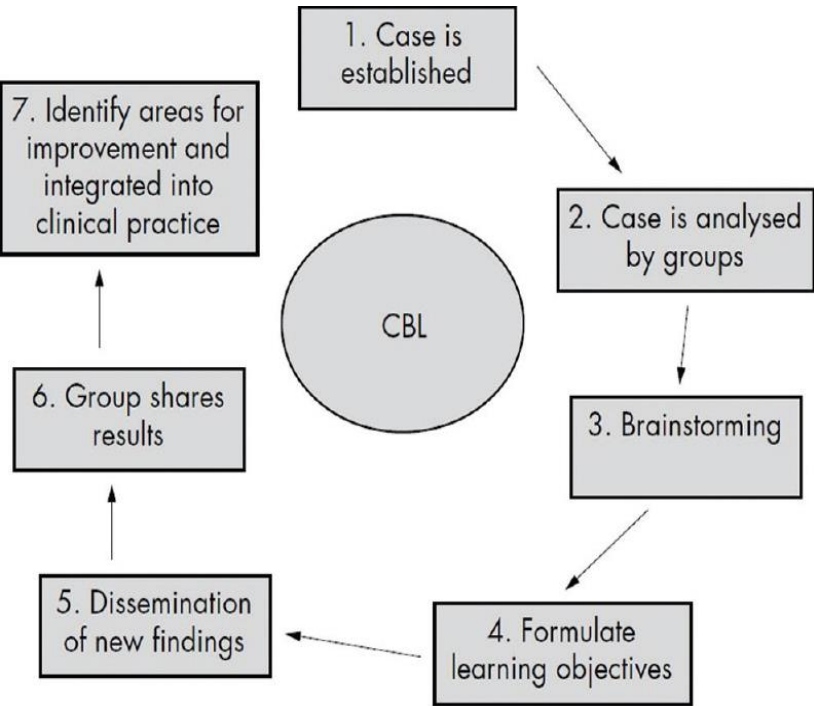
- 5. Content related to these objectives
- 6. Question and answers related to the case scenario
- 7. Conclusion

CBL SESSION:

- A predesigned **Paper Based Case Scenario** already provided
- Students come well prepared according to the learning
- Teacher act as a facilitator.
- Group leader, scribe and time keeper are assigned and their
- Group leader ensures group dynamics to be followed including participate, giving importance to each other’s views, well disciplined class and time management.
- Session starts with introduction to key words and explanation.
- Discussion starts with active participation of each and every student. The difficult areas are focused by the group and possible explanations are discussed.
- Teachers act as drivers of the session, the keep the students focused and intervene where necessary.

FEEDBACK OF CBL SESSION:

- **“Feedback”** by the students as well as facilitator is given.
- Conclusion and ending remarks by the facilitator.



of CBL. The mode is via MS Teams/ LMS. the students. This needs advanced studies ny

disciplines. This key includes:

to the students before the session. objectives.

duties declared. respect for other, allowing everyone to

ASSESSMENT OF CBL SESSION:

Students during the session are assessed for the following components:

6. Knowledge (prior knowledge as well as contribution by self directed learning)
7. Active participation
8. Time management
9. Group dynamics
10. Generic skills including presentation skills, communication skills

RMU MODEL OF SMALL GROUP DISCUSSION (SGD)

INTRODUCTION

Small-group discussion is **a student-centered methodology, that allows students to actively involve and be partners in the teaching-learning process.** Students interact with peers and instructors, discussing, and sharing ideas. They develop the ability to build consensus in a group.

AT RAWALPINDI MEDICAL UNIVERSITY

- At Rawalpindi Medical University, SGDs are conducted as a part of integrated curriculum.
- SGDs are conducted **every week** within each module of first and second year MBBS (a total of 12 modules of both classes class every year)
- It has replaced the traditional tutorial in the traditional curriculum.
- The basic objective of Small Group Discussion is “**reinforcement**” of the important topics taught previously in Large Group Interactive Session(LGIS).
- The SGDs are **topic based**, usually a topic is given to the students and discussion is done afterwards.

SGD SESSION:

- SGDs are conducted in every module per week.
- The topic based small group discussion is given a proper place in the time table before the module starts.
- The topics are adjusted in the time tables in alliance with the relevant topics being taught at Large Group Interactive Session (LGIS).
- The topics, time and venues are known to the students as they are written on time tables.
- Students are given some time for self-study.
- The teacher discusses the topic with the students keeping in mind the group dynamics and ensures active participation by the students.
- Ending note with conclusion.



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First Year MBBS Batch 49 (Session 2022)

Students Scoring Performa for Case Based Learning (CBL), Small Group Discussion (SGD) / Tutorial Assessment

Student Name: _____

Roll No: _____

PracticalBatch: _____

Sr. No	Date	Name of Topic	Knowledge (3)	Skill (4)	Attitude /professionalism (3)	Total score obtaining out of 10	Teacher's Name	Teacher's signature



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Second Year MBBS Batch 48 (Session 2022)

Students Scoring Performa for Case Based Learning (CBL), Small Group Discussion (SGD) / Tutorial Assessment

Student Name: _____ Roll No: _____ Practical Batch: _____

Sr. No	Date	Name of Topic	Knowledge (3)	Skill (4)	Attitude /professionalism (3)	Total score obtaining out of 10	Teacher's Name	Teacher's signature



DEPARTMENT OF PHYSIOLOGY
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First Year MBBS Batch 49 (Session 2022)
Students Scoring Performa for Skill Lab / Practical Assessment

Student Name: _____ Roll No: _____ Practical Batch: _____

Sr. No	Date	Name of Practical	Knowledge (3)	Skill (4)	Attitude /professionalism (3)	Total score obtaining out of 10	Teacher's Name	Teacher's signature



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Second Year MBBS Batch 48 (Session 2022)
Students Scoring Performa for Skill Lab / Practical Assessment

Student Name: _____ Roll No: _____ Practical Batch: _____

Sr. No	Date	Name of Practical	Knowledge (3)	Skill (4)	Attitude /professionalism (3)	Total score obtaining out of 10	Teacher's Name	Teacher's signature

OFFICE OF THE HEAD OF PHYSIOLOGY DEPARTMENT
RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
FIRST YEAR MBBS BLOCK - II PHYSIOLOGY RESULT ACCORDING TO NEW ASSESSMENT MODEL OF RMU "MUMTAHIN"

Sr. #	Roll No.	Students Name	Marks											Countineous Internal Assessment (CIA)											Percentage of CIA/CIA Gauge of Zone
			MSK-II Module (Module -3)					Blood & Immunity Module (Module -4)					OSPE	Grand Total of Marks	MSK-II Module			Blood Module			OSPE	LMS	Video Assisted Learning	Grand Total of CIA	
			MCQs	SEQs	Theory Total	Viva	Grand Total	MCQs	SEQs	Theory Total	Viva	Grand Total			Theory CIA	Viva CIA	Total CIA	Theory CIA	Viva CIA	Total CIA					
1	1	AAIMA ILYAS BAJWA	14	14	28	14	42	19	15	34	18	52	11	105	4	3	7	5	4	9	4	2	1	23	70
2	2	AAMINAH MUSHTAQ	18	15	33	15	48	20	15	35	17	52	8	108	5	3	8	5	3	9	3	2	1	24	72
3	3	AAMNA ZAMURAD KHAN	17	15	32	14	46	14	15	29	16	45	12	103	5	3	8	5	3	8	4	2	1	23	69
4	4	ADEELA SULTANA	18	16	34	15	49	18	15	33	15	48	12	109	5	3	8	5	3	8	4	2	1	23	71
5	5	AFIFA MUKHTAR	18	14	32	15	47	16	15	31	16	47	10	104	5	3	8	5	3	8	4	2	1	23	69
6	6	AIZA HAROON	18	17	35	20	55	19	15	34	20	54	12	121	5	4	9	5	4	9	4	1	1	25	75
7	7	AIZA IMRAN	17	15	32	19	51	20	15	35	16	51	11	113	5	4	9	5	3	9	4	2	1	25	75
8	8	AKHLAS FATIMA QURESHI	15	14	29	15	44	18	15	33	15	48	11	103	5	3	8	5	3	8	4	2	1	23	69
9	9	ALEENA JAVED	15	14	29	14	43	13	15	28	16	44	11	98	5	3	7	4	3	8	4	2	1	22	67
10	10	ALISHBA FARAZ	18	16	34	15	49	16	15	31	15	46	11	106	5	3	8	5	3	8	4	2	1	23	70
11	11	ALISHBA HASNAT	13	16	29	17	46	17	15	32	15	47	13	106	5	3	8	5	3	8	4	2	1	23	70
12	12	ALIZA KHAN	17	17	34	16	50	18	15	33	16	49	10	109	5	3	9	5	3	8	3	2	1	23	71
13	13	ALYSHA KHALIQ	15	13	28	16	44	19	15	34	16	50	11	105	4	3	8	5	3	9	4	2	1	23	69
14	14	AMBER LIAQUAT CHAUDHARY	13	12	25	16	41	12	15	27	14	41	12	94	4	3	7	4	3	7	4	2	1	21	63
15	15	AMINA KHAN	14	13	27	14	41	17	14	31	16	47	15	103	4	3	7	5	3	8	5	2	1	23	69
16	16	AMMARA KHALIL	19	19	38	15	53	16	15	31	13	44	14	111	6	3	9	5	3	8	5	2	1	24	73
17	17	AMMARA SARWAR	17	17	34	16	50	18	15	33	14	47	12	109	5	3	9	5	3	8	4	2	1	24	73
18	18	AMNA BATOOL	18	15	33	18	51	20	15	35	13	48	13	112	5	4	9	5	3	8	4	2	1	24	73
19	19	AMNA BINTE NAEEM	17	16	33	21	54	19	15	34	15	49	14	117	5	4	9	5	3	8	5	1	1	25	74
20	20	AMNA CHEEMA	13	12	25	13	38	14	15	29	15	44	14	96	4	3	7	5	3	8	5	2	1	22	66
21	22	ANIQA ARSHAD CHAUDHARY	16	17	33	14	47	20	15	35	17	52	13	112	5	3	8	5	3	9	4	2	1	24	73
22	23	ANIQA SAFDAR	16	13	29	14	43	16	15	31	13	44	14	101	5	3	7	5	3	8	4	2	1	22	67
23	24	ANSA HABIB	15	16	31	12	43	19	15	34	17	51	11	105	5	2	7	5	3	9	4	2	1	23	70
24	25	AQSA BIBI	18	20	38	14	52	19	15	34	16	50	15	117	6	3	9	5	3	9	5	2	1	26	78
25	26	AQSA EMAN SHAHZAD	15	16	31	12	43	13	15	28	14	42	14	99	5	2	7	4	3	7	4	2	1	22	66
26	27	AREEBA ARSHAD	15	10	25	14	39	17	15	32	14	46	13	98	4	3	7	5	3	8	4	2	1	22	66
27	28	AREEBA MUSTAFA	18	17	35	14	49	18	15	33	17	50	10	109	5	3	8	5	3	9	4	2	1	24	72
28	29	AREEJ ASIF AWAN	17	16	33	13	46	18	15	33	15	48	14	108	5	3	8	5	3	8	5	2	1	24	72
29	30	AREEJ FATIMA	12	14	26	13	39	17	15	32	15	47	13	99	4	3	7	5	3	8	4	2	1	22	65
30	31	AREEJ-UL-EMAN	12	15	27	10	37	12	15	27	17	44		81	4	2	6	4	3	8	0	2	1	17	51
31	32	AREESHA FATIMA	18	14	32	13	45	20	15	35	16	51	13	109	5	3	8	5	3	9	4	1	1	22	67
32	34	AROOSHA WAHEED	17	17	34	17	51	16	15	31	16	47	13	111	5	3	9	5	3	8	5	2	1	24	74
33	35	ASNA ISRAR	19	13	32	17	49	20	13	33	17	50	12	111	5	3	8	5	3	9	4	2	1	24	72
34	36	AYESHA AHMED	17	15	32	18	50	17	15	32	17	49	9	108	5	4	9	5	3	8	3	2	1	23	70
35	37	AYESHA AJMAL	17	18	35	18	53	18	15	33	16	49	13	115	5	4	9	5	3	8	5	2	1	25	76
36	38	AYESHA HANIF	19	16	35	18	53	18	15	33	18	51	11	115	5	4	9	5	4	9	4	2	1	24	74
37	39	AYESHA IFTIKHAR	17	16	33	19	52	18	15	33	17	50	15	117	5	4	9	5	3	9	5	2	1	25	76
38	40	AYESHA NASIR	17	18	35	14	49	18	15	33	15	48	12	109	5	3	8	5	3	8	5	2	1	24	73
39	41	AYESHA NAWAZ	18	17	35	18	53	20	15	35	16	51	15	119	5	4	9	5	3	9	5	2	1	25	77
40	42	AYESHA NIGHAT	17	15	32	18	50	17	15	32	15	47	10	107	5	4	9	5	3	8	4	2	1	24	73
41	43	AYESHA SADIQA	15	15	30	15	45	14	15	29	15	44	10	99	5	3	8	5	3	8	4	2	1	22	67
42	44	AYESHA SIDDIQA	19	15	34	19	53	20	15	35	16	51	10	114	5	4	9	5	3	9	4	2	1	25	74

