

Physiology Department
CMH Institute of Medical Sciences (CIMS)
Multan



Student Study Guide
2nd Year MBBS
2025

Departmental Vision Statement

Welcome to the Department of Physiology at CMH Institute of Medical Sciences (CIMS) Multan. Our main objective is the provision of resources and opportunities that encourage excellence in learning among students and faculty and to provide impeccable service to the institute.

Our priority for medical students is to equip them in the discipline of Human Physiology, by imparting knowledge and understanding of structure and functions of human system; to foster the development of professional skills through a well-designed curriculum based on experiments, training and research.

We are very pleased to have an outstanding team contributing to the success of the Department of Physiology. We strive to continue to provide exceptional teaching to our students.

Best Regards

Head of Department

Assistant Professor

Dr. Sidra Arshad

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Details of Faculty

Sr. No.	Name	Designation	Qualification
1.	Dr. Sidra Arshad	HOD, Assistant Professor	MBBS, FCPS (Physiology)
2.	Dr. Faiza	Assistant Professor	MBBS, FCPS (Physiology)
3.	Dr. Iqra Imtiaz	Demonstrator	MBBS, FCPS (Physiology)
4.	Dr. Iqra Amin	FCPS Physiology Trainee	MBBS/ FCPS Physiology Trainee
5.	Dr. Huda Asif	FCPS Physiology Trainee	MBBS/ FCPS Physiology Trainee
6.	Dr. Hina Akram	Demonstrator	BDS
7.	Dr. Mahnoor Fatima Tariq	Demonstrator	MBBS
8.	Dr. Rida Fatima	Demonstrator	MBBS
12.	Dr. Mahnoor Saleem	Demonstrator	MBBS
13.	Dr. Naila Khattak	Demonstrator	MBBS

Curricular Map

Blocks	Module	Duration	Teaching Methodology	Assessment Methodology
Block I	Digestive System & Metabolism	13 weeks	• Lectures • CBL • SDL • Practical	<u>Integrated Tests:</u> At end of each module: theory & OSPE
	Genitourinary System			<u>End of Block Exam:</u> Theory, OSPE, Viva Voce
Block II	Genetics & Neurosciences	9 weeks	• Lectures • CBL • SDL • Practical	<u>Integrated Tests:</u> At end of each module: theory & OSPE
				<u>End of Block Exam:</u> Theory, OSPE, Viva Voce
Block III	Maxillofacial & Special Senses	12 weeks	• Lectures • CBL • SDL • Practical	• Integrated Tests: At end of each module: theory & OSPE
	Endocrinology			• End of Block Exam: Theory, OSPE, Viva Voce

Preamble

Integration has been accepted as an important educational strategy in medical education. NUMS believes in continuous curriculum revision through regular reviews and feedback of stakeholders. This curriculum has been updated with Correlation as a minimum level of integration in MBBS. This curriculum is outcome based, patient centered, community relevant, promotes health and prevents disease. It has been revised by the faculty of basic and clinical sciences from constituent/affiliated colleges in collaboration with NUMS Academic Directorate and NUMS department of Health Professions Education.

Curriculum perspective

NUMS curriculum is evolved taking into consideration constructivist and behaviorist with some element of cognitivist approach. It allows students to construct their own knowledge based on what they already know and to use that knowledge in purposeful activities requiring decision making, problem solving, and judgments.

Level of integration

NUMS will follow Correlation i.e level 7 of Harden's level of Integration in first four years. The emphasis remains on disciplines or subjects with subject-based courses taking up most of the curriculum time. Within this framework, an integrated teaching session or course is introduced in addition to the subject-based teaching. This session brings together areas of interest common to each of the subjects. Though the teaching is discipline based, topics are correlated and taught with clinical context for better understanding and application of concepts. However clinical teaching increases gradually with advancing years. MBBS Year V is for clerkships

Curricular organization and structure

- a. NUMS MBBS curriculum in the first three years shall be delivered in a System Based Modular Format with clinical relevance. However, in year III, students shall get clinical exposure through rotations in the wards and OPDs and in Year IV & V through clerkships
- b. There will be three blocks in year II, each will have modules, duration of which depends upon the number and complexity of the objectives to be achieved in that module
- c. The curriculum will be delivered by modular teams of multidisciplinary basic science faculty and relevant clinical faculty.
- d. The planning and delivery will be coordinated by year coordinators who will guide module coordinators of their respective years for efficient implementation
- e. Modular Coordinator will be responsible for teaching and assessment during each module. S/he will be appointed by HoDs in coordination with HPE team
- f. Clinical Coordinator will be responsible for placement, teaching and assessment during clinical rotations
- g. All NUMS colleges will provide study guides of each module to the students
 - 1) To attain the integration in MBBS program, teaching shall be done in three spirals Basis of Medicine (Spiral I -Years I & II): The syllabus will be integrated horizontally around systems of the body in which Anatomy, Physiology and Biochemistry will be taught with clinical relevance. Additional chunks of content will be added in a module that exactly does not fit in the central theme of the module.
 - 2) Longitudinal themes (English, Clinical Photography & videography and Research Methodology & EBM) are an integral part of year I. However, assessment of these subjects will be the responsibility of institute itself
 - 3) Islamiat and Pakistan Studies will be assessed by the University in second professional exam
 - 4) Apart from attending daily scheduled sessions, students should engage in selfdirected learning to achieve the desired objectives

- 5) Professional Exams will be block wise. There will be three papers, one paper for each block

Competencies

The focus of this curriculum is on the roles of a general physician as identified by PMC. These are skillful, knowledgeable, community health promoter, critical thinker, professional and role model, researcher and leader. Competencies focused in year I and II are: -

- Medical Knowledge
- Procedural skills
- Problem solving
- Communication skills
- Professionalism
- Research

Outcomes

By the end of years, I & II, students should be able to:

- a. Correlate the developmental and anatomical knowledge of different organ systems of human body to their physiological and biochemical basis
- b. Communicate clearly and effectively.
- c. Apply theory of clinical photography and videography to practice in simulated & clinical settings.
- d. Discuss the basic principles of research

Contact Hours Physiology Year-II: 225 hours

Educational Strategies:

(These are proposed, but institutes can use other evidence-based teaching methodologies that suit their context)

- a. Interactive Lectures
 - b. Small group discussion
 - c. Lab practical
 - d. Skill lab
 - e. Problem based learning/ Case based learning
 - f. Tutorials
 - g. Integrated sessions using any of the above strategies
 - h. Self-directed learning (SDL) and directed self-learning (DSL)

Internal Assessment:

- Formative assessment (low stake) is at faculty discretion like mid module test and other class tests.
- There will be three end of blocks and one pre-annual examination in year II, which contributes towards the weighting of internal assessment i.e 20% in second professional MBBS Examination.

