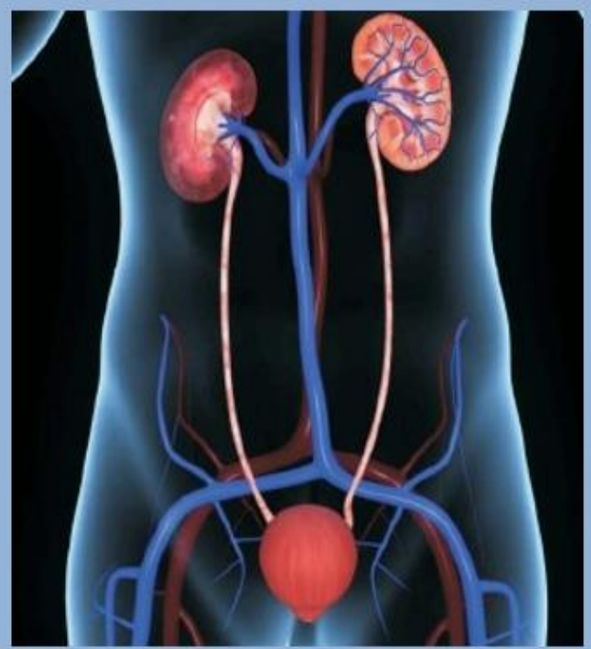
Renal Module



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

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Dr Tehzeeb, Dr Samia Sarwar, Dr Ifra Saeed, Dr Tehmina Qamar, Dr Sidra Hamid	2019-2020	2nd	Developed for second year MBBS. Horizontally and vertically integrated Learning objectives updated
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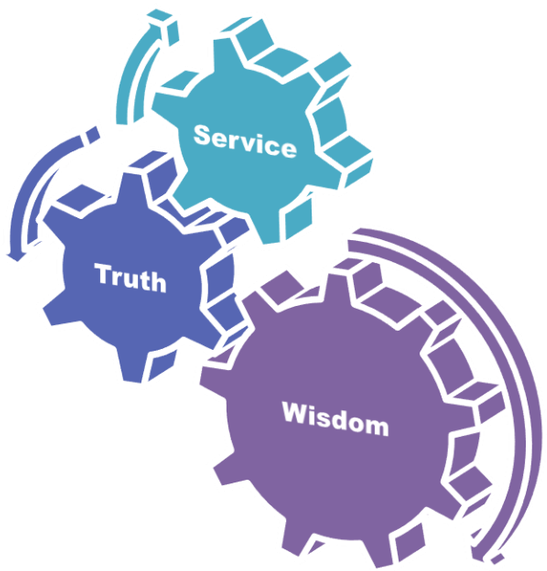
University Moto, Vision, Values & Goals

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:

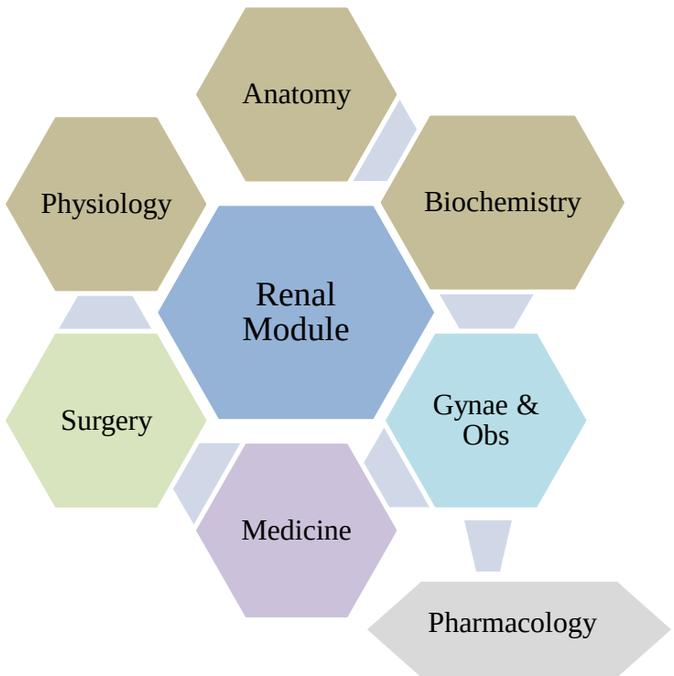
- Provide thorough grounding in the basic theoretical concepts underpinning the practice of medicine.
- Develop and polish the skills required for providing medical services at all levels of the Health care delivery system.
- Help you attain and maintain the highest possible levels of ethical and professional 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 2024

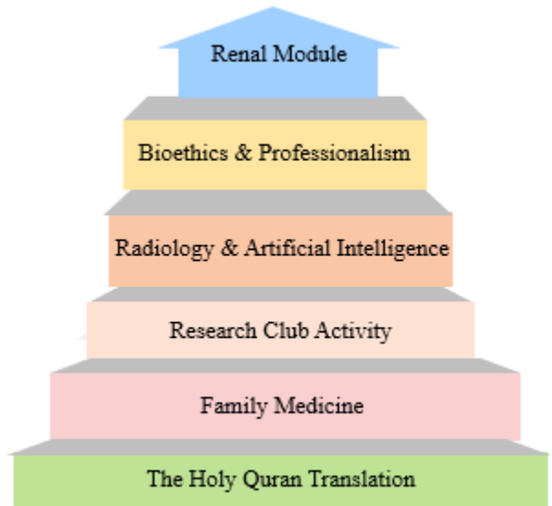
Study Guide

Renal Module

Integration of Disciplines in Renal Module



Spiral / General Education Cluster Courses



Discipline wise Details of Modular Content

Block	Module	Embryology	Histology	Gross Anatomy
I	• Anatomy	Embryology • Kidney • Ureter • Urinary Bladder • Urethra	Histology • Kidney • Ureter • Urinary Bladder	• Posterior Abdominal Wall & Organs of Urinary System
	• Biochemistry	• Amino Acid Pool Protein Turn Over Nitrogen Balance & transport of Amino Acid, • Urea Cycle & Disorder • Amino Acid Metabolism • Ammonia Toxicity • Acid Base in Balance • Serum Electrolyte		
	• Physiology	• Body Fluid Compartments, Volume & osmolarity of ECF NICF • Physiology of Renal System, GFR • Regulation of GFR & RBF • Tubular Reabsorbtion & Scretion • Micturition Reflex & Abnomalities • Acid base balance		
	Spiral Courses			
	• The Holy Quran Translation	• Imaniat 3 • Ibadat 3 • Imaniat 4 • Ibadat 4		
	• Bioethics & Professionalism	• Ethical principles		
	• Radiology & Artificial Intelligence	• Prenatal ultrasonography • Contrast Nephropathy		
	• Research Club Activity	• Questionnaire Development (Practical Session-II) • Session on data analysis (Practical Session-III) • Manuscript writing (Practical Session-IV)		
	• Family Medicine	• Renal Failure		

	Vertical Integration	
	Clinically content relevant to Renal module • Acute renal failure (Medicine) • Potassium imbalance and its management (Medicine) • CRF & Rehabilitation of patient with CRF(Medicine) • Hydronephrosis / Pyonephrosis (Surgery) • Investigations of urinary tract (Surgery) • Renal calculi (Surgery) • Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence) (Obstetrics & Gynecology) • Introduction to diuretics (Pharmacology)	
	Entrepreneurship	
	• Ideate Initial Idea	
	Early Clinical Exposure (ECE)	
	• Clinical Rotations	• Cases of Renal failure • Dialysis • Renal Transplant • Ultrasound of Kidney • Plain X-Ray • KUB Nephrotic Syndrome

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Renal Module Team

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

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Ifra Saeed
3.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
4.	Chairperson Physiology	Prof. Dr. Samia Sarwar
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9.	Focal Person Pharmacology	Dr. Zunera Hakim
10.	Focal Person Pathology	Dr. Asiya Niazi
11.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
12.	Focal Person Community Medicine	Dr. Afifa Kulsoom
13.	Focal Person Quran Translation Lectures	Dr. Uzma Zafar
14.	Focal Person Family Medicine	Dr. Sadia Khan

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2.	DME Focal Person	Dr. Farzana Fatima
3.	Co-coordinator	Dr. Ali Raza (Senior Demonstrator of Anatomy)
4.	Co-Coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
5.	Co-coordinator	Dr. Uzma Kiyani (Senior Demonstrator of Physiology)

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2.	Assistant Director DME	Dr Farzana Fatima
3.	Implementation Incharge 1st & 2nd Year MBBS & Director DME	Prof. Dr. Ifra Saeed Dr. Farzana Fatima
4.	Editor	Muhammad Arslan Aslam

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. Where as prostate gland is also is 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 implication 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 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)

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- 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.

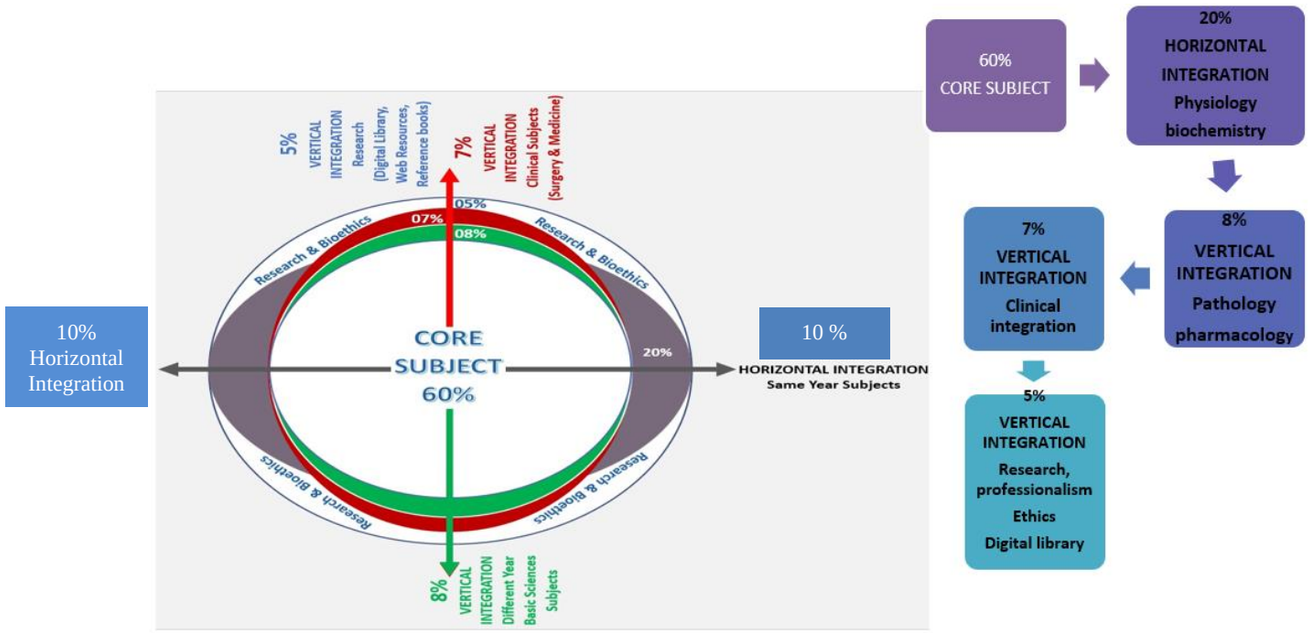


Figure 1. Prof Umar's Model of Integrated Lecture

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 (Core Subjects)