r. #	Roll No.	Students Name	Marks											Countineous Internal Assessment (CIA)										Percentage of CIA/CIA Gauge of Zone	
			MSK-II Module (Module -3)					Blood & Immunity Module (Module -4)					OSPE	Grand Total of Marks	MSK-II Module			Blood Module			OSPE	LMS	Video Assisted Learning		Grand Total of CIA
			MCQS	SEQs	Theory Total	Viva	Grand Total	MCQS	SEQs	Theory Total	Viva	Grand Total			Theory CIA	Viva CIA	Total CIA	Theory CIA	Viva CIA	Total CIA					
			20	25	45	25	70	20	25	45	25	70			7	5	12	7	5	12					
365	By Name	SHAKEEL AHMAD	16	4	20	8	28	6	7	13	10	23	4	55	3	2	5	2	2	4	3	1	0	13	38
366	By Name	AHMED JAWAD	17	6	23	14	37	19	9	28	13	41	6	84	4	3	6	4	3	7	3	2	1	20	59
367	By Name	TAWFIQ ULLAH	16	11	27	11	38	16	13	29	18	47	7	92	4	2	7	5	4	8	4	2	1	21	64
368	By Name	MUDASIR ALI				6	6	18	8	26	13	39	8	53	0	1	1	4	3	7	3	1	1	13	39
369	By Name	ILHAM AMEENI	16	14	30	16	46	17	15	32	13	45	10	101	5	3	8	5	3	8	4	2	1	22	68

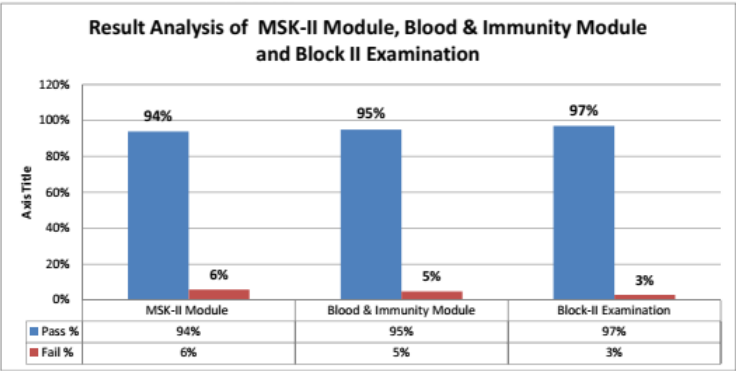
Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - 50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

MSK-II Module Result Analysis	
Total Students Appered	369
Pass	348
Pass %	94%
Fail	21
Fail %	6%

Blood Module Result Analysis	
Total Students Appered	367
Pass	347
Pass %	95%
Fail	20
Fail %	5%

Block-II Result Analysis	
Total Students Appered	369
Pass	356
Pass %	97%
Fail	13
Fail %	3%



Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

Note: Only First & Last page of result of First Year MBBS, complied according to the newly designed Block-Ii (including MSK-II and Blood & immunity Modules) is being shared here for the interest of readers. This result consist of 9 pages.

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RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
SECOND YEAR MBBS BLOCK - II PHYSIOLOGY RESULT ACCORDING TO NEW ASSESSMENT MODEL OF RMU "MUMTAHIN"**

Sr. #	Roll No.	Students Name	Marks												Countineous Internal Assessment (CIA)												Percentage of CIA/CIA Gauge of Zone
			Reproduction Module (Module -3)					CNS Module (Module -4)					OSPE	Grand Total of Marks	Reproduction Module			CNS Module			OSPE	LMS	Video Assisted Learning	Grand Total of CIA			
			MCQs	SEQs	Theory Total	Viva	Grand Total	MCQs	SEQs	Theory Total	Viva	Grand Total			Theory CIA	Viva CIA	Total CIA	Theory CIA	Viva CIA	Total CIA							
			20	25	45	25	70	20	25	45	25	70			7	5	12	7	5	12							
1	1	AAMNAH TARIQ	13	18	31	15	46	11	16	27	13	40	5	91	5	4	8	4	3	7	2	2	1	20	60		
2	2	AAYET ZULFIQAR	16	18	34	16	50	17	16	33	13	46	11	107	6	4	9	6	3	9	4	2	1	25	76		
3	3	ABEEHA ZAINAB	18	13	31	17	48	16	16	32	18	50	11	109	6	3	9	6	3	9	4	2	1	24	74		
4	4	ABEER SAIF	16	15	31	19	50	17	15	32	13	45	8	103	6	3	9	6	3	9	3	2	1	23	70		
5	5	ADEENA NAVEED	17	17	34	17	51	15	15	30	10	40	6	97	6	3	9	5	3	8	2	1	1	22	65		
6	6	AIEMA HAMID	15	18	33	20	53	17	16	33	18	51	9	113	5	4	9	6	3	9	3	2	1	24	73		
7	7	AIMAN AFKAR ABBASI	18	15	33	20	53	16	17	33	20	53	10	116	6	3	9	6	3	9	3	2	1	25	75		
8	8	AIMAN AMIR	19	15	34	16	50	18	16	34	21	55	8	113	7	3	10	6	3	10	3	2	1	25	75		
9	9	AIMAN ARIF	18	15	33	15	48	17	16	33	19	52	12	112	6	3	9	6	3	9	4	2	1	25	77		
10	10	AIMAN MUGHAL	17	14	31	11	42	17	20	37	15	52	8	102	6	3	9	6	4	10	3	1	1	23	71		
11	11	ALEEMA FATIMA	18	17	35	18	53	18	18	36	17	53	9	115	6	3	10	6	4	10	3	2	1	26	78		
12	12	ALEENA SHAHZAD	18	18	36	16	52	16	17	33	13	46	8	106	6	4	10	6	3	9	3	2	1	25	74		
13	14	ALISHBA SHAHID	17	16	33	20	53	17	16	33	15	48	8	109	6	3	9	6	3	9	3	2	1	24	73		
14	15	ALIZAH FAISAL	19	16	35	20	55	17	17	34	15	49	11	115	7	3	10	6	3	9	4	2	1	26	78		
15	16	ALIZEH NAEEM	18	14	32	16	48	17	17	34	15	49	13	110	6	3	9	6	3	9	4	2	1	26	78		
16	17	ALVEENA KHAN LODHI	18	18	36	18	54	17	19	36	16	52	8	114	6	4	10	6	4	10	3	2	1	25	77		
17	18	AMANDA KHAN	16	15	31	16	47	17	17	34	17	51	11	109	6	3	9	6	3	9	4	2	1	25	75		
18	19	AMARAH RASHID	18	17	35	15	50	19	16	35	15	50	11	111	6	3	10	7	3	10	4	2	1	26	79		
19	20	AMBER SAJJAD	18	18	36	14	50	17	18	35	17	52	11	113	6	4	10	6	4	10	4	2	1	26	79		
20	21	AMINA ARIF	16	13	29	14	43	18	16	34	13	47	13	103	6	3	8	6	3	10	4	2	1	25	76		
21	22	AMMARA ATIQUE	17	19	36	15	51	17	17	34	13	47	10	108	6	4	10	6	3	9	3	2	1	25	77		
22	23	AMNA ARIF	19	18	37	17	54	17	17	34	19	53	10	117	7	4	10	6	3	9	3	2	1	26	79		
24	25	AMNA NOOR	18	18	36	16	52	19	18	37	15	52	11	115	6	4	10	7	4	10	4	2	1	27	81		
25	26	AMNA REHMAN SHERWANI	18	18	36	16	52	17	14	31	15	46	11	109	6	4	10	6	3	9	4	2	1	25	77		
26	27	AMNA TARIQ	16	14	30	15	45	17	14	31	16	47		92	6	3	8	6	3	9	0	0	1	18	55		
27	28	ANOOSHA ADNAN	14	18	32	13	45	16	10	26	15	41	8	94	5	4	9	6	2	8	3	2	1	22	66		
28	29	ANOOSHA QAISER	19	18	37	14	51	16	15	31	16	47	9	107	7	4	10	6	3	9	3	2	1	25	75		
29	30	ANUM SAEED	17	14	31	15	46	15	20	35	19	54	8	108	6	3	9	5	4	9	3	2	1	24	72		
30	31	AQSA MEHMOOD	18	17	35	16	51	15	16	31	15	46	8	105	6	3	10	5	3	8	3	2	1	24	72		
31	32	AQSA TUFAIL	18	17	35	15	50	17	17	34	16	50	10	110	6	3	10	6	3	9	3	2	1	25	77		
32	33	AREEJ GOHAR MEER	17	14	31	13	44	17	17	34	17	51	9	104	6	3	9	6	3	9	3	2	1	24	73		
33	34	AROOJ ABBASI	20	18	38	12	50	18	18	36	17	53	11	114	7	4	11	6	4	10	4	2	1	27	82		
34	35	AROOJ BIBI	18	18	36	18	54	19	16	35	19	54	11	119	6	4	10	7	3	10	4	2	1	26	80		
35	36	AROOJ KIRAN	19	20	39	16	55	17	18	35	20	55	8	118	7	4	11	6	4	10	3	2	1	26	78		
36	37	ASMA FATIMAH MALIK	18	18	36	15	51	15	17	32	21	53	11	115	6	4	10	5	3	9	4	2	1	25	76		
37	38	ASMA JAVED	13	17	30	14	44	14	15	29	13	42	10	96	5	3	8	5	3	8	3	2	1	22	67		
38	39	ASMA SAEED	18	18	36	15	51	20	18	38	20	58	12	121	6	4	10	7	4	11	4	2	1	28	83		
39	40	AYESHA ABRAR	17	18	35	14	49	14	17	31	15	46	10	105	6	4	10	5	3	8	3	2	1	24	73		
40	41	AYESHA ASHFAQ	18	17	35	13	48	19	18	37	19	56	12	116	6	3	10	7	4	10	4	2	1	27	82		
41	43	AYESHA HASSAN	19	16	35	13	48	17	15	32	19	51	8	107	7	3	10	6	3	9	3	2	1	24	74		
42	44	AYESHA MASOOD	17	16	33	20	53	18	17	35	20	55	10	118	6	3	9	6	3	10	3	2	1	25	76		

