STUDY GUIDE
BLOCK 4
INTEGRATED MODULER SYSTEM
ACADEMIC SESSION. 2024
2nd YEAR MBBS

RAHBAR MEDICAL AND DENTAL COLLEGE
LAHORE

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BLOCK 4
GIT MODULE 1

Modular Outcome:

- To describe gross and microscopic anatomy of different parts of gastrointestinal system and associated organs
- To describe the embryological development of different parts of gastrointestinal system and associated organs
- To describe the functional anatomy and physiology of different parts of gastrointestinal system and associated organs
- To describe the motility, secretary and digestive function of gastrointestinal system
- To describe the biochemical aspects of carbohydrate metabolism
- To discuss pathological aspect and management of gastrointestinal related diseases
- To discuss the pharmacological treatment of diarrhea
- To discuss the psychosocial impact of gastrointestinal diseases in society
- To discuss the preventive measures related to gastrointestinal diseases
- To comprehend concept of balanced diet and malnutrition

NORMAL STRUCTURE			
THEORY			
CODE	**GROSS ANATOMY**	**TOTAL HOURS = 35**	
	SPECIFIC LEARNING OUTCOMES	**DISCIPLINE**	**TOPIC**
GIT-A-001	Describe the gross anatomical features of oral cavity with its neurovascular supply and lymphatic drainage	Human Anatomy	Oral Cavity and Oropharynx
	Discuss the location, anatomical features, relations and vascular supply of tonsils: nasopharyngeal, palatine and lingual.		
	Discuss the skeletal framework of hard palate with its neurovascular supply and lymphatic drainage		
	Describe the gross anatomical features of soft palate with its neurovascular supply and lymphatic drainage		
	Describe the attachments, nerve supply and actions of muscles of soft palate		
	Describe the structure of tongue with attachments of muscles, blood supply, nerve supply and lymphatic drainage Discuss the anatomical basis of injury to hypoglossal nerve		
	Describe anatomical features, relations and neurovascular supply of parotid gland and its duct, mentioning the structures entering and exiting the gland.		
	Discuss the clinical correlates of parotid gland: parotiditis, Mumps, Frey's syndrome, parotid duct injury and parotid tumor surgery with its complications.		
	Describe the Waldeyer's ring.		
	Describe anatomical features, relations and neurovascular supply of submandibular and sublingual glands with their ducts.		
	Name the parts of pharynx giving their extent, anatomical		

	features, structure, neurovascular supply and Lymphatic drainage		
	Name the pharyngeal constrictor muscles defining their attachments, innervation and structure traversing the gaps between adjacent muscles.		
GIT-A-002	Describe the planes and quadrants of abdomen	Human Anatomy	Anterior Abdomen Wall
	Draw and label the cutaneous innervation and dermatomes of anterior abdominal wall and anterolateral Abdominal wall and describe the clinical correlates (Abdominal pain, Muscle rigidity, Referred pain, anterior abdominal nerve block)		
	Describe the fascia of anterior abdominal wall with its clinical significance Describe anterolateral Abdominal wall arteries, Veins and Lymphatics and related clinical correlates–Caput Medusae		
	Describe the attachments, nerve supply and actions of muscles of anterior abdominal wall		
	Identify the muscles of anterolateral abdominal wall on anatomical model and/or cadaver		
	Describe the extent, formation and contents of rectus Sheath		
	Give the formation and extent of inguinal ligament		
	Describe the formation of superficial and deep inguinal rings and conjoint tendon		
	Locate the position of superficial and deep inguinal rings on simulated subject or Cadaver		
	Describe the extent, boundaries and contents of inguinal Canal		
	Define the following hernias: umbilical, epigastric, incisional, Spigelian, lumbar, femoral, internal and inguinal		