Annual Professional Examination (80% weightage)

- The University will take the second professional Examination at the end of the academic year.
- There will be three papers (block wise) of 150 marks each, with MCQs and SEQs/SAQs in 70: 30 ratios.
- Each theory paper has three sections of Anatomy, Physiology and Biochemistry with total 40 Marks of each subject in each paper.
- There will be 3 x Integrated Practical Exam and structured viva block wise of 150 Marks each. Rotation Plan is attached as Annex-B
- English and Elective course will be assessed by the institute itself. Pass marks will be 50%.
- It is mandatory to secure min. 50% marks in each subject in prof papers (I,II & III) in theory and practical separately
- Supplementary Exams – student will repeat the block-wise paper in which he/she secures less than 50% Marks (both theory & Practical) in any section.

MBBS YEAR II
BLOCK IV
MODULE VIII
Digestive system and Metabolism – I
Duration : 05 weeks

Preamble:

This module focuses on histo-morphological and embryological structure as well as physiological and biochemical functioning of digestive system. It also emphasizes on the carbohydrates' chemistry, metabolism, nutrition and role of vitamins in different metabolic disorders. It allows students to appraise integration and regulation of metabolic pathways in different tissues.

Learning process involves delivering the content with clinical relevance. At the very outset medical student should understand the importance of gastrointestinal system in the fields of Medicine. The Pakistan Studies, Research methodology and Behavioral Sciences will be taught as a part of the longitudinal theme

Learning Outcome:

By the end of this module, student should be able to

1. Relate the gross anatomical, developmental & light microscopic features of GIT and Hepatobiliary system with their physiological functions and biochemical basis
2. Appraise the importance of protein chemistry, metabolism and nutrition in different metabolic disorders
3. Apply their relevant knowledge of this module in subsequent years of clinical training and practice

Block IV Module VIII					
<u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Introduction to GIT					
	Physiology - Discuss the physiologic anatomy of gastrointestinal tract. - Identify the role of interstitial cells of Cajal in the electrical activity of G.I smooth muscle	- LGIS - CBL (Gastroenteritis)	MCQs, SAQs/SEQs Structured OSPE, Viva voce Portfolio/Journal		
Anterior abdominal wall					
Correlate the topographic anatomy of anterior abdominal wall with their functions and applying this knowledge for analysing relevant scenarios.	Physiology Examination of abdomen by following the sequence of steps; inspection, palpation, percussion and auscultation.	Practical	MCQs, SAQs/SEQs	Structured OSPE, Viva voce	Portfolio/Journal

Block IV Module VIII					
Digestive System & Metabolism I					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Esophagus					
Correlate the anatomical structure of esophagus with its function and relevant clinical conditions.	Physiology - Describe the process of swallowing - Enumerate different phases of swallowing reflex and be able to make its flow diagram - Elaborate different steps occurring in the involuntary phase of swallowing - Identify the effects of pharyngeal phase of swallowing on respiration - Discuss how different types of peristalsis in oesophagus are taking place. - Identify the importance of esophageal sphincter. Clinical significance	LGIS	MCQs, SAQs/SE Qs	Structure d OSPE, viva voca	Portfolio

Block IV Module VIII <u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
	- Discuss the disorders of swallowing (dysphagia, achalasia). - Explain the pathophysiology of achalasia cardia.				
GIT Hormones					
Discuss different hormones from G.I.T and their regulation.	Physiology - Classify different types of G.I hormones. - Discuss the sites of secretion and stimuli for secretion of different hormones from G.I.T and their regulation - Enumerate the factors leading to the process of vomiting. - Identify the location of vomiting center in the brain	LGIS	MCQs, SAQs/SE Qs	Structured OSPE, Viva voca	Portfolio/Journal

Block IV Module VIII <u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
	- Comprehend the vomiting reflex and make its flow diagram. - Discuss the role of chemoreceptor trigger zone for initiating vomiting.				
Stomach					
Correlate the anatomical structure of stomach with its function and relevant clinical scenarios.	Physiology - Enlist and discuss different functions of stomach - Discuss the role of basic electrical rhythm in regulation of G.I motility - Discuss the process and phases of stomach emptying - Explain the different factors regulating stomach emptying - Enlist different hormones secreted in stomach - Explain disorders of the stomach - State the mechanism for damage to the gastric mucosal barrier by aspirin, bile acids, and <i>Helicobacter pylori</i>	LGIS CBL (Peptic ulcer)	MCQs, SAQs/SEEQs	Structured OSPE, Viva voce	Portfolio/Journal

Block IV Module VIII					
Digestive System & Metabolism I					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Small intestine					
Correlate the anatomical structure of small intestine with its function and relevant clinical scenarios.	Physiology - Enlist secretory functions of small intestine - Differentiate between propulsive and mixing movements of small intestine - Identify the role of ileocecal valve - Describe different disorders of small intestine	LGIS	MCQs, SAQs/ SE Qs	Structured OSPE, Viva voca	Portfolio/Journal
Large intestine					
Correlate the anatomical structure small intestine with its function and relevant clinical scenarios.	Physiology - Categorize different functions of large intestine - Compare the propulsive and mixing movements taking place in colon. - Identify the role of gastrocolic and duodenocolic reflexes in regulation of mass movements.	LGIS	MCQs, SAQs/ SE Qs	Structured OSPE, Viva voca	Portfolio/Journal
Block IV Module VIII					
Digestive System & Metabolism I					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
	Enlist the secretory functions of large intestine and its nervous control.				
Nutrition					

Apply the knowledge of requirement of nutrition for understanding relevant metabolic disorder.	Physiology Calculate the BMI and waist circumference.	Practical	MCQs, SAQs/SE Qs	Structure d OSPE , Viva voca	Portfolio/Journal
Rectum and anal canal					
Describe the structure, internal features of rectum and anal canal with clinical conditions associated with these viscera	Physiology - Explain the process of defecation - Explain the pathway of defecation reflex with the help of a flow diagram - Enlist and explain different types of defecation reflexes	LGIS-1	MCQs, SAQs/SE Qs	Structure d OSPE , Viva voca	Portfolio/Journal

<u>Block IV Module VIII</u> <u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Innervation of GIT					
Analyze the interplay of autonomic and enteric nervous system in GI functions.	Physiology - Differentiate between slow wave potentials and spike potentials in GIT - Explain the role of other factors like stretch, & paracrine hormones in the generation of action potential in GI smooth muscles - Describe the organization of enteric nervous system and elaborate its role in control of G.I function - Appraise the role of ANS in controlling the gut motility and secretions. - Differentiate between myenteric and sub mucosal plexuses - Explain the autonomic control of G.I tract.	LGIS	MCQs, SAQs/ SE Qs	Structured OSPE, Viva voca	Portfolio/Journal

<u>Block IV Module VIII</u> <u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Liver					

Correlate the anatomical features of liver with its function and clinical conditions.	Physiology - Elaborate the metabolic and non-metabolic functions of liver and correlate with different functions of GIT. - Enlist and explain the main functions of liver. Clinical relevance - Identify and differentiate the types of jaundice and discuss physiological basis of each type	LGIS CBL (Viral hepatitis, neonatal jaundice)	MCQs, SAQs/SE Qs	Structured OSPE, Viva voca	Portfolio /Journal
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Hepatobiliary system and Gallbladder