Sr. #	Roll No.	Students Name	Marks											Countinuous Internal Assessment (CIA)											Percentage of CIA/CIA Gauge of Zone
			Reproduction Module (Module -3)					CNS Module (Module -4)					OSPE	Grand Total of Marks	Reproduction Module			CNS Module			OSPE	LMS	Video Assisted Learning	Grand Total of CIA	
			MCQs	SEQs	Theory Total	Viva	Grand Total	MCQs	SEQs	Theory Total	Viva	Grand Total			Theory CIA	Viva CIA	Total CIA	Theory CIA	Viva CIA	Total CIA					
			20	25	45	25	70	20	25	45	25	70			7	5	12	7	5	12					
352	368	BILAL SADIQ	18	16	34		34	16	14	30	21	51	16	101	6	3	10	6	3	8	5	1	1	25	76
353	369	NOOR RIZWAN AHMED	12	17	29	13	42	18	15	33	13	46	11	99	4	3	8	6	3	9	4	1	1	23	68
354	370	FARAZ HASSAN ALI	15	10	25		25	13	9	22	19	41		66	5	2	7	5	2	6	0	0	1	15	44
355	371	MUQADDAS KHAN	16	18	34		34	15	17	32	13	45	9	88	6	4	9	5	3	9	3	2	1	24	72
356	372	MUSARAT SANGTHONG	16	13	29		29	13	14	27	15	42	13	84	6	3	8	5	3	7	4	2	1	23	69
357	373	WAFFA KHAN	15	16	31		31	18	14	32	13	45	9	85	5	3	8	6	3	9	3	1	1	23	68
358	374	AHMED BASIM JAMIL													0	0	0	0	0	0	0	0	0	0	0
359	375	NIDA NISAR	12	14	26	12	38	12	13	25	15	40	7	85	4	3	7	4	3	7	2	2	1	19	58

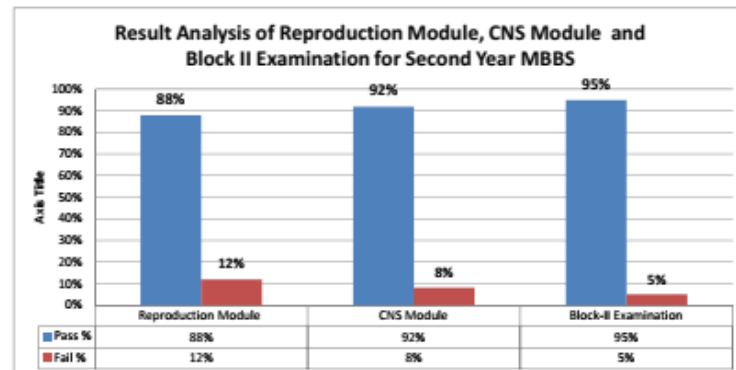
Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - 50%	51 - 60%	61 - 70%	71 - 80%	81 - 100%

MSK-II Module Result Analysis	
Total Students Appered	354
Pass	313
Pass %	88%
Fail	41
Fail %	12%

Blood Module Result Analysis	
Total Students Appered	349
Pass	320
Pass %	92%
Fail	29
Fail %	8%

Block-II Result Analysis	
Total Students Appered	354
Pass	336
Pass %	95%
Fail	18
Fail %	5%



Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

Note: Only First & Last page of result of Second Year MBBS, complied according to the newly designed Block-Ii (including Reproduction and CNS Modules) is being shared here for the interest of readers. This result consist of 9 pages.

DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI.
PHYSIOLOGY AGGREGATED ATTENDANCE RECORD OF FIRST YEAR MBBS
SESSION 2021-2022
(Blood & Immunity Module)

Roll No.	Student Name	Theory					Skill Lab			Total Agg	Zone of Attendance
		Lecture /LGIS		SGD/CBL		%	Total	Attn	%		
		Total	Attn	Total	Attn	%					
1	AAIMA ILYAS BAJWA	19	19	100	4	4	100	4	4	100	Excellent
2	AAMINAH MUSHTAQ	19	10	53	4	3	75	4	3	75	Yellow-II
3	AAMNA ZAMIRAD KHAN	19	16	84	4	4	100	4	3	75	Excellent
4	ADEELA SULTANA	19	12	63	4	3	75	4	4	100	Green
5	AFIFA MUKHTAR	19	13	68	4	4	100	4	3	75	Excellent
6	AIZA HAROON	19	14	74	4	4	100	4	3	75	Excellent
7	AIZA IMRAN	19	13	68	4	4	100	4	4	100	Excellent
8	AKHLAS FATIMA QURESHI	19	13	68	4	4	100	4	3	75	Excellent
9	ALEENA JAVED	19	15	79	4	4	100	4	4	100	Excellent
10	ALISHBA FARAZ	19	16	84	4	4	100	4	4	100	Excellent
11	ALISHBA HASNAT	19	14	74	4	4	100	4	3	75	Excellent
12	ALIZA KHAN	19	9	47	4	4	100	4	2	50	Yellow-II
13	ALYSHA KHALIQ	19	8	42	4	4	100	4	2	50	Yellow-II
14	AMBER LIAQUAT CHAUDHARY	19	10	53	4	4	100	4	4	100	Excellent
15	AMINA KHAN	19	16	84	4	4	100	4	3	75	Excellent
16	AMMARA KHALIL	19	9	47	4	4	100	4	2	50	Yellow-II
17	AMMARA SARWAR	19	13	68	4	3	75	4	3	75	Yellow-II
18	AMNA BATOOL	19	17	89	4	4	100	4	3	75	Excellent
19	AMNA BINTE NAEEM	19	14	74	4	1	25	4	4	100	Yellow-II
20	AMNA CHEEMA	19	13	68	4	4	100	4	4	100	Excellent
21	AMNA ZAFAR	19	0	0	4	0	0	4	0	0	Red
22	ANIQA ARSHAD CHAUDHARY	19	14	74	4	4	100	4	3	75	Excellent
23	ANIQA SAFDAR	19	12	63	4	4	100	4	4	100	Excellent
24	ANSA HABIB	19	9	47	4	3	75	4	4	100	Yellow-II
25	AQSA BIBI	19	16	84	4	3	75	4	4	100	Excellent
26	AQSA EMAN SHAHZAD	19	10	53	4	3	75	4	3	75	Yellow-II
27	AREEBA ARSHAD	19	13	68	4	3	75	4	4	100	Excellent
28	AREEBA MUSTAFA	19	13	68	4	4	100	4	4	100	Excellent
29	AREEJ ASIF AWAN	19	12	63	4	3	75	4	3	75	Yellow-II
30	AREEJ FATIMA	19	10	53	4	3	75	4	4	100	Green
31	AREEJ-UL-EMAN	19	19	100	4	4	100	4	4	100	Excellent
32	ARESHA FATIMA	19	10	53	4	3	75	4	4	100	Green
33	AROoba IFTIKHAR	19	0	0	4	0	0	4	0	0	Red
34	AROOSHA WAHEED	19	13	68	4	4	100	4	4	100	Excellent
35	ASNA ISRAR	19	13	68	4	4	100	4	3	75	Excellent
36	AYESHA AHMED	19	16	84	4	4	100	4	4	100	Excellent
37	AYESHA AJMAL	19	17	89	4	4	100	4	3	75	Excellent
38	AYESHA HANIF	19	19	100	4	4	100	4	4	100	Excellent
39	AYESHA IFTIKHAR	19	18	95	4	4	100	4	3	75	Excellent
40	AYESHA NASIR	19	13	68	4	4	100	4	4	100	Excellent
41	AYESHA NAWAZ	19	14	74	4	4	100	4	4	100	Excellent
42	AYESHA NIGHAT	19	13	68	4	4	100	4	2	50	Yellow-II
43	AYESHA SADIQA	19	11	58	4	4	100	4	2	50	Yellow-II
44	AYESHA SIDDIQA	19	15	79	4	4	100	4	4	100	Excellent
45	AQSA	19	16	84	4	4	100	4	3	75	Excellent
46	AYESHA ZAFAR	19	13	68	4	3	75	4	4	100	Excellent
47	AYZA TARIQ	19	11	58	4	3	75	4	4	100	Green
48	AZIZ FATIMA	19	13	68	4	4	100	4	3	75	Excellent