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 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	C2		
	• 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 metanephrogenicblastema.	C1		
	• Understand the bio-physiological aspects of kidney & ureter development	C2		
	• Enumerate Congenital anomalies of kidney and ureter.	C3		
	• Correlate the clinical conditions (polycystic kidney, horseshoe shaped kidney)	C3		
	• Understand the preventive and curative health care measures	C3		
	• Practice the principles of Bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		
Development of urinary bladder & urethra	• Describe the development of urinary bladder	C2	LGIS	SAQ MCQ VIVA
	• Understand the bio-physiological aspects of bladder development	C2		
	• Discuss the parts of urethra in males and females	C2		
	• Describe development of male urethra	C2		
	• Describe development of female urethra	C2		
	• Discuss the anomalies related to urethra & bladder development	C3		
	• Correlate the clinical conditions	C3		
	• Understand the preventive and curative health care measures	C3		
	• Practice the principles of Bioethics	C3		
	• Apply strategic use of AI in health care	C3		
	• Read relevant research article	C3		

Histology				
Histology of kidney I (Cortex & Medulla)	• Discuss the structural components of the nephron.	C2	LGIS	SAQ MCQ VIVA
	• Discuss the histology of filtration barrier.	C2		
	• Understand the bio-physiological aspects of filtration	C2		
	• Distinguish the key microscopic components of the renal cortex and medulla.	C2		
	• Differentiate the histological appearance of proximal tubule, loop of Henley, distal convulated tubule and collecting duct.	C2		
	• Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply strategic use of AI in health care • Read relevant research article	C3		
Histology of kidney II (Collecting System)	• Enumerate the component cells of the juxta glomerular apparatus.	C1	LGIS	SAQ MCQ VIVA
	• Discuss the component cells of the juxtaglomerular apparatus	C2		
	• Discuss the effect of diabetes & hypertension on glomerular filtration rate	C2		
	• Understand the effect of hypertension on renin angiotensin release	C3		
	• Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply strategic use of AI in health care • Read relevant research article	C3		
Histology of Urinary bladder	• Describe histological characteristics of urinary bladder.	C2	LGIS	SAQ MCQ VIVA
	• Explain the concept of umbrella cells and Uroplakins.	C2		
	• Explain the concept of internalization	C2		
	• Understand the bio-physiological effects of urinary epithelium	C2		
	• Compare the histological changes of empty and full bladder.	C2		
	• Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply strategic use of AI in health care • Read relevant research article	C3		

Histology of ureter & urethra	• Describe the microscopic structure of ureter	C2	LGIS	SAQ MCQ VIVA
	• Discuss the histological features of urethra	C2		
	• Distinguish the transition in epithelium in different types of urethra	C2		
	• Correlate the clinical conditions	C3		
	• Understand the preventive and curative health care measures			
	• Practice the principles of Bioethics			
	• Apply strategic use of AI in health care			
	• Read relevant research article			

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.	• Fluid Intake/Output balance • Body fluid compartments • Constituents of ECF & ICF • Concept of Osmolarity, Osmolality,Osmosis and Osmotic pressure	C1 C2 C2 C1	LGIS	SAQ MCQ VIVA
Physiology of Renal system,Glomerular filtration rate	• Functions of kidney. • Physiologic Anatomy of Kidney • Concept of Glomerular Filtration • Introduction to Glomerular filtration rate.	C2 C2 C2 C1 C1	LGIS SGD	SAQ MCQ VIVA
Abnormalities of fluid volume &regulation, Edema	• Volume and osmolarity in abnormalstates • Abnormalities of fluid volume &Regulation • Hyponatremia and Hypernatremia • Edema and its Mechanism. • Fluid in potential spaces of the body	C1 C1 C2 C1 C2	LGIS SGD	SAQ MCQ VIVA

A. Regulation of GFR & RBF-I (Determinants of GFR & RBF) Regulation of GFR & RBF-II,Physiological control of GFR and	• Glomerular filtration rate & Renal Blood flow • Determinants of GFR	C1 C1 C2	LGIS SGD	SAQ MCQ VIVA
RBF, Auto regulation of GFR and RBF/Macula densa feedback mechanism	• Determinants of RBF • Physiological control of GFR and RBF. • Auto regulation of GFR and RBF. • Tubulo-glomerular Feedback Mechanism • Macula-densa Feedback Mechanism	C1 C1 C2 C1 C2 C3	LGIS SGD	SAQ MCQ VIVA
Tubular reabsorption & secretion along various parts of nephrons	• Tubular reabsorption & secretion in ○ Proximal tubule ○ Loop of Henle ○ Distal tubule & collecting tubule. Active and passive transport mechanisms	C1 C2 C1 C1 C2	LGIS Group presentations	SAQ MCQ VIVA
Regulation of tubular reabsorption	• Concept of Glomerulo tubular Balance • Peritubular capillary and Renal interstitial fluid Physical forces. • Mechanism of Pressure natriuresis and Pressure diuresis	C1 C2	LGIS SGD Group presentations	SAQ MCQ VIVA
A. Clearance methods to quantify kidney function Micturition reflex & Abnormalities of micturition	• 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 C1 C1 C1 C1 C2	LGIS SGD	SAQ MCQ VIVA

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 sulpher 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)	• Describe thethe 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. • Correlate the clinical conditions (Psoas Abscess) • Understand the preventive and curative health care measures • Map Root of mesentery on SP/Model • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 C3 C3 C3 C3 C3 C3	Skill labs	OSPE MCQ SAQ VIVA
Posterior abdominal wall II (Nerves)	• Trace the nerves present on posterior abdominal wall • Discuss the formation of nerves • Discuss the formation of lumbosacral plexus • Correlate the clinical conditions (Lumbar symphathectomy) • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 C2 C3 C3 C3 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Posterior abdominal wall III (vessels) & Lumbar Vertebrae	• 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. • Correlate the clinical conditions (abdominal aortic aneurysm) • Understand the preventive and curative health care measures	C1 C2 C2 C2 C2 C2 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA

	• Map Abdominal aorta, Inferior Vena cava & Portal vein on simulated patient (SP)/Model • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	P C3 C3 C3 C3		
Kidney	• 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. • Correlate the clinical conditions (perinephric abscess, nephroptosis, renal cysts and renal colic) • Understand the preventive and curative health care measures • Map the kidney on the back (Morrison's Parrallelogram) on SP/Model • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 C2 C2 C2 C2 C2 C2 C2 C3 C3 C3 P C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Ureter	• 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. • Correlate the clinical conditions (ureteric colic) • Understand the preventive and curative health care measures	C2 C2 C2 C2 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA

	• Map Ureter from the back on SP/Model • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	P C3 C3 C3		
Supra renal gland	• 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 • Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 C2 C3 C3 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Urinary bladder	• 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 • Correlate the clinical conditions (urinary incontinence, suprapubiccystotomy and atonic bladder) • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research article	C2 C2 C2 C2 C2 C3 C3 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA

Urethra	• 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 • Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 C3 C3 C3 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Cross Sectional Anatomy	• Identify different structures at different levels of vertebral coloumn;L2,L3,L4,L5 • Correlate the clinical conditions at the given level • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C3 C3 C3 C3 C3 C3	Skill lab	OSPE MCQ SAQ VIVA
Radiology	• Identify structures on a normal X-ray abdomen • Identify kidney and its associated structures on contrast studies. • Appreciate filling defects. • Mark anatomical landmarks. • Correlate the clinical conditions • Understand the preventive and curative health care measures • Practice the principles of Bioethics • Apply Strategic use of AI in health care • Read relevant research articles	C2 C2 C2 P P C3 C3 C3 C3 C3	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	• Explain factors effecting GFR	C2	SGD	MCQ SEQ VIVA OSPE
	• Discuss determinants of RBF	C2		
	• Explain autoregulatory mechanism of GFR & RBF	C2		
Micturition	• Describe the physiological anatomy & nervous connections of urinarybladder	C1	SGD	MCQ SEQ VIVA OSPE
	• Explain Micturition reflex	C2		
	• 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
Phenylalanine Metabolism	Explain Metabolim of phenylalanine Metabolism	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

Hyper Amonia	Explain formation, transport and toxicity of ammonia in the body	C2	SGD	MCQs, SAQs & Viva
Acid base imbalance	Explain causes and compensation of acid base disorders	C2	SGD	MCQs, SAQs & Viva
Sodium & Chloride Metabolism	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)	• 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.8TH Edition. (Chapter 5, Page 537- 541). ❖ **https://www.youtube.com/watch?v=5ZnlcZrC-XY**
Posterior abdominal wall II (Nerves)	• 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	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 527-532). ❖ **https://www.youtube.com/watch?v=5ZnlcZrC-XY**
Posterior abdominal wall III (vessels) & Lumbar Vertebrae	• 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.8TH Edition. (Chapter 5, Page 541-544, 544-547). ❖ **https://www.youtube.com/watch?v=pSDYlPzNg4s**
Kidney	• Discuss the site and extent of kidneys • Differentiate right from left kidney • Understand the bio-physiological aspects of kidney	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 515-517,523-524). ❖ **https://www.youtube.com/watch?v=ZVlVquVYGDo**

	• 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	
Ureter	• 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	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 517-518,525). ❖ **https://www.youtube.com/watch?v=1P0utMb5nkg**
Supra renal gland	• 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	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 5, Page 519-523). ❖ **https://www.youtube.com/watch?v=iE8nCvLaGM4**
Urinary bladder	• 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	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 6, Page 591-595). ❖ **https://www.youtube.com/watch?v=tGouMldaQgU**

	• Discuss the trigone of urinary bladder • Elaborate nerve supply of urinary bladder • Discuss the related clinicals; urinary incontinence, suprapubiccystotomy and atonic bladder	
Urethra	• 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	❖ Clinical Oriented Anatomy by Keith L. Moore.8TH Edition. (Chapter 6, Page 595). ❖ **https://www.youtube.com/watch?v=EQUdo392wg0**

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objective	References
Body fluid compartments, Volume & osmolarity of ECF &ICF.	• Fluid Intake/Output balance • Body fluid compartments • Constituents of ECF & ICF • Concept of Osmolarity, Osmolality,Osmosis and Osmotic pressure	❖ Ganong's Review of Medical Physiology.25TH Edition. Regulation of ECF composition andvolume 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. Physiologyof 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	• Functions of kidney. • Physiologic Anatomy of Kidney • Concept of Glomerular Filtration • Introduction to Glomerular filtration rate.	• 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. Physiologyof 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	• 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	• 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 ofVolume 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)
B. Regulation of GFR & RBF-I(Determinants of GFR & RBF) **C.** Regulation of GFR & RBF-II,Physiological control of GFR and	• Glomerular filtration rate & Renal Blood flow • Determinants of GFR	❖ A. ❖ Ganong's Review of Medical Physiology.25TH Edition. Regulation of ECF composition andvolume, Section 07 (Chapter 37, Page 674) ❖ Physiology by Linda S. Costanzo 6th Edition.Renal Physiology (Chapter 06. Page 257,261)
RBF, Auto regulation of GFR and RBF/Macula densa feedback mechanism	• Determinants of RBF • Physiological control of GFR and RBF. • Auto regulation of GFR and RBF. • Tubulo-glomerular Feedback Mechanism • Macula-densa Feedback Mechanism	❖ Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 04. Physiology of Body Fluids. (Chapter 28,Page 473) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition. The Body Fluids And Kidneys. Section 05. (Chapter 27, Page 331,333,337) ❖ B. ❖ 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)
Tubular reabsorption & secretion along various parts of nephrons	• Tubular reabsorption & secretion in • Proximal tubule • Loop of Henle • Distal tubule & collecting tubule. • Active and passive transport mechanisms	• 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)
Regulation of tubular reabsorption	• Concept of Glomerulo tubular Balance • Peritubular capillary and Renal interstitial fluid Physical forces. • Mechanism of Pressure natriuresis and Pressure diuresis	• 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)
B. Clearance methods to quantify kidney function **C.** Micturition reflex & Abnormalities of micturition	• 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	❖ A. ❖ 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) ❖ B. ❖ 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)