Correlate the anatomical features, functions of hepatobiliary apparatus and gallbladder with clinical conditions	Physiology - Elaborate the metabolic and non-metabolic functions of correlate with different functions of GIT. - Enlist and explain the main functions of Gall bladder	LGIS	MCQs, SAQs/SE Qs	Structured OSPE, Viva voca	Portfolio /Journal
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Block IV Module VIII Digestive System & Metabolism I

Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
	- Identify the factors affecting emptying of the gall bladder Clinical relevance - Enlist the risk factors and symptoms of gall stones, cholecystitis. - Explain known diseases of Gall bladder				

Spleen					
Relate the anatomical structures, physiological functions of spleen to its clinical significance	Describe the common causes of splenomegaly	LGIS CBL	MCQs, SAQs/SE Qs	Structured OSPE, Viva voce	
Pancreas					
<u>Block IV Module VIII</u> <u>Digestive System & Metabolism I</u>					
Learning Outcomes	Learning Objective	Teaching & Learning Strategies	Assessment		
			K	S	A
Correlate the anatomical features of pancreas with its functions and clinical condition	Clinical relevance - Explain the regulation of exocrine secretions of the pancreas - Correlate the clinical scenario of obstructive jaundice with pancreatitis, obstruction of hepatopancreatic ampulla, cancer of head of pancreas & bile duct. - Justify the referred pain of acute pancreatitis with anatomical reasoning. - Pancreatic pseudocyst - Risk factors and symptoms of acute and chronic pancreatitis	LGIS CBL	MCQs, SAQs/SE Qs	Structured OSPE, Viva voce	Portfolio/Journal

PRACTICALS	
Learning Outcomes	Tools
• Calculate BMI & Waist Circumference on SP • Determine the Mean, Mode and Median for the batch on SP following correct sequence of • inspection, palpation, percussion and auscultation	OSPE/ IPE

Linkers of Integrated sessions:

- Swelling in groin/inguinal hernia
- Dysphagia/ Achlasia
- Nausea & Vomiting / Pain epigastrium/ Peptic Ulcer
- Diarrhea/ Constipation/ Abdominal distention
- Jaundice/ Cirrhosis
- Malnutrition

MBBS YEAR II
BLOCK IV
MODULE IX
Genitourinary System Module
Duration : 07 weeks

Preamble:

This module includes basic understanding of histo-morphological embryological and physiological basis of genitourinary system. Learning process involves delivering the content with clinical relevance. Learning process involves delivering the content with clinical relevance. At the very outset medical student should understand the importance of genitourinary system in the fields of Medicine. The research methodology and Behavioral Sciences will be taught as a part of the longitudinal theme.

Learning Outcome:

By the end of this module, student should be able to correlate the physiological and biochemical concepts related to genitourinary system with their anatomical knowledge and apply their relevant knowledge of this module in subsequent years of clinical training and practice

<u>Block VI</u> <u>Module IX</u> <u>Genitourinary System</u>					
Learning Outcomes	Learning Objectives	Teaching Strategies	Assessment		
At the end of this module, students will be able to:			K	S	A
1. KIDNEY (Oliguria/ Lumbar pain)					
Relate the anatomical structures, physiological functions and biochemical processes of kidney to its clinical significance	Physiology: • Give a cross section of a kidney, identify the renal cortex, medulla, calyces, medullary pyramids, renal pelvis, renal artery, renal vein, and ureter. • Describe in sequence the tubular segments through which ultrafiltrate flows • Distinguish between cortical and juxtamedullary nephrons. • Identify the structures of the glomerular tuft: the afferent and efferent arterioles, glomerular capillary network, mesangium, Bowman's capsule, and the juxtaglomerular apparatus (including macula densa). • Enlist the functions of kidneys	LGIS CBLs, SGD's	MCQs/ SAQs/ SEQs	OSPE, Structured Viva	Portfolio
Relate the anatomical structures, physiological functions And biochemical	Physiology: • Describe the three podocytes, foot processes, slits and the	LGIS CBLs, SGD's	MCQs/ SAQs/ SEQs	OSPE, Structured Viva	Portfolio

processes involved in determining	basement membrane. - Describe the composition of the glomerular filtrate - Discuss the determinants of the GFR - Explain the physiological control of glomerular filtration and renal blood flow - Describe the myogenic, humoral and tubuloglomerular feedback mechanisms that mediate the autoregulation of renal plasma flow and glomerular filtration rate. - Relate the evaluation of patient of chronic kidney disease with GFR and other kidney functions. - Identify the difference between GFR and eGFR.				
	Physiology: - Describe in sequence, the blood vessels through which blood flows when passing from the renal artery to the renal vein, including the glomerular blood vessels, peritubular capillaries and the vasa recta. - Identify the effects of variations in renal blood flow on GFR and tubular reabsorption (kidney functions). - Identify the common causes of renal vascular disease along with risk factors and complications.	LGI S CBL s, SG Ds	MCQs/SA Qs/ SEQs	OSPE, Structure d Viva	Portf oli o

elate the anatomical structures, physiological functions and biochemical processes involved in tubular reabsorption along different parts of nephron to its clinical significance	- Describe reabsorption and secretion by the renal tubules - Describe the function of the following renal transporters and their predominant localization along the tubules with regard to nephron segment and apical versus basolateral membranes - Transport ATPases (Na⁺/K⁺ ATPase, H⁺/K⁺-ATPase, H⁺-ATPase, and Ca²⁺-ATPase), Ion and water channels (K⁺, ENaC, Cl⁻, Ca²⁺, aquaporins) , Coupled transporters (Na⁺-glucose, Na⁺/H⁺-antiporter, Na⁺-K⁺-2Cl⁻-symporter, Na⁺-phosphate symporter, Na⁺-Cl⁻-symporter, Na⁺-HCO₃⁻-symporter, Cl⁻/HCO₃⁻- antiporter)	LGIS CBL, SGDs	MCQs/ SA Qs/ SEQs	OSPE, Structu re d Viva	Portf oli o
Relate the anatomical structures, physiological functions	Physiology: - Define the obligatory urine volume - Explain the formation of dilute urine - Discuss the control of extracellular fluid osmolarity and sodium concentration by kidneys - Elaborate osmoreceptor-ADH feedback system - Identify role of thirst in controlling extracellular fluid osmolarity and sodium concentration	LGIS CBLs, SGDs	MCQs/ SA Qs/ SEQs	OSPE, Structu re d Viva	Portf oli o
Relate the anatomical structures, physiological functions	Physiology: Enumerate requirements for excreting a concentrated urine— high ADH levels and hyperosmotic renal	LGIS CBLs, SGDs	MCQs/S A Qs/ SEQs	OSPE, Struct ure d Viva	Portf oli o