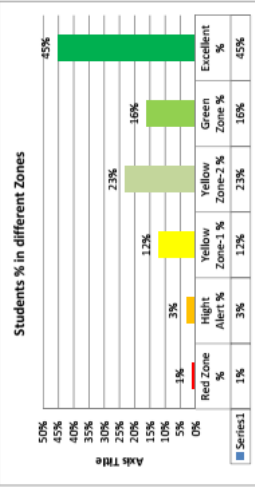
Note: Only the First & Last page of the Attendance with analysis of Blood & Immunity Module of First Year MBBS according to newly designed attendance gauge is being shared here for the interest of the reader's, this attendance comprises of 8 pages.

Roll No.	Student Name	Theory						Skill Lab			Total Agg	Zone of Attendance
		Lecture /LGIS		SGD/CBL								
		Total	Attn	%	Total	Attn	%	Total	Attn	%		
365	MR AMIR ALI	19	16	84	5	4	80	3	3	100	88	Excellent
366	MAHRUKH SAOOD BAIWA	19	0	0	5	3	60	3	3	100	53	Yellow - I
367	HAMAS UL HUDAIBIA	19	16	84	5	4	80	3	3	100	88	Excellent
368	BAREERA QAMAR UL ZAMAN	19	14	74	5	4	80	3	3	100	85	Excellent
369	MISBAH SALEEM	19	14	74	5	4	80	3	3	100	85	Excellent
370	ALI HANZA	19	17	89	5	3	60	3	3	100	83	Excellent
371	DEEMA ABDUR REHMAN	19	15	79	5	4	80	3	3	100	86	Excellent
372	IMTINAN ALI	19	12	63	5	3	60	3	3	100	74	Yellow-II
373	MUHAMMAD ARIF	19	16	84	5	3	60	3	3	100	81	Excellent
374	ASRA JAVED	19	1	5	5	3	60	3	3	100	55	Yellow - I
375	SHAMSUL ARFEEN	19	10	53	5	3	60	3	3	100	71	Yellow-II
376	MUSKAN HAMEED	19	14	74	5	3	60	3	3	100	78	Green
377	MUHAMMAD ALI KHAN	19	15	79	5	3	60	3	3	100	80	Green
	SEFAT ULLAH	19	18	95	5	3	60	3	3	100	85	Excellent
	REHMAT GUL	19	18	95	5	3	60	3	3	100	85	Excellent
	SHOAIB SHAGIRAL	19	16	84	5	3	60	3	3	100	81	Excellent
	SHAKEEL AHMAD	19	17	89	5	3	60	3	3	100	83	Excellent
	AHMED JAWAD	19	16	84	5	3	60	3	3	100	81	Excellent
	TAWFIQ ULLAH	19	15	79	5	3	60	3	3	100	80	Green
	MUDASIR	19	16	84	5	3	60	3	3	100	81	Excellent
	ILHAM AMEENI	19	17	89	5	3	60	3	3	100	83	Excellent

Guage for Attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

Students Percentage in different Zones		No. of Student	
Red Zone %	1%	5	
High Alert %	3%	13	
Yellow Zone-1 %	12%	45	
Yellow Zone-2 %	23%	87	
Green Zone %	16%	60	
Excellent %	45%	171	



Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY, RAWALPINDI.
AGGREGATED ATTENDANCE RECORD OF SECOND YEAR MBBS YEAR 2022
(CNS Module)

Roll No.	Student Name	Theory						Skill Lab			Total Avg	Zone of Attendance	
		Lecture / LGIS		SGD / CBL		Total	Attn	%	Total	Attn			%
		Total	Attn	%	Total									Attn	%
1	AAMNAH TARIQ	28	15	54	5	5	100	5	5	100	85	Excellent	
2	AAYET ZULFIQAR	28	22	79	5	5	100	5	5	100	93	Excellent	
3	ABEEHA ZAINAB	28	23	82	5	5	100	5	5	100	94	Excellent	
4	ABEER SAIF	28	20	71	5	5	100	5	5	100	84	Excellent	
5	ADEENA NAVEED	28	8	29	5	1	20	5	3	60	36	High Alert	
6	ALEMA HAMID	28	21	75	5	4	80	5	5	100	85	Excellent	
7	AIMAN AFKAR ABBASI	28	17	61	5	4	80	5	4	80	74	Yellow-2	
8	AIMAN AMIR	28	23	82	5	5	100	5	5	100	94	Excellent	
9	AIMAN ARIF	28	23	82	5	4	80	5	3	60	74	Yellow-2	
10	AIMAN MUGHAL	28	18	64	5	4	80	5	4	80	75	Green	
11	ALEEMA FATIMA	28	22	79	5	5	100	5	4	80	86	Excellent	
12	ALEENA SHAHZAD	28	20	71	5	5	100	5	4	80	84	Excellent	
14	ALISHBA SHAHID	28	14	50	5	5	100	5	5	100	83	Excellent	
15	ALIZAH FAISAL	28	23	82	5	5	100	5	5	100	94	Excellent	
16	ALIZEH NAEEM	28	22	79	5	5	100	5	4	80	86	Excellent	
17	ALVEENA KHAN LODHI	28	24	86	5	5	100	5	4	80	89	Excellent	
18	AMAIDA KHAN	28	25	89	5	4	80	5	5	100	90	Excellent	
19	AMARAH RASHID	28	24	86	5	5	100	5	4	80	89	Excellent	
20	AMBER SAJJAD	28	20	71	5	5	100	5	4	80	84	Excellent	
21	AMINA ARIF	28	25	89	5	5	100	5	5	100	96	Excellent	
22	AMMARA ATIQUE	28	19	68	5	4	80	5	4	80	76	Green	
23	AMNA ARIF	28	22	79	5	5	100	5	3	60	80	Green	
24	SYEDA AFSHEEN SALEEM	28	0	0	5	0	0	5	0	0	0	Red	
25	AMNA NOOR	28	23	82	5	5	100	5	5	100	94	Excellent	
26	AMNA REHMAN SHERWANI	28	17	61	5	4	80	5	4	80	74	Yellow-2	
27	AMNA TARIQ	28	22	79	5	5	100	5	5	100	93	Excellent	
28	ANOOSHA ADNAN	28	21	75	5	5	100	5	5	100	92	Excellent	
29	ANOOSHA QAISER	28	18	64	5	5	100	5	3	60	75	Green	
30	ANUM SAEED	28	22	79	5	5	100	5	5	100	93	Excellent	
31	AQSA MEHMOOD	28	21	75	5	5	100	5	5	100	92	Excellent	
32	AQSA TUFAIL	28	21	75	5	5	100	5	5	100	92	Excellent	
33	AREEJ GOHAR MEER	28	20	71	5	3	60	5	1	20	50	High Alert	
34	AROOF ABBASI	28	23	82	5	5	100	5	5	100	94	Excellent	
35	AROOF BIBI	28	25	89	5	4	80	5	4	80	83	Excellent	
36	AROOF KIRAN	28	28	100	5	5	100	5	5	100	100	Excellent	

Date: 4th September 2022

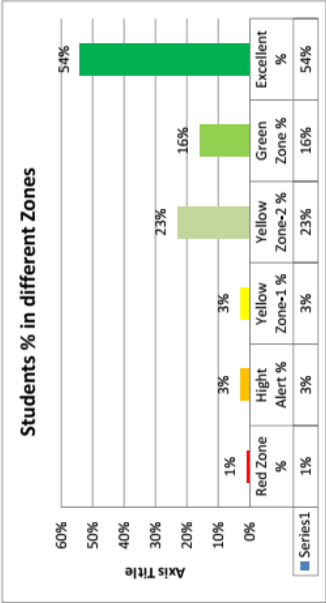
Page 1 Dr. Samia Sarwar, Head/Professor of Physiology, RMU, Rawalpindi

Roll No.	Student Name	Theory									Skill Lab			Total Avg	Zone of Attendance
		Lecture / LGIS			SGD / CBL										
		Total	Attn	%	Total	Attn	%	Total	Attn	%					
372	MUSARAT SANGTHONG	28	19	68	5	5	100	5	5	100	5	5	100	89	Excellent
373	WAFFA KHAN	28	21	75	5	5	100	5	5	100	5	5	100	92	Excellent
374	AHMED BASIM JAMIL	28	0	0	5	5	100	5	5	100	5	5	100	67	Yellow-2
375	NIDA NISAR	28	13	46	5	5	100	5	5	100	5	5	100	82	Excellent