Biochemistry Self Directed Learning (SDL)

Topics Of SDL	Learning Objectives	Learning resources
Amino Acids Pool, Protein Turnover, Nitrogen balance & Transport of Amino Acids	• Understand protein turn-over, amino acid pool and entry of amino acid into cell • Describe positive and negative nitrogen balance	• Lippin cott Biochemistry 8th edition (chapter 19 page - 271) • https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3854183/
Urea cycle & its Disorders	• Describe the location, steps and regulation of Urea cycle • Describe Disorders of the urea cycle	• Lippin cott Biochemistry 8th edition (chapter 19 page - 279) • https://my.clevelandclinic.org/health/diseases/23470-

		urea-cycle-disorder
Arginine & Branched Chain Amino Acid Metabolism, Ammonia Toxicity	• Explain Metabolism of branched chain amino acids • Discuss related inherited disorders	• Harper's illustrated biochemistry 32nd edition (Chapter 40 page 477) • https://link.springer.com/article/10.1007/BF00998474
Sodium & Chloride Metabolism	• 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	• Essentials of medical Biochemistry. Mushtaq Ahmad Vol – I 9th edition (Chapter 02 page 46) • https://www.sciencedirect.com/topics/medicine-and-dentistry/sodium-metabolism

Histology Practicals Skill Laboratory (SKL)

Topic	At the End Of Practical Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
kidney	• 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	• 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	• 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
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**
- **PBL**
- **Vertical Integration LGIS**

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

Problem Base Learning (PBL)

Subject	Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain
PBL	• Renal Failure	Apply basic knowledge of subject to study clinical case.	C3

Large Group Interactive Sessions (LGIS)

Surgery

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Investigations of urinary tract	• Understand the diagnostic approach and interpretation of urinary tract investigations including urinalysis, urine culture, ultrasonography, and intravenous urography.	C2	LGIS	MCQs
	• Demonstrate proficiency in recognizing common urinary tract disorders through investigative findings, facilitating accurate diagnosis and management decisions.	C2		
Hydronephrosis / Pyonephrosis	• Define hydronephrosis and pyonephrosis, including their etiology and pathophysiology.	C2	LGIS	MCQs
	• Identify clinical presentations, diagnostic modalities, and management strategies for both conditions, emphasizing the importance of early recognition and intervention to prevent renal damage.	C2		

Medicine

Topic	At The End of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Acute renal failure	• Understand the etiology, pathophysiology, and clinical manifestations of ARF	C2	LGIS	MCQs
	• Recognizing the diagnostic criteria and appropriate investigations for ARF	C2	LGIS	MCQs
CRF & Rehabilitation of patient with CRF	• Understand the etiology, pathophysiology, clinical manifestations, and management options of CRF.	C2	LGIS	MCQs
	• Recognize the importance of rehabilitation strategies such as dietary modifications, medication management, dialysis, and transplantation in improving patient outcomes and quality of life.	C2	LGIS	MCQs

Potassium imbalance and its management	• Understand the physiological role of potassium in the body and recognize the clinical manifestations of hypo- and hyperkalemia.	C2	LGIS	MCQs
	• Develop competence in diagnosing and managing potassium imbalances, including appropriate treatment modalities and monitoring strategies.	C2	LGIS	MCQs

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		

Pharmacology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to diuretics	• Understanding the mechanism of action of diuretics in altering renal function to promote urine production.	C2	LGIS	MCQs
	• Identifying the major classes of diuretics, their pharmacokinetics, clinical indications, and potential side effects.	C2		
	• Exploring the role of diuretics in managing conditions such as hypertension, edema, and congestive heart failure	C2		

List of Renal Module Vertical Courses Lectures

Sr. #	Date/Day	Week	Department	Time	Topic Of Lectures	Teachers Name & Contact #
1.	06-05-2024 MONDAY	3rd	Surgery	10:30 am – 11:20 am	Investigations of urinary tract	Dr. Faraz Basharat Dr. Muhammad Amin
2.	06-05-2024 MONDAY	3rd	Medicine	11:20 am – 12:10 Pm	Acute renal failure	Dr. Saima Meer 0343-5761430 Dr. Mudassir
3.	07-05-2024 TUESDAY	3rd	Medicine	11:20- 12:10pm	CRF & Rehabilitation of patient with CRF	Dr. Mudassar 0321-6813249 Dr. Saima Meer 0343-5761430
4.	08-05-2024 WEDNESDAY	3rd	Surgery	10:30 am – 11:20 am	Hydronephrosis / Pyonephrosis	Dr. Muhammad Ali Dr. Ahmed Shahzad
5.	08-05-2024 WEDNESDAY	3rd	Obstetrics & Gynecology	11:20 am – 12:10 pm	Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence)	Dr. Humaira Noreen Dr. Talat Farkhanda
6.	13-05-2024 MONDAY	4th	Medicine	11:20 am - 12:10 pm	Potassium imbalance and its management	Dr. Mudassar 0321-6813249 Dr. Saima Meer 0343-5761430
7.	15-05-2024 WEDNESDAY	4th	Pharmacology	11:20 am – 10:10 Am	Introduction to diuretics	Dr. Uzma 0336-5178766 (Even) Dr. Haseeba 0331-4453835 (Odd)

SECTION – IV

Spiral Courses

Content

- **Longitudinal Themes**
  - **The Holy Quran Translation**
  - **Biomedical Ethics & Professionalism**
  - **Family Medicine**
  - **Artificial Intelligence (AI) and Innovation**
  - **Integrated Undergraduate Research Curriculum (IUGRC)**
  - **Entrepreneurship**
  - **Early Clinical Exposure (ECE)**

Introduction to Spiral Courses

The Holy Quran Translation

A course of Islamic Studies provides students with a comprehensive overview of the fundamental aspects of Islam, its history, beliefs, practices, and influence on society and familiarize students with a solid foundation in understanding the religion of Islam from an academic and cultural perspective. Ethics, in integrated form will shape the core of the course to foster among students the universal ethical values promoted by Islam.

Bioethics

Biomedical ethics, also known as bioethics, is a field of study that addresses the ethical, social, and legal issues arising from medicine and the life sciences. It applies moral principles and decision-making frameworks to the practice of clinical medicine, biomedical research, and health policy. Biomedical ethics seeks to navigate the complex ethical dilemmas posed by advances in medical technology, research methodologies, and healthcare practices. Key areas of focus include patient rights and autonomy, confidentiality, informed consent, end-of-life care, resource allocation, and the ethics of genetic engineering, among others.

Biomedical ethics within medical universities plays a pivotal role in shaping the moral framework through which future healthcare professionals navigate the complex and often challenging decisions they will face in their careers. This critical discipline integrates ethical theories and principles with clinical practice, research, and healthcare policy, fostering a deep understanding of the ethical dimensions of medicine. By embedding biomedical ethics into the curriculum, Rawalpindi medical university equips students with the tools to critically analyze and address ethical dilemmas, ranging from patient confidentiality and informed consent to end-of-life care and the equitable distribution of healthcare resources.

This education goes beyond theoretical knowledge, encouraging students to apply ethical reasoning in practical scenarios, thus preparing them for the moral complexities of the medical field. Biomedical ethics also promotes a culture of empathy, respect, and integrity, ensuring that future medical practitioners not only excel in their technical skills but also uphold the highest ethical standards in patient care and research. Through seminars, case studies, and interdisciplinary collaborations, students are encouraged to engage in ethical discourse, reflecting on the societal impact of medical advancements and the responsibility of medical professionals to society. This foundational aspect of medical education cultivates a generation of healthcare professionals committed to ethical excellence, patient advocacy, and the pursuit of equitable healthcare for all.

Professionalism

Professionalism in medicine refers to the set of values, behaviors, and relationships that underpin the trust the public has in doctors and other healthcare professionals. It encompasses a commitment to competence, integrity, ethical conduct, accountability, and putting the interests of patients above one's own. Professionalism involves adhering to high standards of practice, including maintaining patient confidentiality, communicating effectively and respectfully with patients and colleagues, and continually engaging in self-improvement and professional development. It also includes a responsibility to improve access to high-quality healthcare and to contribute to the welfare of the community and the betterment of public health. In essence, professionalism in medicine is foundational to the quality of care provided to patients and is critical for maintaining the trust that is essential for the doctor-patient relationship.

Rawalpindi Medical University emphasizes the importance of professionalism in medicine, integrating it throughout its curriculum to ensure that students embody the core values of respect, accountability, and compassion in their interactions with patients, colleagues, and the community. This focus on professionalism is designed to prepare students for the complexities of the healthcare environment, instilling in them a deep sense of responsibility to their patients, adherence to ethical principles, and a commitment to continuous learning and improvement. Through a combination of theoretical learning, practical training, and mentorship, RMU encourages its students to exemplify professionalism in every aspect of their medical practice. Workshops, seminars, and clinical rotations further reinforce these values, providing students with real-world experiences that highlight the importance of maintaining professional conduct in challenging situations. RMU's approach to professionalism not only shapes competent and ethical medical professionals but also contributes to the broader mission of improving healthcare standards and patient outcomes. By prioritizing professionalism, Rawalpindi Medical University plays a crucial role in advancing the medical profession and ensuring that its graduates are well-equipped to meet the demands of a rapidly evolving healthcare landscape with honor and integrity.

Communication Skills

Communication skill for health professionals involves the ability to effectively convey and receive information, thoughts, and feelings with patients, their families, and other healthcare professionals. It encompasses a range of competencies including active listening, clear and compassionate verbal and non-verbal expression, empathy, the ability to explain medical conditions and treatments in an understandable way, and the skill to negotiate and resolve conflicts. Effective communication is essential for establishing trust, ensuring patient understanding and compliance with treatment plans, making informed decisions, and providing holistic care. It directly impacts patient satisfaction, health outcomes, and the overall efficiency of healthcare delivery

At Rawalpindi Medical University (RMU), the development of communication skills is regarded as a fundamental aspect of medical education, recognizing its critical importance in enhancing patient care, teamwork, and interdisciplinary collaboration. RMU is dedicated to equipping its students with exceptional communication abilities, enabling them to effectively interact with patients, their families, and healthcare colleagues. The curriculum is thoughtfully designed to incorporate various interactive and experiential learning opportunities, such as role-playing, patient interviews, and group discussions, which allow students to practice and refine their communication skills in a supportive environment.

By integrating communication skills training throughout its programs, RMU not only enhances the interpersonal competencies of its future healthcare professionals but also contributes to improving the overall quality of healthcare delivery. Graduates from RMU are distinguished not just by their clinical expertise but also by their ability to connect with patients and colleagues, making them highly effective and compassionate practitioners.