and biochemical processes involved in formation of concentrated urine to its clinical significance	• Discuss the countercurrent mechanism for generating a hyperosmotic renal medullary interstitium • Identify and explain the role of distal tubule and collecting ducts in excreting a concentrated urine • Discuss the role of urea and explain urea cycle for generating hyperosmotic renal medullary interstitium and in the formation of concentrated urine • Describe the countercurrent exchange in the vasa recta in preservation of hyperosmolarity of the renal medulla • Explain the concentrating mechanisms and changes in osmolarity in different segments of the tubule • To be able to quantify renal urine concentration and dilution: "Free Water" and osmolar clearances • Discuss the disorders of urine concentrating ability • Describe the effects of different hormones on renal tubules	LGIS			
		LGIS			
Relate the anatomical structures, physiological functions	Physiology: • Discuss the regulation of internal potassium distribution	LGIS CBLs, SGDs	MCQs/SA Qs/ SEQs	OSPE, Structured Viva	Portfolio

biochemical processes involved in potassium homeostasis to its clinical significance	- Describe the mechanism of potassium secretion by principal cells of late distal and cortical collecting tubules - Describe the factors that regulate K⁺ secretion in the collecting duct (i.e., aldosterone, plasma K⁺) and distinguish these from factors that alter K⁺ secretion at this site (i.e., luminal fluid flow rate, acid-base disturbances, anion delivery). - Identify and explain hazardous effects of hypokalemia and hyperkalemia				
Relate the anatomical structures, physiological functions electrolytes to clinical significance	Physiology: - To be able to comprehend the regulation of calcium by renal tubules - Be able to explain the role of parathyroid hormone in calcium regulation - Discuss the renal regulation of phosphate and magnesium.	LGIS	MCQs/SA Qs/SEQs	OSPE, Structured Viva	Portfolio
2. "FLUID & ELECTROLYTE BALANCE (Dehydration)					
Correlate the anatomical, physiological,	Physiology - Explain total body water content - Quantify daily intake and output of water from the body - Compare and contrast the ionic composition of ECF and ICF - Explain the indicator dilution principle for the	LGIS CBLs, SGDs	MCQs SA Qs/SEQs	OSPE, Structured Viva	Portfolio

	measurement of fluid volumes in the different body fluid compartments Describe the role of angiotensin II and aldosterone extracellular fluid osmolarity, blood volume and sodium tration				
Relate the physiological and biochemical principles to explain the clinical conditions of hypo and hypernatremia. Discuss the use of different solutions in maintenance of fluid and electrolyte balance in different clinical conditions.	Physiology - Calculate the net filtration force at the glomerular capillaries with the given capillary and Bowman's capsule hydrostatic and oncotic pressures. - Calculate the net filtration force at the glomerular capillaries. - Predict the changes in glomerular filtration caused by increases or decreases in any of these pressures - Relate the pathophysiological basis of water balance in the body with its clinical implications (dehydration, vomiting, circulatory shock and SIADH)	LGIS, CBLs, SGDs	MCQs S A Q s / S E Q s	OSPE, Struct ure d Viva	Portf oli o
Explain edema types, clinical significance and factors responsible for causing edema.	Physiology: - Explain the role of Starling forces in - Correlate role of lymphatics with prevention of edema - Appreciate the significance of edema safety factor - Discuss the mechanism of fluid accumulation in	LGIS CBLs, SGDs	M C Qs / SA Qs / SE Qs	OSPE, Struct ure d Viva	Portf oli o

	the potential spaces				
	Compare and contrast the intracellular and extracellular edema				
3. ACID BASE BALANCE (Acid base disorders)					
Relate the anatomical structures, physiological functions and biochemical processes involved in regulation of acid base status to its clinical significance	Physiology: - Discuss the role of renal - Discuss the Renal Correction of acidosis— increased excretion of hydrogen ions and addition of bicarbonate ions to the extracellular fluid - Discuss the renal correction of alkalosis— decreased tubular secretion of hydrogen ions and increased excretion of bicarbonate ions - Identify and explain causes of acid base Disorders	LGIS CBLs, SGDs	M C Qs / SA Qs / SE Qs	OSPE, Structured Viva	Portfolio
Relate the anatomical structures, physiological functions and biochemical processes involved in pathophysiology of renal failure to its clinical significance	Physiology: - Explain acute and chronic renal failure (including nephritic and nephrotic syndrome) - Explain the basics of dialysis - Differentiate between peritoneal and hemodialysis.	LGIS CBLs, SGDs	M C Qs / SA Qs / SE Qs	OSPE, Structured Viva	Portfolio

4. Ureter & Urinary Bladder (Ureteric Colic/ Retention of Urine)					
Relate the anatomical structures and physiological functions involved in process of micturition (urinary bladder) to its clinical significance	Physiology: - Identify the physiological anatomy and nervous connections of the bladder - Explain the filling of the bladder and bladder wall tone; the cystometrogram - Discuss the micturition reflex and facilitation or inhibition of micturition by the brain - Describe the abnormalities of micturition	L G I S , C B L , S D G	M C Qs / SA Qs / SE Qs	OSPE, Struct ure d Viva	Portf oli o
5. PELVIS & PERINEUM					
	Physiology Male reproductive system - Explain the functional anatomy of the male reproductive organs - Describe the process of spermatogenesis - Explain the function of the seminal vesicles and prostate gland - Explain the abnormalities of spermatogenesis and male fertility and their pathophysiological basis - Describe the secretion and functions of testosterone and feedback loop regulating its secretion. Female reproductive system - Summarize the	ILGD			

	functional anatomy of the female sexual organs • Enlist the ovarian hormones • Describe the functions of estrogen and progesterone • Explain the monthly ovarian cycle and the role of the gonadotropic hormones • Summarize the regulation of the female monthly rhythm and the interplay between the ovarian and hypothalamic-pituitary hormones in the feedback regulation of monthly ovarian cycle • Explain puberty and menarche and menopause				
Appreciate the physiological phenomenon underlying pregnancy, parturition and lactation	Physiology • Describe maturation and fertilization of the ovum • Explain the process of transport of the fertilized ovum in the fallopian tube • Describe the implantation of the blastocyst in the uterus and early nutrition of the embryo • Summarize the response of the mother's body to Pregnancy • Explain the changes in the maternal circulatory system during pregnancy • Explain the role of human chorionic gonadotropin in Pregnancy • Describe the placental Significance	L G I S	MCQs/ SA Qs/SE Qs	OSPE, Struct ure d Viva	Portf olio

	• Explain parturition and onset of labor and the hormones regulating it • Explain the mechanism of lactation and the hormones regulating it	LGISs, CBLs, SGD's	MCQs/SA Qs/SE Qs	OSPE, Structured Viva	Portfolio
Appreciate the physiological basis of fetal growth and neonatal adjustment to extra-uterine life	• Summarize the growth and functional development of the fetus • Explain the adjustments of the infant to extra-uterine life • Describe circulatory readjustments at birth	LGIS, CBLs, SGD's	MCQs/SA Qs/SE Qs	OSPE, Structured Viva	Portfolio