Guage for Attendance percentage



Students Percentage in different Zones	%	No. of Students
Red Zone %	1%	4
Hight Alert %	3%	11
Yellow Zone-1 %	3%	9
Yellow Zone-2 %	23%	81
Green Zone %	16%	59
Excellent %	54%	195

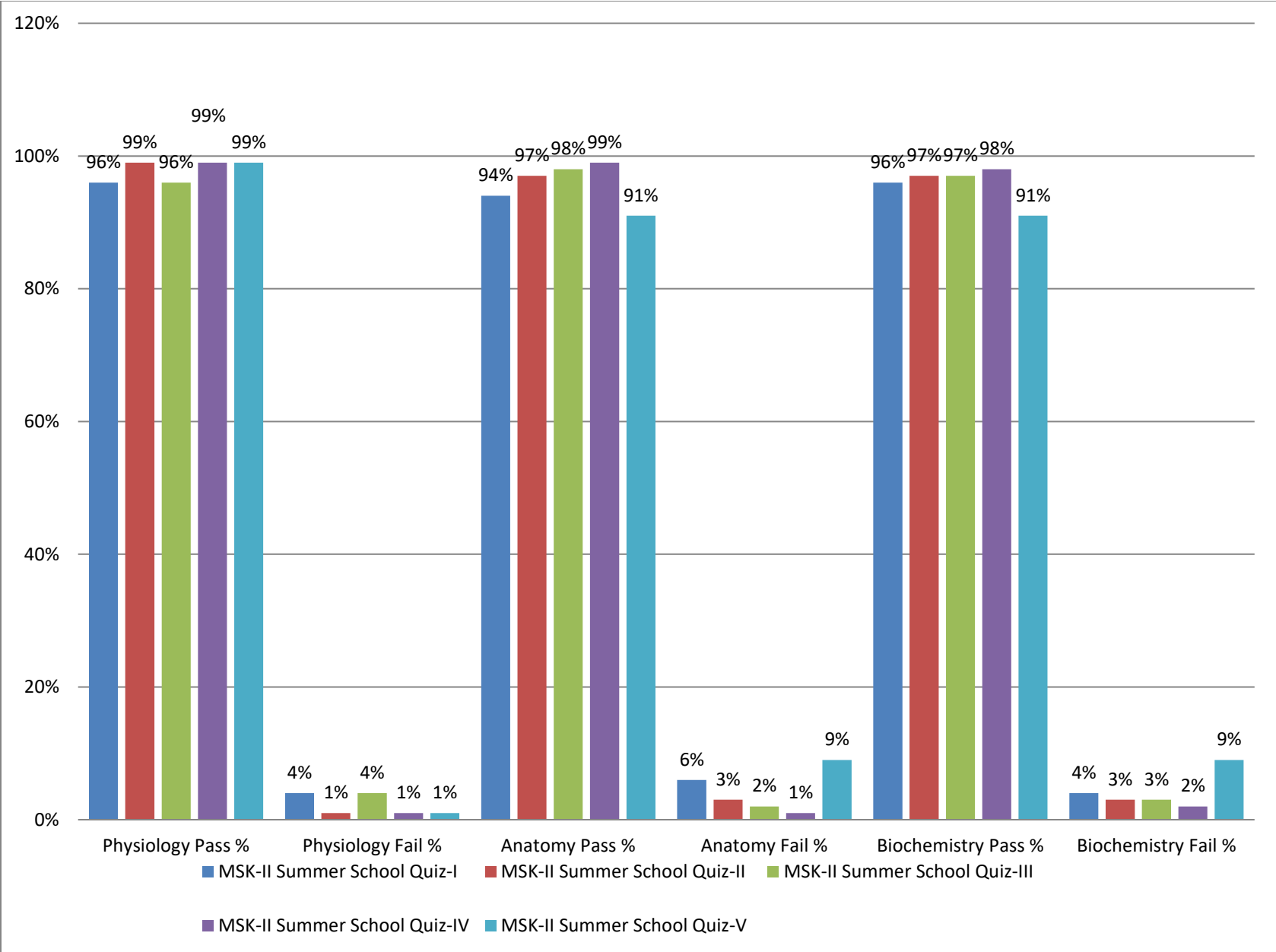


Dr. Samia Sarwar
Head / Professor of Physiology
Rawalpindi Medical University
Rawalpindi

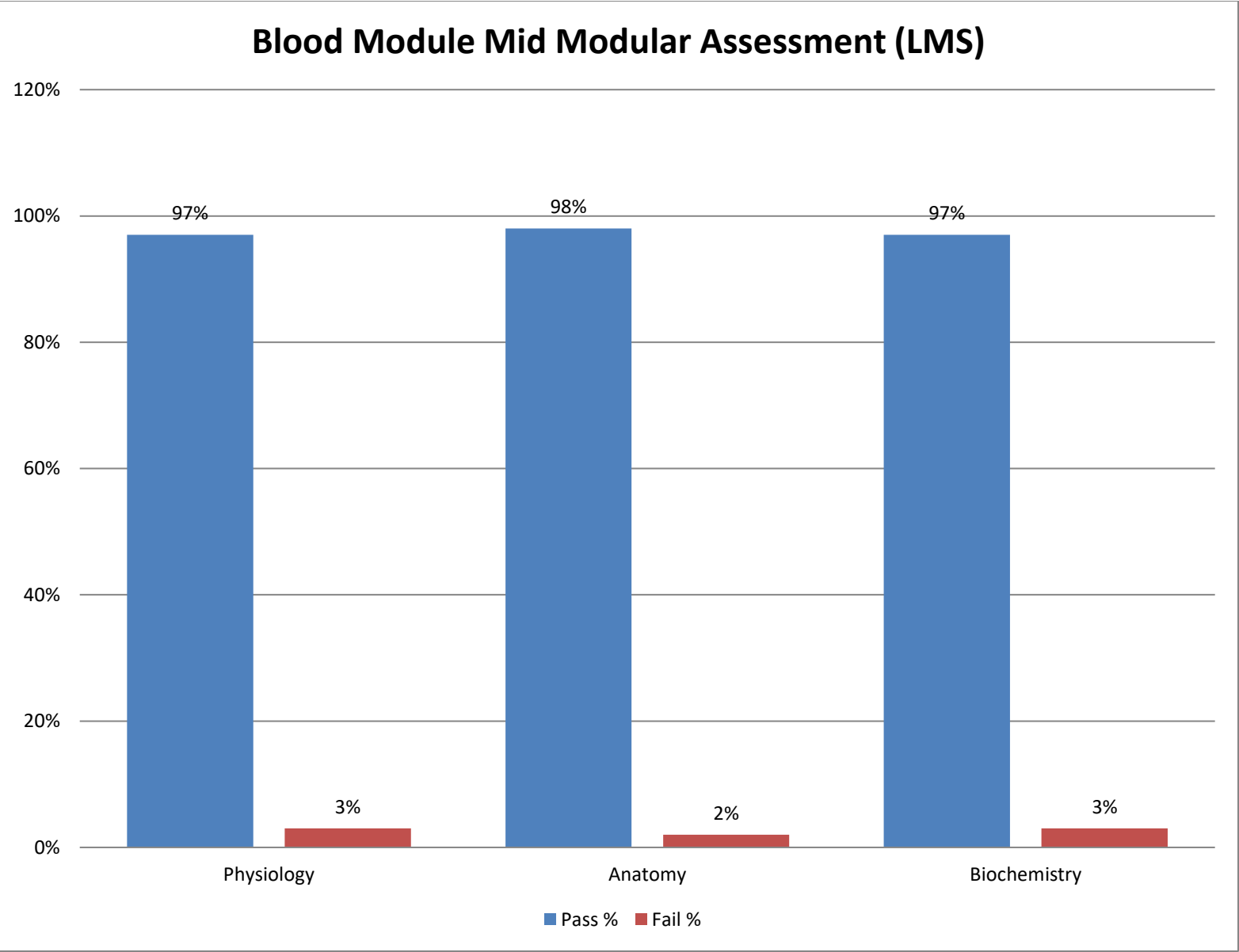
Note: Only the First & Last page of theAttendance with analysis of CNS Module of Second Year MBBS according to newly designed attendance gauge is being shared here for the interest of the reader’s, this attendance comprises of 9 pages.