Behavioral Sceinces

Behavioral sciences in medicine focus on understanding and addressing the psychological and social aspects of health and illness. This interdisciplinary field combines insights from psychology, sociology, anthropology, and other disciplines to enhance medical care and patient outcomes. It explores how behavior, emotions, and social factors influence health, disease, and medical treatment. By incorporating behavioral science principles into medical practice, healthcare professionals can better understand patients' perspectives, improve communication, and promote positive health behaviors, ultimately contributing to more comprehensive and effective patient care.

Family Medicine

Family medicine is a medical specialty dedicated to providing comprehensive health care for people of all ages and genders. It is characterized by a long-term, patient-centered approach, building sustained relationships with patients and offering continuous care across all stages of life. It focuses on treating the whole person within the context of the family and the community, emphasizing preventive care, disease management, and health promotion.

The Family Medicine Curriculum at Rawalpindi Medical University (RMU) marks a significant stride towards holistic healthcare education, aiming to prepare medical graduates for the comprehensive and evolving needs of family practice. This curriculum is designed to offer a broad perspective on healthcare, focusing on preventive care, chronic disease management, community health, and the treatment of acute conditions across all ages, genders, and diseases. Emphasizing a patient-centered approach, the curriculum ensures that students develop a deep understanding of the importance of continuity of care, patient advocacy, and the ability to work within diverse community settings.

RMU's Family Medicine Curriculum integrates theoretical knowledge with practical experience. Students are exposed to a variety of learning environments, including community health centers, outpatient clinics, and inpatient settings, providing them with a well-rounded understanding of the different facets of family medicine. This hands-on approach is complemented by interactive sessions, workshops, and seminars that cover a wide range of topics from behavioral health to geriatric care, ensuring students are well-equipped to address the comprehensive health needs of individuals and families.

Artificial Intelligence

To realize the dreams and impact of AI requires autonomous systems that learn to make good decisions. Reinforcement learning is one powerful paradigm for doing so, and it is relevant to an enormous range of tasks, including robotics, game playing, consumer modeling and healthcare. This class will provide a solid introduction to the field of reinforcement learning and students will learn about the core challenges and approaches, including generalization and exploration. Through a combination of lectures, and written and coding assignments, students will become well versed in key ideas and techniques for RL. Assignments will include the basics of reinforcement learning as well as deep reinforcement learning — an extremely promising new area that combines deep learning techniques with reinforcement learning. In addition, students will advance their understanding and the field of RL through a final project.

Integrated Undergraduate Research Curriculum

The integrated undergraduate research curriculum (IUGRC) of RMU occupies a definite space in schedule of each of the five years in rational and incremental way. It has horizontal harmonization as well as multidisciplinary research work potentials. In the first-year teachings are more introductory & inspirational rather than instructional. The teachings explain what & why of research and what capacities are minimally required to comprehend research & undertake research. Some research dignitaries' lecture are specifically arranged for sharing their experiences and inspiring the students. Students are specifically assessed through their individual compulsory written feedback (reflection) after the scheduled teachings end.

Entrepreneurship

Entrepreneurship is the process of designing, launching, and running a new business, which typically starts as a small enterprise offering a product, process, or service for sale or hire. It involves identifying a market opportunity, gathering resources, developing a business plan, and managing the business's operations, growth, and development.

Entrepreneurship in medical universities represents a burgeoning field where the innovative spirit intersects with healthcare to forge advancements that can transform patient care, medical education, and healthcare delivery. This unique amalgamation of medical expertise and entrepreneurial acumen empowers students, faculty, and alumni to develop groundbreaking medical technologies, healthcare solutions, and startups that address critical challenges in the health sector. By integrating entrepreneurship into the curriculum, Rawalpindi Medical university is not only expanding the traditional scope of medical education but also fostering a culture of innovation and problem-solving. This enables future healthcare professionals to not only excel in clinical skills but also in business strategies, leadership, and innovation management.

Such initiatives often lead to the creation of medical devices, digital health platforms, and therapeutic solutions that can significantly improve patient outcomes and make healthcare more accessible and efficient. Through incubators, accelerators, and partnerships with the industry, medical universities are becoming hotbeds for healthcare innovation, driving economic growth, and contributing to the broader ecosystem of medical research and entrepreneurial success.

Digital Literacy Module

Digital literacy means having the skills one needs to live, learn, and work in a society where communication and access to information is increasingly through digital technologies like internet platforms, social media, and mobile devices.

Early Clinical Exposure (ECE)

Early clinical exposure helps students understand the relevance of their preclinical studies by providing real-world contexts. This can enhance motivation and engagement by showing students the practical application of their theoretical knowledge. Early exposure allows students to begin developing essential clinical skills from the start of their education. This includes not only technical skills but also crucial soft skills such as communication, empathy, and professionalism. Direct interaction with patients early in their education helps students appreciate the complexities of patient care, including the psychological and social aspects of illness. Early exposure to various specialties can aid students in making informed decisions about their future career paths within medicine.

Early clinical experiences contribute to the development of a professional identity, helping students see themselves as future physicians and understand the responsibilities and ethics associated with the profession. This can help reduce the anxiety associated with clinical work by familiarizing students with the clinical environment. It can build confidence in their abilities to interact with patients and healthcare professionals. Engaging with real-life clinical situations early on encourages the development of critical thinking and problem-solving skills, which are essential for medical practice. It helps bridge the gap between theoretical knowledge and practical application, leading to a more integrated and holistic approach to medical education. It allows students to observe and understand how healthcare systems operate, including the challenges and limitations faced in different settings.: Early patient interaction emphasizes the importance of patient-centered care from the outset, underscoring the importance of treating patients as individuals with unique needs and backgrounds. Practical experiences can enhance long-term retention of knowledge as students are able to connect theoretical learning with clinical experiences.: Early clinical experiences often involve working in multidisciplinary teams, which fosters a sense of collaboration and understanding of different roles within healthcare.

In summary, early clinical exposure in medical education is pivotal for the holistic development of medical students, providing them with a strong foundation of practical skills, professional attitudes, and a deep understanding of patient-centered care.

The Holy Quran Translation Lecture

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Imaniat	• Describe the answers to questions of the Pagans of Arab • Describe the purpose of sending the Prophets.	C2	LGIS	SAQ
Ibadat	• Understand the concept of Hijrah in Holy Quran • Disscus the significance of consistency in religion	C2	LGIS	SAQ

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		
Contrast Nephropathy	• Understand the diverse manifestations of nephropathy, including diabetic nephropathy and IgA nephropathy	C2	LGIS	MCQs

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	• 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	• 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	• 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 • 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	C3	Hands on Session	MCQs
Session on Data Analysis	• Understand statistical methods applicable to medical data. • Mastertools for data visualization and interpretation. • Develop skills to critically evaluate research findings for their clinical significance and validity.	C3	Hands on Session	MCQs
Manuscript Writing	• Structure their manuscripts coherently. • Employ appropriate scientific language, and adhere to journal guidelines, thereby enhancing their ability to communicate research findings effectively in scholarly publications.	C3	Hands on Session	MCQs

Family Medicine

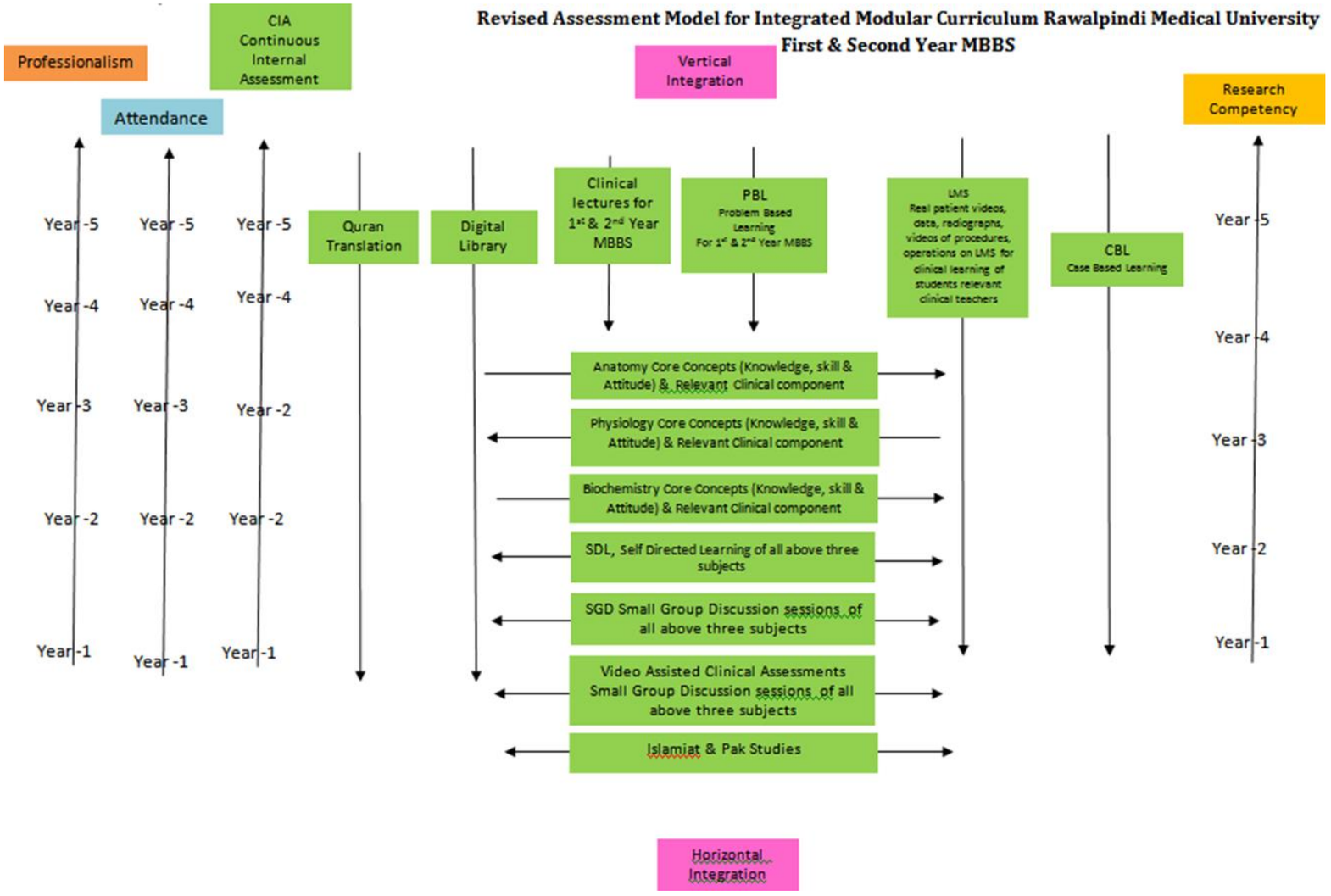
Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Renal Failure	• Describe presenting complains of patients with Renal failure	C3	LGIS-1	MCQs
	• Disscus complications of Renal failure			
	• Descirbe intial treatment of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

Entrepreneurship

Topic	Learning Objectives At the end of the lecture the student should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Ideate Initial Idea	• Identify healthcare challenges and develop innovative solutions.	C2	LGIS	MCQs
	• Understand the healthcare market landscape to identify opportunities and assess demand.	C2		
	• Describe the ethical implications of healthcare entrepreneurship, including patient privacy and safety.	C2		