PRACTICALS	
Learning Outcome	Assessment
• Interpret metabolic acidosis and alkalosis on an Arterial Blood Gases report • Estimate urine specific gravity on a given sample • Perform pregnancy test by kit and urinary dipstick method	OSPE, Portfolio

Linkers of Integrated session

1. Edema/ Dehydration
2. Pain in right flank
3. Polyuria
4. Oliguria
5. Acid base disorders
6. Uterine prolapse
7. Hemorrhoids

MBBS YEAR II
BLOCK V
MODULE X
Neurosciences I & Genetics
Duration: 08 weeks

Preamble

The Neurosciences module is 08 weeks' module that focuses on the study of nervous system. It is a cross- disciplinary field that evolves around the development and functioning of the nervous system along with the mechanisms that underlie neurological disease. This module provides exposure to the field in depth and breadth. Through this module, students will develop an integrated, scientific knowledge that will help them in clinical setting, plus creative and problem-solving skills.

Learning Outcome:

By the end of this module, student should be able to correlate the physiological and biochemical concepts related to nervous system with their anatomical knowledge and apply their relevant knowledge of this module in subsequent years of clinical training and practice

<u>Block V</u> <u>Module X</u> <u>Neurosciences I & Genetic</u>			
Learning Outcomes	Subject Learning Outcomes	Teaching & Learning Strategies	Assessment
At the end of this module, students will be able to:			
1. Foundations of Neurosciences			
Apply the basic anatomical and physiological principles of common neurological processes by correlating the structures forming the nervous system with their functions. Interpret the physiological mechanisms controlling the functions of sensory system	- Describe the functions of different types of neurons and neuroglial cells. - Differentiate between various types of synapses. - Elucidate the electrical events during neuronal excitation and inhibition (EPSPs & IPSPs) - Summarize the transmission and processing of signals in neuronal pools (summation, facilitation, convergence, divergence, after discharge, synaptic delay and fatigue) - Classify the various types of sensory receptors based on their structure and function - Explain the sensory stimuli and differential sensitivity of receptors - Explain the sensory transduction into nerve impulses and adaptation of receptors - Classify the nerve fibers that transmit different types of signals on the physiological basis. - Relate neuropeptides and neurotransmitters with their functions	Interactive Lectures CBL, TBL Skills	MCQs SAQs/SEQs OSPE, Structured Viva

	Differentiate between sympathetic and parasympathetic nervous system based on structure, receptors, neurotransmitters and functions		
2. Cranial cavity			
Relate the developmental and anatomical features of cranial cavity to its clinical significance	Physiology: - Examine the cranial nerves on the SP - Explain the pathophysiological basis of the clinical manifestation of different cranial nerves	Lab Skills CBL, TBL	MCQs SEQs, SAQs OSPE, Structured Viva
3. Spinal Cord & Neural Pathways			
Explain the column medial lemniscal system and anterolateral pathways Correlate the pathophysiological basis of pain pathways to their clinical significance	Physiology: - Compare and contrast the dorsal column medial lemniscal system and anterolateral pathways - Differentiate between different sensory tracts - Enlist different types of sensations carried by their relevant sensory tract - Explain the various thermal sensations, thermal receptors, and their excitation and transmission of thermal signals in the nervous system - Classify the different types of pain. - Compare the perception and transmission of the different types of pain. - Explain the pain suppression system in the brain and spinal cord. - Describe the brain's opiate system endorphins and enkephalins	IL, CBL, TBL	MCQs SEQs, SAQs OSPE, Structured Viva

	• Explain the role of proprioceptors (muscle spindles and Golgi tendon organs) in motor movements • Explain dynamic and static stretch reflex • Describe the flexor reflex and the crossed extensor reflex. • Explain the reciprocal inhibition and reciprocal innervation. • Identify the reflexes of posture and locomotion in the spinal cord. • Explain the role of primary motor cortex, premotor area, and supplementary motor area in the control of voluntary motor movements. • Identify the various pathways for the transmission of signals for voluntary motor control from the motor cortex to the muscles. • Explain the significance of anterior motor neurons as the lower motor neurons. • Identify the role of the brain stem in controlling motor function and role in posture of the body against gravity. • Explain the role of pyramidal and extrapyramidal tract in the voluntary motor movements		
4.Brainstem			
Relate the anatomical structures, physiological functions of	<u>Physiology:</u> Discuss the functions of brainstem in regulation of various vital functions in body	LGIS, CBL, TBL	MCQs SEQs, SAQs OSPE, Structured Viva

brainstem to its clinical significance			
5. Cerebellum			
Relate the macro and microscopic structure and physiological functions of cerebellum to its clinical significance	<u>Physiology:</u> - Explain the functional divisions and neuronal circuitry of the cerebellum. - Differentiate between the vestibulo, spino and cerebro cerebellum based on their individual functions.	LGIS, CBL, TBL	MCQs SEQs, SAQs OSPE, Structured Viva
6.Cerebrum			
Relate the anatomical structures, and physiological functions of the cerebrum its clinical significance	<u>Physiology:</u> - Describe the various functional areas of cerebral cortex - Relate the functions of specific cortical areas and association areas in the physiology of speech. - Discuss the higher intellectual functions of the prefrontal areas and the various cortical association areas. - Describe the functions of corpus callosum. - Identify the different types of brain waves and their origin - Explain the effect of varying levels OF cerebral activity on the frequency of the EEG.	LGIS, SGD	MCQs SEQs, SAQs OSPE, Structured Viva
7. Diencephalon			

Relate the anatomical structures, and physiological functions of Diencephalon to its clinical significance	- Describe the functions of thalamus. - Explain the mechanisms of heat production and heat loss. - Describe the regulation of body temperature and role of the hypothalamus - Differentiate between slow-wave sleep and REM Sleep - Describe the basic theories of sleep and physiologic effects of sleep. Explain the changes in EEG at different stages of wakefulness and sleep. - Explain the functions of various components of limbic system and role of hippocampus in memory. - Classify memories based on type of sensory experience, time of retention, synaptic facilitation and habituation - Explain the process of consolidation of memory through chemical and anatomical changes occurring at the synapse	LGIS, SGD	MCQs SEQs, SAQs OSPE, Structured Viva
8. Basal Nuclei			
Relate the anatomical structures, and physiological functions of basal ganglia to its clinical significance	- Relate the role of basal nuclei in cognitive control of sequences of motor patterns. - Explain the direct and indirect circuits of basal ganglia - Explain the role of various specific neurotransmitter substances in the basal ganglia and the pathophysiological	LGIS, CBL, TBL	MCQs SEQs, SAQs OSPE, Structured Viva
9. Ventricular System			
Relate the anatomical structures, and physiological functions of Ventricular system, the CSF,	- Discuss the functions of CSF. - Differentiate between CSF and plasma - Explain the physiological significance of blood brain barrier.	LGIS, SGD	MCQs SEQs, SAQs OSPE, Structured Viva