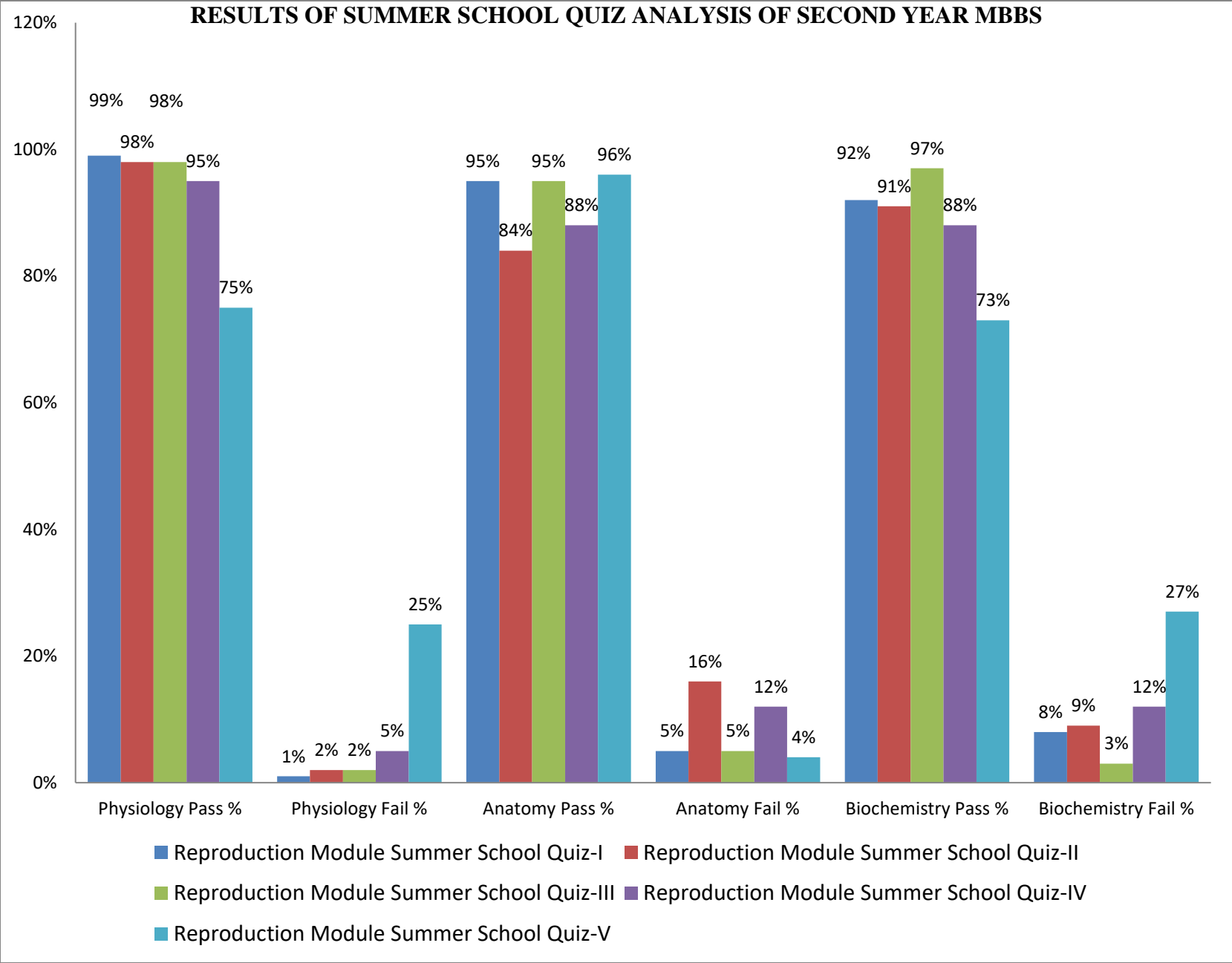
**DETAILED ANALYSIS OF QUIZ RESULTS CONDUCTED ON LEARNING MANAGEMENT SYSTEM (LMS) FOR FIRST & SECOND
YEAR MBBS**

RESULTS OF SUMMER SCHOOL QUIZ ANALYSIS OF FIRST YEAR MBBS

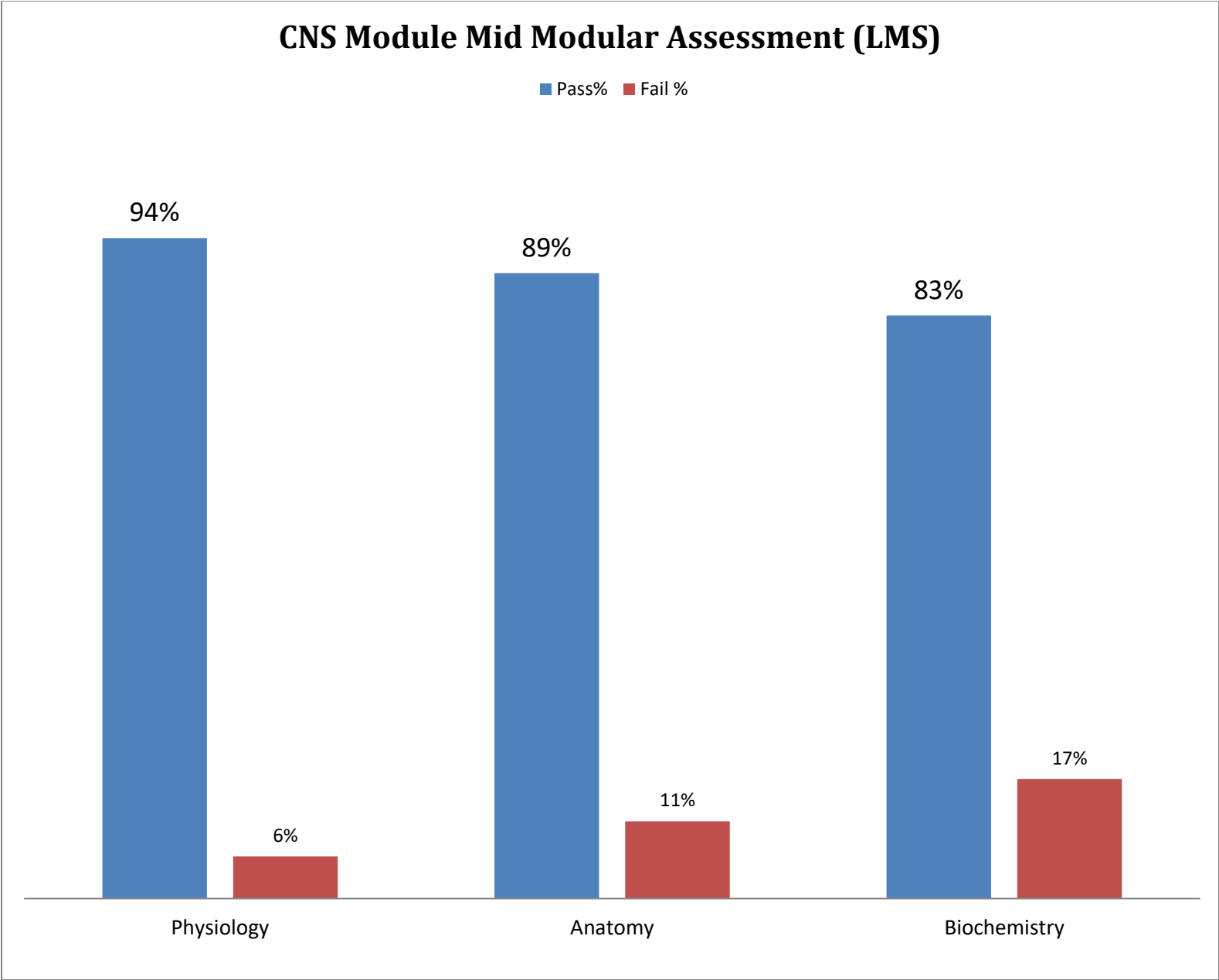


MID MODULAR RESULT ANALYSIS OF BLOOD MODULE FOR FIRST YEAR MBBS





MID MODULAR RESULT ANALYSIS OF CNS MODULE FOR SECOND YEAR MBBS



Students Academic Record/Monitoring Card for Physiology



DEPARTMENT OF PHYSIOLOGY
RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI
FIRST YEAR MBBS

Class Roll No. _____ University Roll No. _____

Batch: _____ Session: _____

Name: _____

Date of Birth: _____ Religion: _____

Student Contact # _____

Student's Email Address: _____

Date of Admission: _____

Boarder / Non Boarder: _____

Temporary Address: _____

Permanent Address: _____

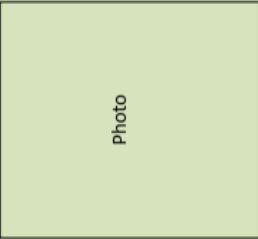
Guardian's Detail:

Father's Name: _____ Occupation: _____

Mother's Name: _____ Occupation: _____

Father's Contact No. _____

Guardian's Contact No. _____



Block – I		From:		To:	
Modular Assessment	Theory	Viva		Total	Continuous Internal Assessment (CIA) _____ % weightage
	Medical Knowledge (MK)				
Foundation Module				Marks	
MSK-I Module				Percentage	
Block Assessment	Theory (MK)	OSPE		Total	Category of CIA
		Skill / psychomotor			
Block – I Assessment					

Block – II		From:		To:			
Modular Assessment	Theory	Viva		Total	Continuous Internal Assessment (CIA) _____ % weightage	Attendance Record	
	Medical Knowledge (MK)					Percentage	Category
MSK-II Module					Marks		
Blood & Immunity Module					Percentage		
Block Assessment	Theory (MK)	OSPE		Total	Category of CIA		
		Skill / psychomotor					
Block – II Assessment							

Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

*75% is eligibility criteria for appearing in professional examination.

Block – II		From:		To:	
Modular Assessment	Theory	Viva		Total	Continuous Internal Assessment (CIA) _____ % weightage
	Medical Knowledge (MK)		Attendance Record		
				Percentage	Category
CVS Module				Marks	
Respiration Module				Percentage	
Block Assessment	Theory	OSPE		Total	
	(MK)	Skill / psychomotor			
Block – III Assessment				Category of CIA	

Send – Up Examination		From:		To:	
Send – Up Examination	Theory		Viva	OSPE	Total
	Block – I				
	Block – II				
	Block – III				
Grand Total					

Continuous Internal Assessment (CIA)

Total marks of CIA obtained including all three blocks (Block-I, Block-II & Block-III)	Final percentage of CIA achieved	Final category of CIA achieved

Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	* 75 – 80%	81 - 100%

*75% is eligibility criteria for appearing in professional examination.

ATTENDANCE RECORD

Module / Block	Lecture	Skill Lab	CBL	SGD / Tutorial	Aggregate	Category
Foundation Module						
MSK-I Module						
Block - I						
MSK-II Module						
Blood & Immunity Module						
Block – II						
CVS Module						
Respiration Module						
Block - III						
Total Aggregate						

Gauge for Continuous Internal Assessment (CIA)

Red Zone	High Alert	Yellow Zone	Green Zone	Excellent	Extra Ordinary
0 - 25%	26 - *50%	51 - 60%	61 – 70%	71 – 80%	81 - 100%

*50% and above is Passing Marks.

Gauge for attendance percentage

Red Zone	High Alert	Yellow Zone-1	Yellow Zone-2	Green Zone	Excellent
0 - 25%	26 - 50%	51 - 60%	61 – 74%	*75 – 80%	81 - 100%

*75% is eligibility criteria for appearing in professional examination.