List of Renal Module Spiral Courses Lectures

Sr. #	Date/Day	Week	Department	Time	Topic Of Lectures	Teachers Name & Contact #
1.	29-04-2024 MONDAY	2nd	Bioethics	10:30 am – 11:20 am	Ethical principles	Dr. Arsalan (0334-3911629)
2.	30-04-2024 TUESDAY	2nd	Research Practical Session II	10:30 am – 11:20 am	Questionnaire Development	Dr. Khuala Noreen Dr. Afifa Kalsoom
3.	03-05-2024 FRIDAY	2nd	Quran Translation – I	09:20 am – 10:10 am	Imaniat-3	Mufti Naeem Sherazi 0300-5580299 (Even)
					Ibadaat-3	Dr. Fahd Anwar 0300-5156800 (Odd)
4.	07-05-2024 TUESDAY	3rd	Research Practical Session III	10:30am-11:20 am	Session on data analysis	Dr. Khuala Noreen Dr. Afifa Kalsoom
5.	10-05-2024 FRIDAY	3rd	Quran Translation – II	08:00 am – 09:00 am	Ibadaat-4 Imaniat-4	Mufti Naeem Sherazi 03005580299 (Even) Dr. Fahd Anwar 03005156800 (Odd)
6.	13-05-2024 MONDAY	4th	Research Practical Session IV	10:30 am – 11:20 am	Manuscript writing	Dr. Khuala Noreen Dr. Afifa Kalsoom
7.	14-05-2024 TUESDAY	4th	Family Medicine	11:20 am – 12:10 am	Renal Failure	Dr. Sidra Hamid (03315025147) Dr. Sadia Mufti Naem Sherazi 03005580299 (Even)



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%

60% 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 (2/3rd of the module is complete) level through MS Teams. Tool for this assessment is best choice questions and all subjects are given theshare 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	Biochemistry Structured & Clinically oriented Viva voce	Summative	10 Minutes				
	7	Assessment of Clinical Lectures	Formative	15 Minutes				
	8	Assessment of Bioethics Lectures	Summative	2 Minutes				
	9	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	Weekly LMS based Assessments of Anatomy	Formative	06-05-2024 & 13-05-2024 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	60 Minutes	4 Formative	2 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	02-05-2024 12:00pm- 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ, MCQs, SAQ & EMQ Based)	Summative	17-05-2024 08:30am - 10:30am 2 Hours				
	4	Sub Regional Assessment (Viva voce)	Formative	10 Minutes				
	5	Structured & Clinically oriented Viva voce	Summative	21-05-2024 & 22-05-2024 09:00am - 01:00pm 10 Minutes/student				
	6	Assessment of Clinical Lectures	Formative	15-05-2024 09:30am- 10:00am 10 Minutes				
		Total	**3 Hours 30 minutes**			**5 Assessments**		

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	Weekly LMS based Assessments of Physiology	Formative	07-05-2024 & 14-05-2024 09:00PM -09:30PM 30 Minutes	2 Hours & 40 minutes	50 minutes	3 Formative	2 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	02-05-2024 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	20-05-2024 08:30am -10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	21-05-2024 & 22-05-2024 09:00am -01:00pm 10 Minutes/student				
	5	Assessment of Clinical Lectures	Formative	5-05-202409:30am-10:00am 10 Minutes				
		Total	**3 Hours 30 minutes**		**5 Assessments**			

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	Weekly LMS based Assessments of Biochemistry	Formative	08-05-2024 & 15-05-2024 09:00PM - 09:30PM 30 Minutes	2 Hours & 40 minutes	50 Minutes	3 Formative	2 Summative
	2	Topics of SDL Examination on MS Team (After 15 days of teaching)	Formative	02-05-2024 12:00pm - 12:30pm 10 Minutes				
	3	End Module Examinations (SEQ & MCQs Based)	Summative	18-05-2024 08:30am- 10:30am 2 Hours				
	4	Structured & Clinically oriented Viva voce	Summative	23-05-2024 10 Minutes				
	5	Assessment of Clinical Lectures	Formative	5-05-2024 08:30am- 10:30am 10 Minutes				
	Total			**3 Hours 30 minutes**			**5 Assessments**	

Learning Resources

Subject	Resources
Anatomy	**A. Gross Anatomy** 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 **B. Histology** 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. **C. Embryology** 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition.
Physiology	**A. Textbooks** 1. Textbook Of Medical Physiology by Guyton And Hall 14th edition. 2. Ganong ' S Review of Medical Physiology 26th edition. **B. Reference Books** 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.
Biochemistry	**Textbooks** 1. Harper's Illustrated Biochemistry 32th edition. 2. Lehninger Principle of Biochemistry 8th edition. 3. Biochemistry by Devlin 7th edition. 4. Lippincott Illustrated Biochemistry 32th edition.
Community Medicine	**Textbooks** 1. Community Medicine by Parikh 25th edition. 2. Community Medicine by M Illyas 8th edition. 3. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	**Textbooks** 1. Robbins & Cotran, Pathologic Basis of Disease, 10th edition. 2. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. 3. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	**Textbooks** 1. Lippincot Illustrated Pharmacology 9th edition.

	2. 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 2023 - 2024

Batch- 50

Renal Module Team

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

Module Committee		
1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar
2.	Director DME	Prof. Dr. Ifra Saeed
3.	Chairperson Anatomy & Dean Basic Sciences	Prof. Dr. Ayesha Yousaf
4.	Chairperson Physiology	Prof. Dr. Samia Sarwar
5.	Chairperson Biochemistry	Dr. Aneela Jamil
6.	Focal Person Anatomy Second Year MBBS	Dr. Maria Tasleem
7.	Focal Person Physiology	Dr. Sidra Hamid
8.	Focal Person Biochemistry	Dr. Aneela Jamil
9.	Focal Person Pharmacology	Dr. Zunera Hakim
10.	Focal Person Pathology	Dr. Asiya Niazi
11.	Focal Person Behavioral Sciences	Dr. Saadia Yasir
12.	Focal Person Community Medicine	Dr. Afifa Kulsoom
13.	Focal Person Quran Translation Lectures	Dr. Uzma Zafar
14.	Focal Person Family Medicine	Dr. Sadia Khan

Module Task Force Team		
1.	Coordinator	Dr. Sheena Tariq (Senior Demonstrator of Physiology)
2.	DME Focal Person	Dr. Farzana Fatima
3.	Co-coordinator	Dr. Ali Raza (Senior Demonstrator of Anatomy)
4.	Co-Coordinator	Dr. Rahat Afzal (Senior Demonstrator of Biochemistry)
5.	Co-coordinator	Dr. Uzma Kiyani (Senior Demonstrator of Physiology)

DME Implementation Team		
1.	Director DME	Prof. Dr. Ifra Saeed
2.	Assistant Director DME	Dr Farzana Fatima
3.	Implementation Incharge 1st & 2nd Year MBBS & Director DME	Prof. Dr. Ifra Saeed Dr. Farzana Fatima
4.	Editor	Muhammad Arslan Aslam

Discipline wise Details of Modular Content

Block	Module	Embryology	Histology	Gross Anatomy
I	• Anatomy	Embryology • Kidney • Ureter • Urinary Bladder • Urethra	Histology • Kidney • Ureter • Urinary Bladder	• Posterior Abdominal Wall & Organs of Urinary System
	• Biochemistry	• Amino Acid Pool Protein Turn Over Nitrogen Balance & transport of Amino Acid, • Urea Cycle & Disorder • Amino Acid Metabolism • Ammonia Toxicity • Acid Base in Balance • Serum Electrolyte		
	• Physiology	• Body Fluid Compartments, Volume & osmolarity of ECF NICF • Physiology of Renal System, GFR • Regulation of GFR & RBF • Tubular Reabsorbtion & Scretion • Micturition Reflex & Abnomalities • Acid base balance		
	Spiral Courses			
	• The Holy Quran Translation	• Imaniat 3 • Ibadat 3 • Imaniat 4 • Ibadat 4		
	• Bioethics & Professionalism	• Ethical principles		
	• Radiology & Artificial Intelligence	• Prenatal ultrasonography • Contrast Nephropathy		
	• Research Club Activity	• Questionnaire Development (Practical Session-II) • Session on data analysis (Practical Session-III) • Manuscript writing (Practical Session-IV)		
	• Family Medicine	• Renal Failure		

	Vertical Integration	
	Clinically content relevant to Renal module • Acute renal failure (Medicine) • Potassium imbalance and its management (Medicine) • CRF & Rehabilitation of patient with CRF(Medicine) • Hydronephrosis / Pyonephrosis (Surgery) • Investigations of urinary tract (Surgery) • Renal calculi (Surgery) • Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence) (Obstetrics & Gynecology) • Introduction to diuretics (Pharmacology)	
	Entrepreneurship	
	• Ideate Initial Idea	
	Early Clinical Exposure (ECE)	
	• Clinical Rotations	• Cases of Renal failure • Dialysis • Renal Transplant • Ultrasound of Kidney • Plain X-Ray • KUB Nephrotic Syndrome

Categorization of Modular Content of Anatomy

Category A*	Category B**	Category C				
Special Embryology	**Special Histology**	**Demonstrations / SGD**	**CBL**	**Practical's**	**SSDL**	**Self-Directed Learning (SDL)**
• Development of Kidney &Ureter • Development of Urinary Bladder & urethra	• Histology of Kidney-I • Histology of Kidney-II • Histology of Urinary Bladder • Histology of Ureter & Urethra	• 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	• Renal failure • Uretric stones	• Kidney • Ureter • Urinary Bladder	• Vessels of Posterior Abdominal Wall • Lumbar Vertebra • Urinary Bladder • Spotting	• 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)	1.5*11=16.5 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. Faizania)**	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 5th 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 GFRand RBF/ macula densa feedback mechanism **(Prof Dr Samia Sarwar/Dr. Faizania)**	Excretion of concentrated urine (counter current multiplier) **(Dr. Sidra)**					
Physiology of Renal system and Glomerularfiltration rate **(Dr. Faizania)**	Excretion of concentrated urine (counter currentexchanger)**(Dr. Sidra)**					
Tubular reabsorption & secretion along various partsof nephrons **(Dr. Faizania)**	Introduction to physiology of acid base balance & buffer systems, Respiratory and renal regulation of acid base balance**(Dr. Sidra)**					
Regulation of tubular reabsorption **(Dr. Faizania)**	Acid base disorders **(Dr. Sidra)**					
Clearance methods to quantify kidney function **(Dr. Faizania)**	Body fluid compartments, Volume & osmolarity of ECF &ICF **(Dr. Sheena)**					
Micturition reflex & Abnormalities of micturition **(Dr. Faizania)**	Abnormalities of fluid volume & regulation, Edema **(Dr. Sheena)**					
	Control of ECF osmolarity **(Dr. Sheena)**					
	Regulation of ECF K+ concentration, Regulation of Ca++,PO4-3& Mg+2concentration **(Dr. Sheena)**					
	Integration of renal mechanism for control of ECF,Nervous & hormonal factors for renal body fluid feedbackcontrol **(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 Metabolism	Ammonia Toxicity		Ammonia Toxicity	Estimation of Urea & Creatinine	Phenyl Alanine Metabolism
Acid Based imbalance	Amino Acid pool,		Metabolic Acidosis	Urine Analysis-I	Sodium & Chloride Metabolism
	Urea Cycle			Urine Analysis-II	
	Nitrogen Balance				
	Ammonia Transport				
	Serum Electrolytes				

Category A*: By Assistant Professor & Senior Demonstrators with Postgraduate Qualification