& the blood-brain & blood-CSF barriers to its clinical Significance			
PRACTICALS			
▪ Examine motor system on an SP ▪ Performs Deep tendon reflexes ▪ Examine the Cerebellar Functions on an SP ▪ Examine the autonomic nervous system on an SP ▪ Examine the Sensory system on an SP ▪ Perform superficial reflexes on an SP ▪ Record the normal body temperature ▪ Examine the 5th, 7th, 9th, 10th, 11th & 12th Cranial nerves on SP			

MBBS YEAR II
BLOCK VI
MODULE XI
Maxillofacial & Special Senses
Duration : 06 weeks

Preamble:

The Maxillofacial & Special Senses module for 2nd year MBBS aims to integrate both basic and clinical sciences. In basic sciences, students will be able to explain developmental, gross and microscopic anatomy of the Head Region & Special Senses along with relevant physiology and biochemistry. Learning process involves delivering the content with clinical relevance. The research methodology and Behavioral Sciences will be taught as a part of the longitudinal theme

Learning Outcome:

By the end of this module, student should be able to correlate the physiological and biochemical concepts related to maxillofacial and special senses with their anatomical knowledge and apply their relevant knowledge of this module in subsequent years of clinical training and practice

<u>Block VI</u> <u>Module XI</u> <u>MAXILLOFACIAL & SPECIAL SENSES</u>			
Learning Outcomes	Subject Learning Outcomes	Teaching & Learning Strategies	Assessment
At the end of this module, students will be able to:			
1. Orbit			
Explain the structure of the eye involved in perception of visual image with emphasis upon the functions of individual structures	• Explain refraction and concept of • Define focal length, focal point and power of lens. • Differentiate between emmetropia, myopia, hyperopia, astigmatism, presbyopia and describe their treatment • Discuss the concept of reduced eye and depth perception. • Describe physiological anatomy of retina and retinal handling of visual signals • Draw the Wald's visual cycle • Justify the role of vitamin A in night blindness • Describe phototransduction • Explain the mechanism of regulation of retinal sensitivity (light and dark adaptation). • Determine the visual acuity of the subject for far and near vision. • Demonstrate the field of vision of the subject. • Demonstrate color vision using Ishihara chart	LGIS SGD CBL	MCQ, SEQ, Structured Viva, OSPE
2. EYE/ VISION			

Explain the structure of the eye involved in perception of visual image with emphasis upon the functions of individual structures. Correlate the Anatomy of each cranial nerve with clinical presentation of their lesions	• Explain the process of formation, circulation, and regulation of aqueous humor • Describe intraocular pressure and pathophysiology of glaucoma. Illustrate the visual pathway and its lesions • Explain the importance of visual evoked potentials • Explain the visual cortex and its functional units. • Describe the mechanism of different types of • Describe the accommodation reflex, light reflex, and their pathway. • Discuss the effects of sympathetic and parasympathetic innervation of eye. • Discuss pathophysiology of strabismus, Horner's syndrome and Argyll Robertson pupil. • Explain colour vision • Demonstration of Reflexes of Eye (CN II) • Examine the fundus of a given SP • Demonstrate movements of the eye	LGIS SGD CBL	MCQ, SEQ, Structured Viva, OSPE
3. Tongue And Oral Cavity			
Compare the different taste sensations based on the morphological structure of the taste	• Describe the primary sensations of taste • Describe the mechanism of stimulation of taste buds and the transduction of different transmission of signals to the CNS • Demonstrate perception of taste sensation	LGIS SGD CBL	MCQ, SEQ, Structured Viva, OSPE

buds and their differential sensitivity to various tastes Relate the anatomical and physiological basis of tongue and oral cavity to its clinical significance			
4. Nose and Paranasal Sinuses			
Relate the functions of structures involved in transduction and perception of olfactory stimuli to its clinical significance.	• Explain the physiological anatomy of olfactory membrane • Explain the mechanism of stimulation of olfactory cells. • Identify the primary sensations of smell • Describe the transmission of signals of olfaction into the central nervous system • Discuss the disorders of smell • Demonstrate examination of olfactory nerve.	LGIS SGD CBL	MCQ, SEQ, Structured Viva, OSPE
5. Ear and Hearing			
Explain the structure of the ear involved in the perception of auditory signals and critique the function of individual structures	Correlate the physiological • Explain the mechanism of conduction of sound waves through the ear to the cochlea • Describe “Impedance Matching” and its importance • Describe the process of attenuation of sounds • Explain the Place Principle	LGIS SGD CBL	MCQ, SEQ, Structured Viva, OSPE

	• Describe the functions of Organ of Corti • Demonstration of hearing tests Explain the mechanism of determination of loudness • Recall the auditory pathway • Recognize the function of cerebral cortex in hearing • Explain the process of determination of direction from which sound is coming		
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Linkers

1. Danger areas face/ Cavernous sinus thrombosis
2. Oral cavity cancers/ lesions
3. Parotid gland swelling/ Mumps
4. Commonly occurring Cranial Nerves lesions
5. Otitis Media/ Deafness
6. Anosmia

MBBS YEAR II
BLOCK VI
MODULE XII
Endocrinology
Duration : 05 weeks

Preamble:

The emphasis of this module is on histo-morphological and embryological structure of endocrinology system as well as the mechanisms involved in regulating hormone levels in an integrated manner. Similarly, this module of endocrine system will enable the students to recognize the clinical presentations of common endocrinological and metabolic disorders and relate clinical manifestations to basic sciences. This Endocrine module will be revisited in the following years. The research methodology and Behavioral Sciences will be taught as a part of the longitudinal theme.

Learning Outcome:

By the end of this module, student should be able to correlate the physiological and biochemical concepts related to genitourinary system with their anatomical knowledge and apply their relevant knowledge of this module in subsequent years of clinical training and practice.