	Differentiate between direct and indirect inguinal hernias		
	Describe the location of abdominal surgical incisions		
	Mark the abdominal incisions on simulated patient/ subject and explain their anatomical basis		
	List the structures and coverings of spermatic cord		
GIT-A-004	Trace the horizontal and vertical peritoneal reflections	Human Anatomy	Peritoneum
	Describe the relationship of viscera to the peritoneum		
	Describe the gross anatomical features of the following: 1. Mesentery 2. Omentum 3. Peritoneal ligaments 4. Peritoneal fold 5. Peritoneal sac, 6. Recesses, 7. Spaces and 8. Gutters		
	Describe the nerve supply of Peritoneum		
	Describe the anatomical basis and manifestations of the following: 1. Peritonitis and ascites 2. Peritoneal adhesions (and adhesiostomy) 3. Abdominal paracentesis		
GIT-A-005	Describe the extent of esophagus, its constrictions, neurovascular supply and lymphatic drainage Discuss the anatomical basis of esophageal varices, achalasia and Gastro Esophageal Reflux Disease (GERD)		Esophagus
GIT-A-006	Describe the location, position, parts, external and internal structure, relations, vascular and nerve supply and lymphatic drainage of stomach	Human Anatomy	Stomach
	Draw and label a diagram illustrating the lymphatic drainage of Stomach		

	Describe the clinical presentation and the anatomical basis and manifestations of the following conditions: Carcinoma of stomach and peptic ulcers		
	Identify and demonstrate the parts, external and internal features of stomach on anatomical model and cadaver		
GIT-A-007	Describe the location, position, parts, relations, neurovascular supply and lymphatic drainage of Duodenum	Human Anatomy	Small & Large Intestine
	Describe the anatomical basis and manifestations of the following conditions: 1. Duodenal Ulcers 2. Ileal diverticulum 3. Diverticulosis 4. Large bowel cancer 5. Appendicitis 6. Volvulus 7. Intussusception		
	Demonstrate the various positions of appendix		
	Identify and demonstrate the Parts and external features of small and large intestines on anatomical model and cadaver		
GIT-A-008	Describe the origin, course, branches (tributaries in case of veins) and distribution of the blood vessels of GIT	Human Anatomy	Liver
	Describe the formation, tributaries and drainage of hepatic-portal vein		
	Discuss the sites and vessels contributing in portosystemic anastomosis		
	Describe the clinical picture and anatomical basis for the blockage of porto-systemic anastomosis		
	Identify the blood vessels supplying GIT on anatomical model and cadaver		
	Describe location, lobes, important relations, peritoneal ligaments, blood supply, lymphatic drainage, nerve	Human Anatomy	Liver

	supply, related clinical correlates of liver and subphrenic spaces.		
GIT-A-009	Describe components of Biliary tree- hepatic duct and bile Duct Describe relations, functions, blood supply, lymphatic drainage and nerve supply of Gallbladder Describe related clinical correlates- gall stones, biliary colic, cholecystectomy, gallbladder gangrene	Human Anatomy	Biliary System
GIT-A-010	Describe the location, surfaces, peritoneal reflections, relations, neurovascular supply and lymphatic drainage of pancreas Describe the anatomical basis and manifestations of pancreatitis and pancreatic cancer Identify the parts of the pancreas	Human Anatomy	Pancreas
GIT-A-011	Describe the location, surfaces, peritoneal reflections, relations, neurovascular supply and lymphatic drainage of spleen Describe the anatomical basis and manifestations of splenic trauma and splenomegaly Identify the borders, surfaces and Impressions of spleen Demonstrate the correct anatomical positioning of spleen	Human Anatomy	Spleen
GIT-A-012	Describe the gross anatomical features, peritoneal relations, blood supply, nerve supply and lymphatic drainage of sigmoid colon, rectum and anal canal Describe the anatomical basis for Sigmoidoscopy, rectal prolapse, rectal examination, rectal cancer and Hemorrhoids	Human Anatomy	Sigmoid Colon, Rectum & Anal Canal
GIT-A-013	Outline the anatomical basis and surgical treatment plan for the following diseases: 1. Esophageal Injuries 2. Gastric Carcinoma	Human Anatomy integrated with Surgery	Surgical Intervention