Category B:** By Senior Demonstrators

Category C*:** By Senior Demonstrators & 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)	10 * 2 = 20 hours	10
2.	Small Group Discussions (SGD)	6 * 5 = 30 hours	06
4.	Practical / Skill Lab	6 * 5 =30 hours	06
5.	Self-Directed Learning (SDL)	1 * 4 = 4 hours	04

Time Table for Renal Module
(15-04-2024 To 17 -04-2024)

DATE/DAY	08:00 am – 12:00 pm	12:00 pm – 01:00 pm	01:00 pm -02:00 pm
15-04-2024 MONDAY	GIT OSVE	Break	SDL
16-04-2024 TUESDAY	GIT OSVE		SDL
17-04-2024 WEDNESDAY	GIT OSVE		SDL

Time Table for Renal Module (First Week)
(18-04-2024 To 20-04-2024)

DATE/DAY	8:00am-9:20am	9:20am – 10:10am		10:10am – 10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
18-04-2024 THURSDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		**Break**	**ANATOMY (LGIS)**		**BIOCHEMISTRY (LGIS**		**Break**	**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**	Amino Acids Pool, Protein Turnover, Nitrogen balance & Chemical Reaction of Amino Acids	Glycine Phenylalanine & Tryosine Metabolism		Fascia, Muscles and Nerves of Posterior Abdominal wall Batches, Teachers & Venue Mentioned in Table No. 2	
					Development of kidney & Ureter	kidney I					
		Dr. Sheena (Even)	Dr. Faizania (Odd)		Prof. Dr. Ifra (Even)	Prof. Dr Ayesha / Ass. Prof. Dr. Maria (Odd)	Dr. Aneela / Dr. Uzma (Even)	Dr. Kashif Rauf (Odd)			
19-04-2024 FRIDAY	08:00am – 09:00am	**PHYSIOLOGY (LGIS)** 09:00am – 10:00am			**ANATOMY (LGIS)** 10:00am – 11:00am		**BIOCHEMISTRY (LGIS)** **11:00am -12:00noon**			SDL Anatomy Posterior abdominal wall	
	Practical &CBL/SGD Topics & venue mentioned at the end. **Schedule on Wednesday batch (17-04-2024)** Batches, Teachers & Venue Mentioned in Table No. 1	Physiology of Renal system, Glomerular filtration rate	Body fluid compartments Volume & Osmolarity of ECF & ICF		**Histology** Kidney-I	**Embryology** Development of kidney & Ureter	Glycine Phenylalanine & Tryosine Metabolism	Amino Acids Pool, Protein Turnover, Nitrogen balance & Chemical Reaction of Amino Acids			
		Dr. Faizania (Even)	Dr. Sheena (Odd)		Prof. Dr Ayesha / Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Kashif Rauf (Even)	Dr. Aneela / Dr. Uzma (Odd)			
20-03-2024 SATURDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		**Break**	**ANATOMY (LGIS)**		**BIOCHEMISTRY (SSDL)**		**Break**	**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)		**Histology** Development of urinary bladder and urethra	**Embryology** kidney II	Amino Acid Pool & Chemical Reaction of Amino Acid			Vessels of Posterior Abdominal Wall Lumbar Vertebra Batches, Teachers & Venue Mentioned in Table No. 2	
		Dr. Sheena (Even)	Prof. Dr. Samia Sarwar / Dr. Faizania (Odd)		Prof. Dr. Ifra (Even)	Ass. Prof. Dr. Maria (Odd)	Dr. Aneela / Dr. Uzma (Even)	Dr. Kashif Rauf (Odd)			

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects)
CBL / Small Group Disscusion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Histology of Kidney (Anatomy/ Histology-practical) venue Histology Laboratory-Dr. Tariq Furqan
- Serum estimation of Urea & Creatinine (Biochemistry practical) venue- Biochemistry Laboratory
- Estimation of specific gravity of urine (Physiology –practical) Physiology Laboratory

Topics for SGDs / CBL with Venue

- Biochemistry SGDs: Phenyl Alanine Metabolism (Venue: Lecture Hall No 2)
- Physiology CBL-Body Fluid Compartment & Edema (Venue: Lecture Hall No 5)
- Anatomy CBL- Renal Failure

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group DisscussionSGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-120	Dr. Sadia baqir	Anatomy Lecture Hall 03	Supervised by Prof. Dr. Ayesha Yousaf
B	121-240	Dr. Gaiti Ara	New Lecture Hall Complex # 01	
C	241 onwards	Dr. Minahil Haq	Anatomy Lecture Hall 04	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Farhat Jabeen (PGT Physiology)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Prof. Dr. Ifra Saeed (Professor of Anatomy)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Afsheen Batool (PGT Physiology)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Prof. Dr. Ayesha Yousaf (Professor of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Shazia (Demonstrator Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

No PBL Session during this week

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Time Table for Renal Module (Second Week)
(22-04-2024 To 27-04-2024)

DATE/DAY	8:00am-9:20am	9:20am – 10:10am		10:10am – 10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
22-04-2024 MONDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		Break	**BIOETHICS**		**BIOCHEMISTRY (LGIS)**		Break	**DISSECTION/CBL**	SDL Physiology Volume & osmolarity of ECF& ICF, Abnormalities of fluid volume & regulation
		Regulation GFR & RBF-I (Determinats of GFR & RBF)	Abnormalities of fluid volume & regulation Edema		Islam & Teachings of Bioethics		Urea cycle & its Disorders	Glutamine, Histidine, Threonine & Polyamines Metabolism		Kidney Batches, Teachers & Venue Mentioned in Table No. 1	
		Prof. Dr. Samia Sarwar / Dr. Faizania (Even)	Dr. Sheena (Odd)		Prof. Dr. Akram Randhwara		Dr. Aneela / Dr. Uzma (Even)	Dr. Kashif Rauf (Odd)			
23-04-2024 TUESDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**PBL 1 (SESSION-I)**		**BIOCHEMISTRY (LGIS)**			**DISSECTION/CBL**	SDL Physiology Physiology of Renal system
		Excretion of dilute urine	Regulation of GFR & RBF-II, Physiological control of GFR and RBF, Autoregulation of GFR and RBF		PBL Team Batches, Teachers & Venue Mentioned in Table No. 3		Glutamine, Histidine, Threonine & Polyamines Metabolism	Urea cycle & its Disorders		Ureter Batches, Teachers & Venue Mentioned in Table No. 1	
		Dr. Sidra Hamid (Even)	Prof. Dr. Samia Sarwar/Dr. Faizania (Odd)				Dr. Kashif (Even)	Dr. Aneela / Dr. Uzma (Odd)			
24-04-2024 WEDNESDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**BIOETHICS**			**RESEARCH PRACTICAL SESSION II**					**PBL 1 (SESSION-II)**	SDL Biochemistry Amino Acid Pool, Nitrogen Balance
		Ethics of social media & advertising			Questionnaire Development					PBL Team Batches, Teachers & Venue Mentioned in Table No. 3	
		Prof. Dr. Akram Randhwara			LTC Hall No. 1 Dr. Khuala Noreen Batch (A, B, C, D & E)		LTC Hall No. 4 Dr. Afifa Batch (F, G, H, I, J)				
25-04-2024 THURSDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end. Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**ANATOMY (LGIS)**		**PHYSIOLOGY (LGIS)**			**DISSECTION/SGD**	SDL Biochemistry Urea cycle & its Disorders
		Regulation of GFR & RBF-II, Physiological control of GFR and RBF, Autoregulation of GFR and RBF	Excretion of dilute urine		**Histology**	**Embryology**	Excretion of Concemtrated urine (Counter Current Multiplier)	Tubular Reabsorbtion & Scretion along Various parts of nephron		Urinary bladder Batches, Teachers & Venue Mentioned in Table No. 2	
		Prof. Dr. Samia Sarwar/Dr. Faizania (Even)	Dr. Sidra Hamid (Odd)		kidney II	Development of urinary bladder and urethra					
					Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Sidra Hamid (Even)	Dr. Faizania (Odd)			
26-04-2024 FRIDAY	**8:00 AM – 9:00 AM**	**9:00 AM – 10:00AM**			**10:00AM – 11:00 AM**		**11:00AM – 12:00PM**			SDL Anatomy Ureter	
	RADIOLOGY	**QURAN TRANSLATION – I**			**PHYSIOLOGY (LGIS)**		**BIOCHEMISTRY (LGIS)**				
	Contrast Nephropathy	Imaniat-3	Ibadaat-3		Tubular Reabsorbtion & Scretion along Various parts of nephron	Excretion of Concemtrated urine (Counter Current Multiplier)	Ammonia Toxicity	Arginine & Branched Chain Amino Acid Metabolism			
	Dr. Hina Hafeez (Even) Dr. Saba Binte Kashmir	Mufti Naeem Sherazi (Odd)	Dr. Fahd Anwar (Even)		Dr. Faizania (Even)	Dr. Sidra Hamid (Odd)	Dr. Aneela / Dr. Uzma (Even)	Dr. Kashif Rauf (Odd)			
27-04-2024 SATURDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		Break	**BIOCHEMISTRY (LGIS)**		**PHYSIOLOGY (LGIS)**		Break	**DISSECTION/SGD**	SDL Urinary bladder
		Excretion of concentrated urine (Counter current exchanger)	Regulation of tubular reabsorbtion		Arginine & Branched Chain Amino Acid Metabolism	Ammonia Toxicity	Regulation of tubular reabsorbtion	Excretion of concentrated urine (Counter current exchanger)		Suprarenal Gland & Urethra Batches, Teachers & Venue Mentioned in Table No. 2	
		Dr. Sidra Hamid (Even)	/Dr. Faizania (Odd)		Dr. Kashif (Even)	Dr. Aneela / Dr. Uzma (Odd)	Prof. Dr. Samia Sarwar/Dr. Faizania) (Even)	Dr. Sidra Hamid (Odd)			

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Disscusion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Histology of Ureter (Anatomy/ Histology-practical) venue Histology Laboratory-Dr. Tariq Furqan
- Urine Analysis -I (Biochemistry practical) venue- Biochemistry Laboratory
- Examination of 5th Cranial Nerve (Physiology –practical) Physiology Laboratory

Topics for SGDs / CBL with Venue

- Biochemistry CBL: Ammonia Toxicity (Venue: Lecture Hall No 2)
- Physiology CBL- GFR & Auto regulation (Venue: Lecture Hall No 5)
- Anatomy CBL- Kidney Failure, Ureteric Stone

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group DisscussionSGDs / Dissections

Batches	**Roll No**	**Anatomy Teacher**	**Venue**	
A	01-120	Dr. Sadia baqir	Anatomy Lecture Hall 03	Supervised by Prof. Dr. Ayesha Yousaf
B	121-240	Dr. Gaiti Ara	New Lecture Hall Complex # 01	
C	241 onwards	Dr. Minahil Haq	Anatomy Lecture Hall 04	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Farhat Jabeen (PGT Physiology)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Prof. Dr. Ifra Saeed (Professor of Anatomy)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Afsheen Batool (PGT Physiology)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Prof. Dr. Ayesha Yousaf (Professor of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Shazia (Demonstrator Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Sports Week	29th April – 4th May, 2024

Time Table for Renal Module (Third Week)
(06-05-2024 To 11-05-2024)