<u>Block VI</u> <u>Module XII</u> Endocrinology			
Learning Outcomes	Subject Learning Outcomes	Teaching & Learning Strategies	Assessment
At the end of this module, students will be able to:			
<u>1. Introduction to Endocrine glands</u>			
Apply the basic anatomical, physiological, and biochemical principles of the Endocrine system in relevance to Endocrine functions and disease processes	- Differentiate between paracrine and autocrine function of hormones - Describe the feedback control of hormone secretion	LGIS, SGD, CBL	MCQs, SAQs/SEQs, OSPE, Structured Viva
<u>2. Hypothalamus and Pituitary Gland</u>			
Relate the anatomical structures, physiological functions and biochemical processes involved in Hypothalamus & Pituitary gland related to its clinical significance	- Describe the functional role of hypothalamic hormones and hypothalamo - hypophyseal portal system in the release of pituitary hormones - Describe the physiological function of Growth hormone and its regulation	LGIS, SGD, CBL	MCQs, SAQs/SEQs, OSPE, Structured Viva
<u>Thyroid Gland</u>			
Relate the anatomical structures, physiological functions and biochemical processes involved in Thyroid gland related to its clinical	Explain the physiological functions of the thyroid hormones and their feedback control	LGIS, SGD, CBL	MCQs, SAQs/SEQs, OSPE, Structured Viva

4. Parathyroid Gland			
Relate the anatomical structures, physiological functions and biochemical processes involved in parathyroid gland to its clinical significance	- Explain the role of bone on calcium and phosphate regulation - Explain the regulatory effect of parathyroid hormone and calcitonin on calcium and phosphate metabolism - Explain the role of Vitamin D in calcium regulation	LGIS , SGD, CBL	MCQs, SAQs/ SEQs, OSPE, Structure d Viva
5. Adrenal Glands			
Relate the anatomical structures, physiological functions and biochemical processes involved in Adrenal gland related to its clinical significance	Describe the functions of adrenocortical and medullary hormones and their regulations	LGIS , SGD, CBL	MCQs, SAQs/ SEQs, OSPE, Structure d Viva
6. <u>Pancreas as Endocrine Organ</u>			
Relate the anatomical structures, physiological functions and biochemical processes involved in Endocrine part of pancreas to its clinical significance	- Describe the functions of pancreatic hormones and their regulations - Compare the interplay of	LGIS , SGD, CBL	MCQs, SAQs/ SEQs, OSPE, Structure d Viva

7. Male Reproductive System			
Relate the anatomical structures and physiological functions involved in Male Reproductive System along with their clinical significance	• Explain the functional anatomy of the male reproductive organs • Describe the process of spermatogenesis • Explain the function of the seminal vesicles and prostate gland • Describe the secretion and functions of testosterone and feedback loop regulating its secretion • Describe the endocrine and nervous regulation of male sexual act	LGIS, SGD, CBL	MCQs, SAQs/ SEQs, OSPE, Structured Viva
8. Female Reproductive System			
Relate the anatomical structures and physiological functions involved in Female Reproductive System along with their clinical significance	• Describe the functional anatomy of the female sexual organs with emphasis on the functions of gonadotropins in regulating monthly cycles • Describe the steps of oogenesis and fertilization • Discuss the functions of female sex hormones • Describe the physiology of puberty, menarche and menopause • Discuss the response of the mother's body to pregnancy keeping in view the function of placenta as an endocrine organ • Explain parturition and onset of labor and the hormones regulating it • Explain the mechanism of lactation and the	LGIS, SGD, CBL	MCQs, SAQs/ SEQs, OSPE, Structured Viva

	hormones regulating it • Explain the adjustments of infant to extra-uterine life		
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PRACTICALS

- Measure the blood glucose levels using the glucometer
- Perform pregnancy test by kit and urinary dipstick method

Linkers of Integrated sessions:

1. Disorders of pituitary gland
2. Disorders of thyroid/ parathyroid gland
3. Diabetes Mellitus
4. Disorders of adrenal gland
5. Disorders of male/ female reproductive system

Practical List

Sr. No.	Practical	Learning Outcomes	Instructional Strategies	Assessment Tool
1.	Examination of visual acuity	- Determine the visual acuity for far vision using the Snellen's chart - Interpret the visual acuity readings for far vision - Determine the visual acuity for near vision using the Jaeger's chart - Interpret the visual acuity readings for near vision	Practical demonstration and hands-on training	OSPE
2.	Examination of field of vision	- Map the visual field of SP using the arc perimeter - Map the physiological blind spot of SP using the arc perimeter - Determine the field of vision of SP using the confrontation method		
3.	Examination of colour vision	- Describe and interpret the use of different plates in the Ishihara chart - Examine the colour vision of SP using the Ishihara chart		
4.	Demonstration of reflexes of the eye	- Demonstrate the direct light reflex in the SP - Demonstrate the indirect light reflex in the SP - Demonstrate the corneal reflex in the SP - Demonstrate the conjunctival reflex in the SP - Demonstrate the accommodation reflex in the SP		
5.	Hearing tests	- Perform the Rinne's, Weber's, Schwabach test in the SP - Report the findings of Rinne's, Weber's, Schwabach test in the SP - Identify the type of hearing loss based on the findings of tuning fork tests		
6.	Audiometry	- Describe the use of an audiometer - Use the audiometer to assess air conduction and bone conduction - Interpret the normal audiogram		

Recommended and Reference Books

1. Guyton and Hall Textbook of Medical Physiology, 14th edition
2. Ganong's Review of Medical Physiology, 26th edition
3. Human Physiology: From Cells to System by Lauralee Sherwood, 9th edition
4. Berne and Levy Physiology by Bruce M. Koeppen and Bruce A. Stanton, 7th edition,
5. Essentials of Medical Physiology by Jaypee Brothers. 7th Edition

Weekly Training Schedule

WEEKLY TRG PROGRAMME OF 2ND YEAR MBBS CLASS SESSION (2023 – 28) CMH MULTAN INSTITUTE OF MEDICAL SCIENCES MULTAN CANTT WEEK – 08 (BLOCK – 01)

DATE/DAY	0800-0850	0850-0935	0935-1025	1025-1040	1040-1115	1115-1210	1210-1300
MON 03-03-2025	Practical Skills/SDL Anatomy: B Physiology: C Biochemistry: D SDL Batch A	Anatomy-1 Histology of Male Genital System – I Dr. Aasma Hashmi	CBL Anatomy: A Physiology: B Biochemistry: C Behavioral Sciences: D	Break	Clinical Sciences Surgery & Allied	Physiology-1 Regulation of GFR and RBF Dr. Sidra Arshad	DH (Sacrum) A – Dr. Yasir Ali B – Dr. Faraz Shoukat C – Dr. Mariah Noor D – Dr. Samar Tariq
TUE 04-03-2025	Practical Skills/SDL Anatomy: A Physiology: B Biochemistry: C SDL Batch D	Biochemistry-1 Genitourinary Stem Fluid & Electrolyte Balance – III Prof Dr. Nakhshab Ch Dr. Sadia, Dr. Rida	CBL Anatomy: B Physiology: C Biochemistry: D Behavioral Sciences: A		Anatomy-2 Histology of Male Genital System – II Dr. Aasma Hashmi	Physiology-2 Tubular Processing in DCT & MCD Dr. Faiza	DH (Pelvic Walls & Diaphragm) A – Dr. Yasir Ali B – Dr. Faraz Shoukat C – Dr. Mariah Noor D – Dr. Samar Tariq
WED 05-03-2025	Practical Skills/SDL Anatomy: D Physiology: A Biochemistry: B SDL Batch C	Biochemistry-2 Genitourinary Stem Fluid & Electrolyte Balance – IV Prof Dr. Nakhshab Ch Dr. Sadia, Dr. Rida, Dr. Bushra	CBL Anatomy: C Physiology: D Biochemistry: A Behavioral Sciences: B		Anatomy-3 Gross Anatomy of Anal Canal Prof Dr. Santosh Kumar	Physiology-3 Micturition – I Dr. Iqra Imtiaz	DH (Nerves & Blood Vessels of Pelvic Wall) A – Dr. Yasir Ali B – Dr. Faraz Shoukat C – Dr. Mariah Noor D – Dr. Samar Tariq
THU 06-03-2025	Practical Skills/SDL Anatomy: C Physiology: D Biochemistry: A SDL Batch B	SDL	CBL Anatomy: D Physiology: A Biochemistry: B Behavioral Sciences: C		Behavioral Sciences Personality Development – III Dr. Saif Ur Rehman	Physiology-4 Micturition – II Dr. Iqra Imtiaz	Embryology (Development of Urinary Bladder) A – Dr. Yasir Ali B – Dr. Faraz Shoukat C – Dr. Mariah Noor D – Dr. Samar Tariq
FRI 07-03-2025	Anatomy-4 Development of Genital System – III Prof Dr. Santosh Kumar	Biochemistry-3 Genitourinary Stem Fluid & Electrolyte Balance – V Prof Dr. Nakhshab Ch Dr. Nasreen, Dr. Sadia, Dr. Rida, Dr. Bushra	Physiology-5 Regulation of Tubular Processing in DCT & MCD Dr. Faiza		Pak Studies Ms. Salma Hanif	1120-1205 Quran Kareem Mr. Munawar Hussian	1205-1230 SDL