Designed By
Prof. Dr. Samia Sarwar
20th May 2022

Dr. Samia Sarwar
Head / Professor of Physiology
Dean Allied Health Sciences
Rawalpindi Medical University
Rawalpindi

11. Section: L
GENERAL FORMAT OF LECTURES & THEORY PAPER (MCQS, SEQS) FOR
PRE CLINICAL, PARA CLINICAL & CLINICAL SUBJECTS IN MBBS COURSE

Model Format for Lectures of Pre Clinical Subjects (Physiology, Anatomy, Biochemistry) for 1st& 2nd Year MBBS

S.No	Headings	Approximate %
1	Title	
2	Learning Objectives	
3	Horizontal Integration	5%+5%=10%
4	Core Concepts of the topic	60%
5	Vertical Integration	20%
6	Research	3%
7	Ethics	2%

Model Format for Lectures of Para Clinical Subjects (Pharmacology, Forensic Medicine, Pathology, Community Medicine) for 3rd& 4th Year MBBS

S.No	Headings	Approximate %
1	Title	
2	Learning Objectives	
3	Spiral Integration / Revisit	5%
4	Horizontal Integration	10%
5	Core Concepts of the topic	50%
7	Vertical Integration	20%
8	Research	10%
9	Ethics	5%

Model Format for Lectures of Clinical Subjects (Medicine, Surgery, Gynecology &Obstetrics, ENT, Eye) for Final Year MBBS

S.No	Headings	Approximate %
1	Title	
2	Learning Objectives	
3	Spiral Integration / Revisit	5%
4	Horizontal Integration	10%
5	Core Concepts of the topic	35%
7	Vertical Integration	30%
8	Research	15%
9	Ethics	5%

Model Format for MCQS of Pre Clinical Subjects (Physiology, Anatomy, Biochemistry)

Sr. #	Domains of Assessment	Level of Integration	Percentage
1.	Physiology, Anatomy, Biochemistry	Horizontal Integration	5%+5%=10%
2.	Core Concepts	Core Concepts	60%
3.	Clinical Concepts	Vertical Integration	20%
4.	Research Year 1 & 2	Longitudinal running modules	5%
5.	Ethics Year 1 & 2	Longitudinal running modules	5%

Model Format for SEQs of Pre Clinical Subjects (Physiology, Anatomy, Biochemistry)

Sr. #	Domains of Assessment	Level of Integration	Percentage
6.	Physiology, Anatomy, Biochemistry	Horizontal Integration	5%+5%=10%
7.	Core Concepts	Core Concepts	70%
8.	Clinical Concepts	Vertical Integration	20%

Model Format for MCQS of Para Clinical Subjects (Pharmacology, Forensic Medicine, Pathology, Community Medicine)

Sr. #	Domains of Assessment	Level of Integration	Percentage
1.	Revisit of Anatomy, Physiology & Biochemistry	Spiral Integration	5%
2.	Pharmacology, Forensic Medicine & General Pathology (For 3 rd Year only)	Horizontal Integration	5%+5%=10%
	Community Medicine& Special Pathology (For 4 th Year only)	Horizontal Integration	10%
3.	Core Concepts	Core Concepts	45%
4.	Clinical Concepts	Vertical Integration	25%
5.	Research Year 3 & 4	Longitudinal running modules	10%
6.	Ethics Year 3 & 4	Longitudinal running modules	5%

Model Format for SEQs of Para Clinical Subjects (Pharmacology, Forensic Medicine, Pathology, Community Medicine)

Sr. #	Domains of Assessment	Level of Integration	Percentage
1.	Pharmacology, Forensic Medicine, Pathology, Community Medicine	Horizontal Integration	5%+5%=10%
2.	Core Concepts	Core Concepts	70%
3.	Clinical Concepts	Vertical Integration	20%

Model Format for MCQS of Clinical Subjects (Medicine, Surgery, Gynecology & Obstetrics, ENT, Eye)

Sr. #	Domains of Assessment	Level of Integration	Percentage
1.	Revisit of Anatomy, Physiology & Biochemistry, Pharmacology, Forensic Medicine, Pathology & Community Medicine	Spiral Integration	10%
2.	Medicine, Surgery, Gynecology & Obstetrics, ENT, Eye	Horizontal Integration	20%
3.	Core Concepts	Core Concepts	40%
4.	Research Final Year	Longitudinal running modules	20%
5.	Ethics Final Year	Longitudinal running modules	10%

Model Format for SEQs of Clinical Subjects (Medicine, Surgery, Gynecology & Obstetrics, ENT, Eye)

Sr. #	Domains of Assessment	Level of Integration	Percentage
1.	Medicine, Surgery, Gynecology & Obstetrics, ENT, Eye	Horizontal Integration	20%
2.	Core Concepts	Core Concepts	80%

OFFICE OF THE HEAD OF PHYSIOLOGY DEPARTMENT
CLINICALLY ORIENTED & INTEGRATED MODULAR CURRICULUM SEND UP / FIRST PROFESSIONAL
TABLE OF SPECIFICATION OF ASSESSMENT OF THEORY / OSPE & VIVA VOCE FOR THE SUBJECT OF PHYSIOLOGY
BATCH 49 FIRST YEAR MBBS

Total Marks of Send Up / First Professional = 231 Marks (70% of the Total Marks, 30% is CIA)

		ASSESSMENT OF THEORY COMPONENT										
Block	Sr. #	Name of Module	MCQs (Total Marks 41)		Domain of cognition			SEQs (10x8=80Marks) (8 Marks each)	Domain of cognition	Total Marks (MCQs+SEQs+ viva)		
Block – 1	Module -1	Foundation	5	10	C1	2	C1= 32% C2= 41 % C3= 27 % Total= 100%	1	C1 = 30% C2 = 50% C3 = 20% Total = 100%	Total: 26 marks Percentage: 22%		
					C2	2						
					C3	1						
	Module -2	Musculoskeletal – I	5		C1	2		1				
					C2	2						
					C3	1						
Block – 2	Module -3	Musculoskeletal – II	6	13	C1	2	2	C1 = 30% C2 = 50% C3 = 20% Total = 100%	Total: 45 marks Percentage: 37%			
					C2	2						
					C3	2						
	Module -4	Blood & Immunity	7		C1	2	2					
					C2	3						
					C3	2						
Block – 3	Module -5	Cardiovascular system	10	18	C1	3	2	C1 = 30% C2 = 50% C3 = 20% Total = 100%	Total: 50 marks Percentage: 41%			
					C2	4						
					C3	3						
	Module -6	Respiratory	8		C1	2	2					
					C2	4						
					C3	2						
Grand Total Marks of Theory Assessment				MCQs = 41 + SEQs = 80=121 Marks								

TABLE OF SPECIFICATION VIVA VOCE COMPONENT			
Viva Voce by internal Examiner = 30 Marks		Total Marks of Viva voce = 60 Marks	
Viva Voce by External Examiner = 30 Marks			
VIVA FOR INTERNAL & EXTERNAL EACH			
Internal		External	
Block- I = 7 (22%)		Block- I = 7 (22%)	
Block- II = 11 (37%)		Block- II = 11 (37%)	
Block- III= 12 (41%)		Block- III= 12 (41%)	
TABLE OF SPECIFICATION OSPE / SKILL LAB COMPONENT			
Sr. #	Item	Marks	Station
1	Procedure writing of practical	10 Marks	Not applicable
2	Practical Copy	5 Marks	Station # Zero
3	Sketch Book	5 Marks	
4	15 OSPE Stations	2 Marks Each (2x15=30)	15 Stations
Grand Total of OSPE		Total Marks = 50	Total Station=15

SYLLABUS FOR WRITTEN ASSESSMENT & VIVA VOCE FOR SENDUP / FIRST PROFESSIONAL OF FIRST YEAR MBBS BATCH -49

Module Name	Content
Block I	
Foundation Module	Functional Organization of the Human Body and Control of the “Internal Environment
	The Cell and Its Functions
	Genetic Control of Protein Synthesis, Cell Function, and Cell Reproduction
	Transport of Substances Through the Cell Membrane
Musculoskeletal-I Module	Nerve physiology, membrane potential & action potential,
	Neuromuscular junction
Block II	
Musculoskeletal-II Module	Contraction of Skeletal Muscle, Excitation of Skeletal Muscle
	Contraction and Excitation of Smooth Muscle
	Cardiac muscle, action potential and excitation contraction coupling in cardiac muscle, (chapter 9 Guyton & Hall 14 th edition, excluding cardiac cycle)Specialized excitatory and conductive system of the heart
	Comparison between Skeletal, Smooth &Cardiac Muscles
Blood & Immunity Module	Red Blood Cells, Anemia, and Polycythemia
	Resistance of the Body to Infection: I. Leukocytes, Granulocytes, the Monocyte-Macrophage System, and Inflammation
	Resistance of the Body to Infection: II. Immunity and Allergy
	Blood Types; Transfusion; Tissue and Organ Transplantation, Hemostasis and Blood Coagulation
	Skin & Temperature regulation
Block III	
CVS Module	The Heart as a Pump and Function of the Heart Valves& regulation of heart pumping, cardiac cycle
	Electrocardiogram, its interpretation & its abnormalities
	Medical Physics of Pressure, Flow, and Resistance, Vascular Distensibility and Functions of the Arterial and Venous Systems
	Microcirculation and the Lymphatic System, Local and Humoral Control of Blood Flow by the Tissues
	Nervous Regulation of the Circulation, and Rapid &Long-Term Control of Arterial Pressure, hypertension
	Cardiac Output, Venous Return, and Their Regulation
	Muscle Blood Flow and Cardiac Output During Exercise; the Coronary& regional circulation
	Cardiac Failure, Circulatory Shock
	Heart Valves and Heart Sounds; Dynamics of Valvular and Congenital Heart Defects
Respiration Module	Pulmonary Ventilation, Pulmonary Volumes and Capacities, Alveolar Ventilation, Functions of the Respiratory Passageways
	Pulmonary Circulation, Pulmonary Edema, Physical Principles of Gas Exchange; Diffusion of Oxygen and Carbon Dioxide Through the Respiratory Membrane
	Transport of Oxygen and Carbon Dioxide in Blood and Tissue Fluids
	Regulation of Respiration
	Useful Methods for Studying Respiratory Abnormalities, Respiratory Insufficiency, Hypoxia & Oxygen Therapy, Hypercapnia & Artificial Respiration
	Respiratory changes during Exercise, Aviation, Space & Deep-Sea Diving Physiology