DATE/DAY	8:00am-9:20am	9:20am – 10:10am		10:10am – 10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm - 12:30pm	12:30pm – 2:00pm		Home Assignments(2HRS)
06-05-2024 MONDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		Break	**SURGERY**		**MEDICINE**		Break	**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		Acute renal failure			Dissection/ Spottting Study of Models / Specimen Batches, Teachers & Venue Mentioned in Table No. 2		
		Dr. Sheena (Even)	Dr. Faizania (Odd)		Dr. Faraz Basharat (Even)	Dr. Muhammad Ameen (Odd)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)				
07-05-2024 TUESDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**RESEARCH PRACTICAL SESSION III**		**MEDICINE**			**BIOCHEMISTRY (LGIS)**		SDL Physiology Clearance methods to quantify kidney function.
		Clearence Method to Quantify kidney function	Control of ECF osmolarity		Session on data analysis		CRF & Rehabilitation of patient with CRF			Acid Base Imbalance I	Sodium & Chloride Metabolism	
		Dr. Faizania (Even)	Dr. Sheena (Odd)		LTC Hall No. 1 Dr. Khuala Noreen Batch (A, B, C, D, E)	LTC Hall No. 4 Dr. Afifa Batch (F, G, H, I, J)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)		Dr. Aneela (Even)	Dr Nayab (Odd)	
08-05-2024 WEDNESDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**SURGERY**		**OBSTETRIC & GYNAECOLOGY**			**DISSECTION/SGD**		SDL Biochemistry Arginine & Branched Chain Amino Acid Metabolism, Ammonia Toxicity
		Regulation of ECF K^+ &Regulation of ECF Ca^{++}, PO_4^{-3}& Mg^{+2}concentration	Micturition Reflex & Abnormalities of Micturition		Hydronephrosis / Pyonephrosis		Common renal problems in pregnancy (lower and upper urinary tract infections, hydronephrosis, stress incontinence)			Surface Marking Batches, Teachers & Venue Mentioned in Table No. 2		
		Dr. Sheena (Even)	Dr. Faizania (Odd)		Dr. Muhammad Ali (Even)	Dr. Ahmed Sajjad (Odd)	Dr. Humaira Noureen (Even)	Prof. Tallat Farkanda (Odd)				
09-05-2024 THURSDAY	**Practical &CBL/SGD** Topics & venue mentioned at the end Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**ANATOMY**		**BIOCHEMISTRY (LGIS)**			**DISSECTION/SGD**		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** Ureter, Bladder & Urethra	**Histology** Ureter, Bladder & Urethra	Sodium & Chloride Metabolism	Acid Base Imbalance I		Dissection/ Spottting (Kidney, ureter & Unrinary Bladdar) Batches, Teachers & Venue Mentioned in Table No. 2		
		Dr. Faizania (Even)	Dr. Sheena (Odd)		Prof. Dr. Ifra (Even)	Prof. Dr. Ayesha /Asst. Prof. Dr. Maria (Odd)	Dr Nayab (Even)	Dr. Aneela (Odd)				
10-05-2024 FRIDAY	**8:00 AM – 9:00 AM** **QURAN TRANSLATION – II**		**9:00 AM – 10:00AM** **PHYSIOLOGY (LGIS)**		**10:00AM – 11:00 AM** **PBL 2 (SESSION – I)**		**11:00AM – 12:00PM** **BIOCHEMISTRY (LGIS)**			SDL Anatomy Suprarenal gland & Urethra		
	Imaniat-3	Ibadaat-3	Renal Machanism for control of ECF, Nervous & hormonal factors for body Fluid	Physiology of acid base balance respiratory & renal regulation of acid base balance	PBL Team Batches, Teachers & Venue Mentioned in Table No. 3		Acid Base Imbalance II	Potassium Metabolism				
	Mufti Naeem Sherazi (Odd)	Dr. Fahd Anwar (Even)	Dr. Sheena (Even)	Dr. Sidra Hamid (Odd)			Dr. Aneela (Even)	Dr. Nayab (Odd)				
11-05-2024 SATURDAY	Early Clinicaly Exposure											

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Disscusion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Histology of Urinary Bladder (Anatomy/ Histology-practical) venue Histology Laboratory-Dr. Tariq Furqan
- Urine Analysis-II (Biochemistry practical) venue- Biochemistry Laboratory
- Examination of 7th cranial nerve (Physiology –practical) Physiology Laboratory

Topics for SGDs / CBL with Venue

- Biochemistry CBL: Metabolic acidosis (Venue/: Lecture Hall No 2)
- Physiology SGD- Micturition Reflex & Abnormalities of Micturition (Venue: Lecture Hall No 5)

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group DisscussionSGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-120	Dr. Sadia baqir	Anatomy Lecture Hall 03	Supervised by Prof. Dr. Ayesha Yousaf
B	121-240	Dr. Gaiti Ara	New Lecture Hall Complex # 01	
C	241 onwards	Dr. Minahil Haq	Anatomy Lecture Hall 04	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Farhat Jabeen (PGT Physiology)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Prof. Dr. Ifra Saeed (Professor of Anatomy)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Afsheen Batool (PGT Physiology)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Prof. Dr. Ayesha Yousaf (Professor of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Shazia (Demonstrator Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Time Table for Renal Module (Fourth Week)
(13-05-2024 To 18-05-2024)

DATE/DAY	8:00am-9:20am	9:20am – 10:10am		10:10am – 10:30am	10:30am-11:20am		11:20am-12:10pm		12:10pm-12:30pm	12:30pm – 2:00pm	Home Assignments(2HRS)
13-05-2024 MONDAY	**Practical &CBL/SGD (Scheduled om Monday 15-04-2024) Topic and venue metioned in 1st week of renal module** Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**		Break	**RESEARCH PRACTICAL SESSION IV**		**MEDICINE**		Break	**DISSECTION/SGD**	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		Manuscript writing		Potassium imbalance and its management			Radiographs Lumbar Region / Cross Sectional Anatomy Batches, Teachers & Venue Mentioned in Table No. 2	
		Dr. Sidra Hamid (Even)	Dr. Sheena (Odd)		LTC Hall No. 1 Dr. Khuala Noreen Batch (A, B, C, D, E)	LTC Hall No. 4 Dr. Afifa Batch (F, G, H, I, J)	Dr. Saima Meer (Even)	Dr. Mudassar (Odd)			
14-05-2024 TUESDAY	**Practical &CBL/SGD (Scheduled om Tuesday 16-04-2024) Topic and venue metioned in 1st week of renal module** Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**ENTREPRENEURSHIP (LGIS)**		**FAMILY MEDICINE**			**PBL 2 (SESSION – II)**	SDL Biochemistry Sodium & Chloride Metabolism
		Renal failure & hemodialysis	Acid base disorders		Ideate Initial Idea		Renal Failure			PBL Team Batches, Teachers & Venue Mentioned in Table No. 3	
		Dr. Sheena (Even)	Dr. Sidra Hamid (Odd)		Dr. Asif		Dr. Sidra Hamid (Even)	Dr Sadia (Odd)			
15-05-2024 WEDNESDAY	**Practical &CBL/SGD (Scheduled om Saturday 11-05-2024) Topic and venue metioned in 3rd week of renal module** Batches, Teachers & Venue Mentioned in Table No. 1	**PHYSIOLOGY (LGIS)**			**BIOCHEMISTRY**		**PHARMACOLOGY**			**DISSECTION/SGD**	SDL Physiology Exam Preparation **Online Clinical Evaluation**
		Acid base disorders	Renal failure & hemodialysis Diuretics		Potassium Metabolism	Acid Base Imbalance II	Introduction to diuretics			Dissection / Spotting (Muscles and Fascia of Posterior Abdominal Wall) Batches, Teachers & Venue Mentioned in Table No. 2	
		Dr. Sidra Hamid (Even)	Dr. Sheena (Odd)		Dr. Nayab (Even)	Dr Aneela (Odd)	Dr. Uzma (Even)	Dr. Haseeba (Odd)			
16-05-2024 THURDAY	SDL										
17-05-2024 FRIDAY	Module Exam										
18-05-2024 SATURDAY											

Table No. 1 (Time: 12:20pm – 02:00pm)

Batch Distribution for Practical Skills (all subjects) CBL / Small Group Disscusion (Biochemistry and Physiology)

Sr. No	Batch	Roll No.
1.	A	01-70
2.	B	71-140
3.	C	141-210
4.	D	211-280
5.	E	281-onwards

Topics for Skill Lab with Venue

- Histology of Kidney, Ureter Bladder (Anatomy Histology Practical) Venue- Histology lab-Dr Minahil Haq
- Urine Report (Biochemistry Practical) Venue- Biochemistry laboratory
- Sense of Smell (Physiology Practical) Venue – Physiology Lab

Topics for SGDs / CBL with Venue

- Physiology SGD: Acid Base Balance & disorders, Venue: Lecture Hall No 5)
- Biochemistry SDG: Serum Electrolytes (Sodium & Potassium) (Venue: Lecture Hall No 2)

Schedule for Practical / Small Group Discussion

Day	Histology Practical		Biochemistry Practical		Supervised by HOD	Physiology Practical		Physiology SGD		Supervised by HOD	Biochemistry SGD	
	Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name	Batch	Teacher Name		Batch	Teacher Name
Monday	C	Supervised by HOD	B	Dr. Rahat		E	Dr. Kamil	A	Dr. Aneela		D	Dr. Uzma
Tuesday	D		C	Dr. Nayab		A	Dr. Aneela	B	Dr. Shazia		E	Dr. Almas
Wednesday	E		D	Dr. Uzma		B	Dr. Shazia	C	Dr. Nayab		A	Dr. Romessa
Thursday	B		A	Dr. Almas		D	Dr. Iqra	E	Dr. Iqra		C	Dr. Nayab
Saturday	A		E	Dr. Romessa		C	Dr. Nayab	D	Dr. Kamil		B	Dr. Rahat

Table No. 2 Batch Distribution and Venues for Anatomy Small Group DisscussionSGDs / Dissections

Batches	Roll No	Anatomy Teacher	Venue	
A	01-120	Dr. Sadia baqir	Anatomy Lecture Hall 03	Supervised by Prof. Dr. Ayesha Yousaf
B	121-240	Dr. Gaiti Ara	New Lecture Hall Complex # 01	
C	241 onwards	Dr. Minahil Haq	Anatomy Lecture Hall 04	

Table No. 3 Batch Distribution with Venues and Teachers Name for Problem Based Learning (PBL) Sessions

Sr No.	Batches	Roll No	Venue	Teachers	Sr No.	Batches	Roll No	Venue	Teachers
1.	A1	(01-35)	Lecture Hall no.05 Physiology	Dr. Farhat Jabeen (PGT Physiology)	6.	C2	(176-210)	Lecture Hall no.04 (Basement)	Dr. Nayab Zonish (PGT Physiology)
2.	A2	(36-70)	Lecture Hall #.04 (1st Floor Anatomy)	Prof. Dr. Ifra Saeed (Professor of Anatomy)	7.	D1	(210-245)	Lecture Hall no.02 (Basement)	Dr. Iqra Ayub (PGT Physiology)
3.	B1	(71-105)	Anatomy Museum (First Floor Anatomy)	Dr. Afsheen Batool (PGT Physiology)	8.	D2	(246-280)	Conference Room (Basement)	Dr. Muhammad Usman (PGT Physiology)
4.	B2	(106-140)	Lecture Hall no.03 (First Floor)	Prof. Dr. Ayesha Yousaf (Professor of Anatomy)	9.	E1	(281-315)	New Lecture Hall no.01	Dr. Ramsha (PGT Physiology)
5.	C1	(141-175)	Lecture Hall no.05 (Basement)	Dr. Shazia (Demonstrator Physiology)	10	E2	(315 onwards)	Lecture Hall no.04	Dr. Jawad Hassan (Demonstrator Physiology)