Venue – All Lectures will be delivered in Lecture Hall 02.

		Anatomy	Physiology	Biochemistry	Behav Sciences
SGD/CBL	Facilitators' Names	Dr. M Faraz Shaukat, Dr. Yasir Ali	Dr. Iqra Ameen, Dr. Mahnoor Saleem	Prof Dr. Nakhshab, Dr. Sadia, Dr. Rida	Dr. Farzana, Dr. Neda, Dr. Abdul Rafae, Dr. Rabia
	Venue	Anatomy Museum, DH, DH Demo Room, Skill Lab	Tutorial Room 5 & 6	Bio Lab & Tutorial Room 1	Tutorial Room 4, ACM Hall
	Topic	Ureteric Stones	Nephrotic Syndrome	Diabetic Ketoacidosis	Ethical Dilemmas
Practical Skills	Facilitators' Names	Dr. Shabnam Riaz	Dr. Fouzia, Dr. Iqra Ameen	Dr. Rida Irfan	
	Venue	Histology Lab	Physiology Lab	Biochemistry lab	
	Topic	Ureter & Urinary Bladder	Examination of Motor System – I	Physical Analysis of Urine	
DH + Practical Embryology	Venue	Tutorial Room 3, Anatomy Museum, DH & Skill Lab			

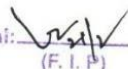
TW5 – B / CIMS

28 Feb 2025

Asst Prof
DD Trg
(Dr. Atia Sheikh)

To: Anatomy Dept, Physiology Dept, Biochemistry Dept, Behavioral Sciences Dept, IT Dept

Academic Forecast:

Principal: 
(F. I. P.)



Updated Tentative Forecast – 2nd Year MBBS Class (Session 2024-25)

Block I			
Module	Duration	Dates	
		From	To
Digestive System & Metabolism	05 Weeks	06 Jan 2025	09 Feb 2025
Integrated Modular Test (Digestive System & Metabolism)	-	10 Feb 2025	
Sports Week	01 Week	24 Feb 2025	28 Feb 2025
Genito Urinary System	05 Weeks	10 Feb 2025	22 Mar 2025
Integrated Modular Test (Genito Urinary System)	-	24 Mar 2025	
Endocrinology (Relevant)	01 Week	24 Mar 2025	30 Mar 2025
Eid al Fitr Holidays	03 Days	-	-
End of Block I Exam	01 Weeks	Theory Paper: 07 Apr 2025 Viva Voce: 08 – 12 Apr 2025	
Block II			
Module	Duration	Dates	
		From	To
Genetics & Neuro Sciences	08 Weeks	14 Apr 2025	08 Jun 2025
Integrated Modular Test (Genetics & Neuro Sciences)	-	12 May 2025	
End of Block II Exam	01 Weeks	Theory Paper: 09 Jun 2025 Viva Voce: 10 – 14 Jun 2025	
Block III			
Module	Duration	Dates	
		From	To
Maxillofacial & Special Senses	08 Weeks	16 Jun 2025	24 Aug 2025
Summer Break	02 Weeks	28 Jun 2025	13 Jul 2025
Integrated Modular Test 1 (Maxillofacial & Special Senses)	-	28 Jul 2025	
Integrated Modular Test 2 (Maxillofacial & Special Senses)	-	25 Aug 2025	
Endocrinology (Relevant)	03 Weeks	25 Aug 2025	14 Sep 2025
Integrated Modular Test (Endocrinology)	-	08 Sep 2025	
End of Block III Exam	01 Weeks	Theory Paper: 15 Sep 2025 Viva Voce: 16 – 20 Sep 2025	
Pre-Annual and Annual Professional Exams Plan			
Pre Annual Prep Leaves	01 Weeks	21 Sep 2025	28 Sep 2025
Pre Annual Exam	02 Weeks	Theory Paper: 29 Sep, 01 Oct & 03 Oct 2025 Viva Voce: 06 – 10 Oct 2025	
Annual Prep Leaves	02 Weeks	11 Oct 2025	26 Oct 2025
Annual Exam	27 Oct 2025		

TW / 5 / CIMS

24 Feb 2025

Asst Prof
DD Trg
(Dr. Attia Sheikh)

Sample Questions

Q1. A 65-year-old male with a history of long-standing diabetes mellitus presents with difficulty in urination, weak urinary stream, and chronic urinary retention. He also reports episodes of urinary overflow incontinence.

- a. Determine the likely diagnosis and describe the pathophysiology of this condition. (2)
- b. Describe the normal micturition reflex in the form of a flow chart. (2)

Q2. A 30-year-old male presents with excessive thirst and frequent passage of large volumes of dilute urine. He reports waking up multiple times at night to drink water and urinate. Laboratory tests reveal low urine osmolality and high plasma osmolality. His urine remains dilute even after a water deprivation test.

- a. Identify the most likely diagnosis. (2)
- b. Describe the role of renal medullary interstitium in urine concentration and explain the mechanism that maintain medullary hyperosmolarity. (3)

Sample OSPE

Unobserved OSPE:



- a. Identify the sign? (1)
- b. Name two other sites where this sign can be seen? (1)

Observed OSPE:

Calculate BMI of the subject. (4)

Key:

1. Greets and briefs the subject about the measurement of height and weight and takes consent
2. Height is measured by asking the subject to stand on a measuring scale. The upper horizontal bar should be levelled with the vertex of the subject
3. Makes sure the weighing machine scale is at zero and measures the weight
4. Thanks the patient
5. Calculates BMI and reports findings