SYLLABUS FOR OSPE FOR SENDUP / FIRST PROFESSIONAL OF FIRST YEAR MBBS BATCH -49

Block	OSPE Station No	Topic	Knowledge (C1, C2, C3)	Skill (P3)	Attitude (A3)	Sub division of OSPE Stations.	Marks
Block – I (Foundation & MSK-I)	Zero	Practical note book / sketch copy	30%	50%	20%	Practical copy	5
						sketch book	5
	1	Introduction to compound microscope				1 A	1
		Apparatus identification (Introduction to Neubauer’s chamber, Red Blood Cell (RBC) pipettes& White Blood Cell (WBC) pipette				1 B	1
	2	Introduction to Wintrobe&Westergen tube				2 A	1
		Determination of Hematocrit (HCT)				2 B	1
	3	Apparatus identification (Introduction to centrifuge machine)				3 A	1
						3 B	1
	4	Determination of Hemoglobin concentration				4 A	1
						4 B	1
5	Determination of Erythrocyte Sedimentation Rate (ESR)	5 A	1				
		5 B	1				
Total						10+10=20	
Block – II (MSK-II & Blood Module)	6	Determination of Total leukocyte Count (TLC)	30%	50%	20%	6 A	1
		Estimation of Red Blood Cell (RBC) count				6 B	0.5
		Determination of platelet count				6 C	0.5
	7	Determination of Differentiate leukocyte Count (DLC)				7 A	1
						7 B	1
	8	Determination of ABO blood groups				8 A	1
						Determination of Rh blood groups	8 B	1
	9	Determination of Clotting Time (CT)				9 A	1
						Determination of Bleeding Time(BT)	9 B
	10	Recording of body temperature				10 A	1
Demonstration of Triple response			10 B	1			
Total						10	

Block – III (CVS & Respiration Module)	11	Determination of arterial pulse	30%	50%	20%	11 A	1
		Determination of Jugular Venous Pulse (JVP)				11 B	1
	12	Clinical examination of chest for CVS				12 A	1
		Clinical examination of chest for respiration				12 B	0.5
		Cardio Pulmonary Resuscitation (CPR)				12 C	0.5
	13	Determination of Blood Pressure (BP)				13 A	1
		Effect of exercise and posture on arterial blood pressure				13 B	1
	14	Recording of electrocardiography (ECG)				14 A	1
						14 B	1
	15	Measurement of different lung volume and capacities with help of spirometer				15 A	1
		Recording of normal and modified movement of respiration (Stethography)				15 B	1
Total						10	

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Date: 12th November 2022

SECOND YEAR MBBS

CLINICALLY ORIENTED & INTEGRATED MODULAR CURRICULUM SEND UP / SECOND PROFESSIONAL

TABLE OF SPECIFICATION OF ASSESSMENT OF THEORY / OSPE & VIVA VOCE FOR THE SUBJECT OF PHYSIOLOGY BATCH 48 SECOND YEAR MBBS

Total Marks of Send Up / Second Professional = 231 Marks (70% of the Total Marks, 30% is CIA)

ASSESSMENT OF THEORY COMPONENT										
Block	Sr. #	Name of Module	MCQs (Total Marks 41)		Domain of cognition			SEQs (10x8=80Marks) (8 Marks each)	Domain of cognition	Total Marks (MCQs+SEQs+ viva)
Block – 1	Module -1	GIT	5	12	C1	2		1		Total: 36 marks Percentage: 29%
					C2	2				
					C3	1				
	Module -2	Renal	7		C1	2		2		
					C2	3				
					C3	2				
Block – 2	Module -3	Reproduction	6	16	C1	2	C1= 32% C2= 41 % C3= 27 % Total= 100%	1	C1 = 30% C2 = 50% C3 = 20% Total = 100%	Total: 40 marks Percentage: 33%
					C2	2				
					C3	2				
	Module -4	CNS	10		C1	3		2		
					C2	4				
					C3	3				
Block – 3	Module -5	Special Senses	5	13	C1	2	2		Total: 45 marks Percentage: 37%	
					C2	2				
					C3	1				
	Module -6	Endocrinology	8		C1	2	2			
					C2	4				
					C3	2				
Grand Total Marks of Theory Assessment						MCQs = 41 + SEQs = 80=121 Marks				

TABLE OF SPECIFICATION VIVA VOCE COMPONENT			
Viva Voce by internal Examiner = 30 Marks		Total Marks of Viva voce = 60 Marks	
Viva Voce by External Examiner = 30 Marks			
VIVA FOR INTERNAL & EXTERNAL EACH			
Internal		External	
Block- I = 9 (29%)		Block- I = 9 (29%)	
Block- II = 10 (33%)		Block- II = 10 (33%)	
Block- III= 11 (37%)		Block- III= 11 (37%)	
TABLE OF SPECIFICATION OSPE / SKILL LAB COMPONENT			
Sr. #	Item	Marks	Station
1	Procedure writing of practical	10 Marks	Not applicable
2	Practical Copy	5 Marks	Station # Zero
3	Sketch Book	5 Marks	
4	15 OSPE Stations	2 Marks Each (2x15=30)	15 Stations
Grand Total of OSPE		Total Marks = 50	Total Station=15

SYLLABUS FOR WRITTEN ASSESSMENT & VIVA VOCE FOR SENDUP / SECOND PROFESSIONAL OF SECOND YEAR MBBS BATCH -48

Module Name	Content
GIT module	General Principles of Gastrointestinal Function—Motility, Nervous Control, and Blood Circulation
	Propulsion and Mixing of Food in the Alimentary Tract
	Secretory Functions of the Alimentary Tract, Digestion and Absorption in the Gastrointestinal Tract
	Physiology of Gastrointestinal Disorders
Renal Module	The Body Fluid Compartments: Extracellular and Intracellular Fluids; Edema
	Urine Formation by the Kidneys: Glomerular Filtration, Renal Blood Flow, and Their Control, Tubular Reabsorption and Secretion
	Urine Concentration and Dilution; Regulation of Extracellular Fluid, Osmolarity and Sodium Concentration
	Renal Regulation of Potassium, Calcium, Phosphate, and Magnesium; Integration of Renal Mechanisms for Control of Blood, Volume and Extracellular Fluid Volume, Acid-Base Regulation
	Diuretics, Kidney Diseases
Block II	
Reproduction Module	Reproductive and Hormonal Functions of the Male
	Female Physiology Before Pregnancy and Female Hormones
	Pregnancy and Lactation
	Fetal and Neonatal Physiology
CNS Module	Organization of the Nervous System, Basic Functions of Synapses, and Neurotransmitters
	Sensory Receptors, Neuronal Circuits for Processing Information
	Somatic Sensations: I. General Organization, the Tactile and Position Senses, Sensory pathways
	Somatic Sensations: II. Pain, Headache, and Thermal Sensations, and their pathways
	Motor Functions of the Spinal Cord; the Cord Reflexes
	Cortical and Brain Stem Control of Motor Function and vestibular sensation & maintenance of equilibrium
	Contributions of the Cerebellum and Basal Ganglia to Overall Motor Control
	Cerebral Cortex, Intellectual Functions of the Brain, Learning, and Memory
	Behavioral and Motivational Mechanisms of the Brain—The Limbic System and the Hypothalamus
	States of Brain Activity—Sleep, Brain Waves, Epilepsy, Psychoses
	The Autonomic Nervous System and the Adrenal Medulla
	Cerebral Blood Flow, Cerebrospinal Fluid, and Brain Metabolism
Block III	
Special Senses Module	The Eye: I. Optics of Vision
	The Eye: II. Receptor and Neural Function
	The Eye: III. Central Neurophysiology of Vision

Endocrinology Module	The Sense of Hearing
	The Chemical Senses - Taste and Smell
	Introduction to Endocrinology
	Pituitary Hormones and Their Control by the Hypothalamus
	Thyroid Metabolic Hormones
	Adrenocortical Hormones
	Insulin, Glucagon, and Diabetes Mellitus
	Parathyroid Hormone, Calcitonin, Calcium and Phosphate Metabolism, Vitamin D, Bone, and Teeth

SYLLABUS FOR OSPE FOR SENDUP / SECOND PROFESSIONAL OF SECOND YEAR MBBS BATCH -48

Block	OSPE Station No	Topics	Knowledge (C1, C2, C3)	Skill (P3)	Attitude (A3)	Sub division of OSPE Stations.	Marks
Block – I (GIT & Renal)	Zero	Practical note book / sketch copy	30%	50%	20%	Practical copy	5
						sketch book	5
	1	Examination of sense of taste				1 A	1
						1 B	1
	2	Examination of sense of smell				2 A	1
						2 B	1
	3	Examination of superficial reflexes				3 A	1
						3 B	1
	4	Examination of deep reflexes				4 A	1
						4 B	1
5	Estimation of specific gravity of urine	5 A	1				
		5 B	1				
Total							10+10= 20
Block – II (Reproduction & CNS Module)	6	Examination of sensory system	30%	50%	20%	6 A	1
						6 B	1
	7	Examination of motor system				7 A	1
						7 B	1
	8	Examination of cerebellar functions				8 A	1
						8 B	1
	9	Examination of cranial nerves				9 A	1
						9 B	1
	10	Performance of pregnancy test				10 A	1
						10 B	1

						Total	10
Block – III (Special Senses & Endocrinology)	11	Performance of hearing test / vestibular functions (VIII nerve)	30%	50%	20%	11 A	1
						11 B	1
	12	Determination of field of vision				12 A	1
						12 B	1
	13	Estimation of visual acuity				13 A	1
						13 B	1
	14	Examination pupillary reactions / Eye movements (III, IV, VI nerves)				14 A	1
						14 B	1
	15	Checking for color vision				15 A	1
		Ophthalmoscopy				15 B	1
						Total	10

Date: 12th November 2022

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The
End