Table No. 6 Venues for Large Group Interactive Session (LGIS)

Odd Roll Numbers	New Lecture Hall Complex Lecture Theater # 01
Even Roll Number	New Lecture Hall Complex Lecture Theater # 04

Tentative Date Sheet for End of Renal Module Assessment
(17-05-2024 To 23-05-2024)

Date / Day	8:00 AM – 02:00 PM
17-05-2024 FRIDAY	Anatomy Written & AV OSPE
18-05-2024 SATURDAY	Biochemistry Written & AV OSPE & Quran Translation
20-05-2024 MONDAY	Physiology Written & AV OSPE
21-05-2024 TUESDAY	OSVE
22-05-2024 WEDNESDAY	OSVE
23-05-2024 THURSDAY	OSVE

Tentative Date Sheet for End of Block-I (GIT & Renal Module) Assessment
(24-05-2024 To 28-05-2024)

Date / Day	8:00 AM – 02:00 PM
24-05-2024 FRIDAY	LMS Based Block Assessment (MCQs)
25-05-2024 SATURDAY	OSPE
27-05-2024 MONDAY	OSPE
28-05-2024 TUESDAY	OSPE

Note: Timetable Subject to Change

(Logistic details of Assessments will be notified separately)

SECTION-VI

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

Blue Print of Assessment for First Year & Second Year MBBS

Table of Specification

Tools of Asssessment: Cognitive: MCQ- Multiple Choice Questions, EMQs- Extended Matching Questions, SAQ- Short Answer Questions, SEQ- Short Essay Questions Psychomotor: AvOSPE- Audio Visual Assisted Objective Structured Pactical Examination, labOSPE- Laboratory Based Objective Structured Practical Examination, IOSPE- Integrated Objective Structured Practical Examination, COSPE- Clinically Oriented Objective Structed Practical Examination Affect: AED Reflective Writing- Artificial Intelligence, Entraprenureship, Digital Literacy based reflective writing, OSVE- Objective Structured Viva Assessment

Domains: C-Core Subject (70%) Levels C1-C2, HV- Horizontal & Vertical Integration (20%) Levels C2-C3, S- Spiral Integration (10%) Levels C2-C3

End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment											Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
First Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessment of 30 MCQs (10 MCQs per Subject)																																	
End of Module Assessment	Subject	Theory (Cognitive) Assessment																			Practical (Skill & Attitude) Assessment											Grand Total	Total Time of Module Assessment
		MCQs					EMQs			SAQs					SEQs				Marks	Total Marks Theory	Total Time	AV OSPE					Time	AED Reflective Writing	OSVE			Total Practical Marks		
		C	HV	S	Total	Marks	C	Total	Marks	C	HV	S	Total	Marks	C	HV	S	Total				C	HV	S	Total	Marks			Viva	Copy	Total			
Second Module	Anatomy	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Physiology	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
	Biochemistry	19	4	2	25	25	1	1	5	3	1	1	5	25	3	1	1	5	45	100	2 HRS	7	2	1	10	50	50 min	15 min	45	5	50	100	200	6 HRS
Formative- Weekly LMS Based Assessmen tof 30 MCQs (10 MCQs per Subject)																																	

Block	Subjects	LMS Based Assessment					OSPE						Grand Total	Total Block Time
		MCQs					LabOSPE	IOSPE	COSPE	Total	Marks	Time		
		C	HV	S	Total	Time	C	HV	S					
BLOCK	Anatomy	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Physiology	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS
	Biochemistry	21	6	3	30	30 min	14	4	2	20	60	6 HRS	90	6.5 HRS

50% Questions/OSPE Stations/Viva Stations will be from Foundation Module and 50% Questions will be from MSK-1 Module

For Each assessment student will have to individually pass Theory and Practical components

Weekly LMS Assessment			
Subjects	Anatomy	Physiology	Biochemist
No of MCQs*	30	30	30
Marks/MCQ	30	30	30
*MCQ=1 Mark each, 1 min each			

Marks per Item

MCQ=1	EMQ= 5	SAQ= 5	SEQ= 9	AVOSPE= 5		OSPE= 3

OSPE Time=1 Round of 40 Students =80 min

3 Round of 40 Students =240 min

OSVE=Time per student=5mins

Table of Specification for Integrated OSPE

Anatomy					
Sr. #	**Topics**	**Knowledge**	**Skill**	**Attitude**	**Marks**
Block 1 – GIT & Renal					
1	Deveplopment 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 & Video Assisted OSPE)

Note: These sample papers aim to facilitate comprehension. However, it's important to note that the content and format of actual assessment papers may differ.

RAWALPINDI MEDICAL UNIVERSITY
ANATOMY DEPARTMENT (MCQs)
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. A 56-year-old woman comes to the physician because of a 2-year history of recurrent urinary tract infections accompanied by left flank pain. Physical examination shows no abnormalities. Renal ultrasonography shows left-sided hydronephrosis. A T2-weighted coronal MRI of the abdomen is shown; the arrow indicates the hydronephrosis. The leftrenal collecting system is most likely obstructed at which of the following anatomic locations in this patient? (USMLE Pattern)

    a. Bladder neck
    b Mid ureter
    c. Renal calyx
    d. Ureteropelvic junction
    e. Ureterovesical junction

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 PHYSIOLOGY
SECOND YEAR MBBS EXAMINATION (SEQs)
(RENAL MODULE)

Q.1 Briefly outline the physiological role of kidney in maintenance of homeostasis. (5)

Q.2 a) Differentiate between cortical and juxtamedullary nephrons (2)

b) Summarize the safety factors that prevent edema (3)

Q.3 a) Name the abnormalities of micturition and their causes. (3)

b) How does the higher centers of brain control the micturit on reflex? (2)

Q. 4 a) Define GFR and write its normal value. (2)

b) Enlist the factors that increase and decrease GFR. (3)

Q.5 a) Draw and label the juxtaglomerular apparatus. (3)

b) How does a high protein intake affect the GFR? (2)

RAWALPINDI MEDICAL UNIVERSITY DEPARTMENT OF BIOCHEMISTRY
2ND YEAR MBBS (MCQs)
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

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.

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

4. Following is the cause of Respiratory acidosis:

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

5. A 60-year-old woman is brought to the emergency department because of a 4-day history of fever, joint aches, and rash. Three weeks ago, she was admitted to the hospital for treatment of Staphylococcal aureus endocarditis. She has received 21 days out of a prescribed 42-day course of intravenous oxacillin. Currently, she appears to be in mild distress. Temperature is 38.0°C (100.4°F), pulse is 115/min, respirations are 24/min, and blood pressure is 120/70 mm Hg. Pulse oximetry on room air shows an oxygen saturation of 97%. Physical examination shows a diffuse maculopapular rash over the trunk and upper and lower extremities. There is no pus or erythema at the skin insertion site of the peripherallyinserted central catheter line initially placed on the day of hospital discharge.

Results of laboratory studies are shown:
Hemoglobin 11.1 g/dL
Hematocrit 33%
Leukocyte count 12,100/mm3.
Segmented neutrophils 78%
Eosinophils 9%

Lymphocytes 7%
Monocytes 6%
Platelet count 341,000/mm3.
Serum
Na+ 133 mEq/L
K+ 6.5 mEq/L
Cl− 100 mEq/L
HCO3
− 15 mEq/L
Urea nitrogen 65 mg/dL
Glucose 96 mg/dL
Creatinine 5.7 mg/dL

Urine microscopy shows eosinophils and WBC casts. Which of the following is the most likely underlying cause of this patient's condition?
a. Collapsing focal segmental glomerulosclerosis.
b. Glomerular hypertrophy with hemorrhage and necrosis
c. Interstitial inflammatory infiltrate
d. Mesangial expansion with glomerular basement membrane thickening
e. Proximal tubular dilation with loss of brush border

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 (MCQs)
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

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

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.

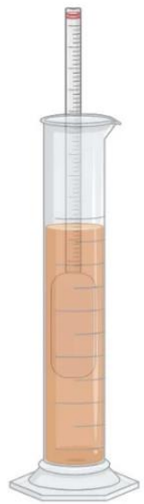
a. Identify slide A (1)
b. Identify slide B (1)
c. Give one histological feature to distinguish between colon and rectum (1)

OSPE BLOCK - I
DEPARTMENT OF PHYSIOLOGY

Observed Station

Time Allowed: 2 minutes.

1. Check the specific gravity of given sample. **2**
2. How will use interprete the result. **1**



OSPE BLOCK - I
DEPARTMENT OF PHYSIOLOGY

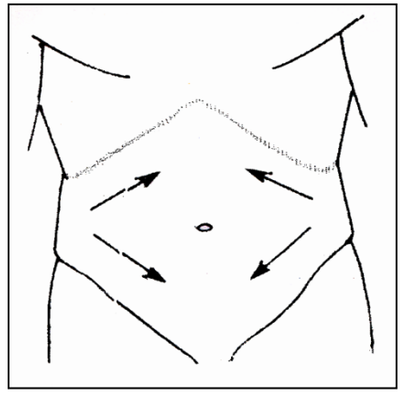
Unobserved Station

Time Allowed: 2 minutes.

Task:

Carefully read and answer the following questions:

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

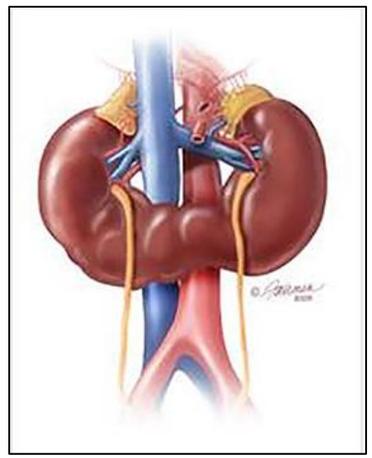
Observed Station.

Perform Rothera's test on urine sample. 03

AV OSPE BLOCK - I
DEPARTMENT OF ANATOMY

Q.1 Write name of congenital abnormality

Q,2 Give embryological basis of this anomaly.



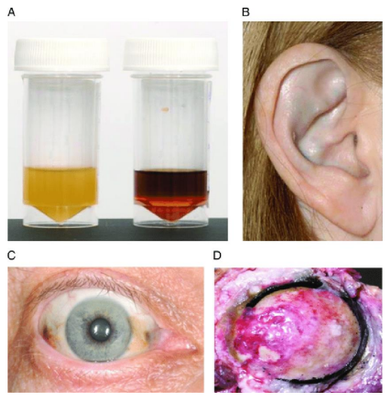
AV OSPE BLOCK - I
DEPARTMENT OF PHYSIOLOGY

Q.1 A 5-year-old child is brought to primary physician with a history of on and off generalized body swelling for the past 6 months. He had a history of fever, cold, cough, and frothy micturition for the past 4 days. Laboratory investigations showed protein in urine and reduced serum albumin levels.

a) Give the probable diagnosis. 2.5

b) What is the physiological basis of edema in this condition. 2.5

AV OSPE BLOCK - I
DEPARTMENT OF BIOCHEMISTRY



Q1. Which Clinical condition is shown in the above image? 1.5

Q2. What is the basic enzyme defect? 1.5

Q3. What is the biochemical basis of clinical features? 02