	3. Intestinal Obstruction 4. Pancreatic Carcinoma 5. Obstructive Jaundice 6. Gall Stones		
CODE	**EMBRYOLOGY & POST-NATAL DEVELOPMENT**	**TOTAL HOURS = 08**	
	SPECIFIC LEARNING OUTCOMES	**DISCIPLINE**	**TOPIC**
GIT-A-014	Describe the development of tongue	Embryology	Oral Cavity
	Describe the embryological basis of tongue tie		
	Describe the development of palate		
	Describe the embryological basis of various facial clefts		
	Identify the parts of the developing tongue and palate		
GIT-A-015	Describe the formation and divisions of gut tube	Embryology	Foregut
	Describe the development of mesenteries		
	Describe the development of esophagus		
	Describe the embryological basis of esophageal atresia and/or tracheoesophageal fistula		
	Describe the development and rotation of stomach		
	Describe the embryological basis of pyloric stenosis		
	Describe the development of duodenum, liver and gall Bladder		
	Describe the embryological basis of intrahepatic and extrahepatic biliary atresia		
	Describe the development of pancreas		
	Describe the embryological basis of annular pancreas		
GIT-A-016	Describe the development of midgut especially mentioning physiological herniation, rotation, retraction of herniated loops and mesenteries of the intestinal loops	Embryology	Midgut
	Describe the embryological basis of the following 1. mobile cecum 2. volvulus 3. retro colic hernia 4. Omphalocele		

	5. gastroschisis Describe the embryological basis of Meckel's diverticulum Describe the embryological basis of; 1. Gut rotation defects 2. Gut atresia and stenosis		
GIT-A-017	Describe the development of hindgut Describe the embryological basis of; 3. Rectourethral and rectovaginal fistulas 4. Recto anal fistulas and atresia 5. Imperforate anus 6. Congenital megacolon Identify the parts of the developing foregut, midgut and hindgut originating from the endoderm	Embryology	Hindgut
CODE	**MICROSCOPIC ANATOMY (HISTOLOGY & PATHOLOGY)**	**TOTAL HOURS = 07**	
	SPECIFIC LEARNING OUTCOMES	**DISCIPLINE**	**TOPIC**
GIT-A-018	Describe the light microscopic structure of; 1. Lips 2. Tongue including lingual papillae and taste buds 3. Oral Cavity (Cheeks, Teeth gums, hard & Soft palate) Describe the histological structure of parotid, submandibular and sublingual glands. Compare and contrast the histological structures of parotid, submandibular and sublingual glands. Describe the serous and mucous acini and give histological differences between the two. Describe the structure and location of serous demilunes. Describe histology of oropharynx Relate the characteristics of various layers of GIT with	Histology	Oral Cavity & Esophagus

	their function		
	Describe the light microscopic structure of esophagus		
	Tabulate the histological differences between different parts of esophagus		
	Describe the histological changes associated with reflux esophagitis and Barrett's esophagus		
GIT-A-019	Describe the light microscopic structure of stomach	Histology	Stomach
	Describe the role of parietal cells in pernicious anemia		
GIT-A-020	Describe the light microscopic structure of 1. Duodenum 2. Jejunum 3. Ileum	Histology	Small Intestine
	Discuss the histological basis of celiac disease		
	Discuss the histological basis of Crohn's disease		
GIT-A-021	Describe the light microscopic structure of 1. Colon 2. Appendix 3. Rectum Define colorectal cancer, anal abscess, hemorrhoids	Histology	Large Intestine

PRACTICAL

CODE	HISTOLOGY	TOTAL HOURS = 12	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
GIT-A-022	Identify, draw and label the histological sections of Tongue and Lips and enumerate points of identification	Histology Practical	Oral Cavity
GIT-A-023	Identify, draw and label the histological sections of Salivary glands (Submandibular, Sublingual and Parotid)	Histology Practical	Salivary Gland
GIT-A-024	Identify, draw and label the histological structure of the esophagus and enumerate points of identification Identify, draw and label the histological structure of stomach and enumerate points of identification	Histology Practical	Upper GIT

GIT-A-025	Identify, draw and label the histological structure of small intestine (Duodenum, Jejunum, and Ileum) and enumerate points of identification	Histology Practical	Small Intestine
GIT-A-026	Identify, draw and label the histological structure of large intestine and enumerate points of identification	Histology Practical	Large Intestine
GIT-A-027	Identify, draw and label the histological sections of Gall bladder, liver and enumerate points of identification	Histology Practical	Organs associated with GIT
	Identify, draw and label the histological sections of pancreas and enumerate points of identification	Histology Practical	Organs associated with GIT
GIT-A-028	Identify, draw and label the histological sections of Palatine tonsil, appendix, peyer's patches and enumerate points of identification	Histology Practical	Lymphatic tissue associated with GIT
NORMAL FUNCTION			
THEORY			
CODE	**MEDICAL PHYSIOLOGY**	**TOTAL HOURS = 20**	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
GIT-P-001	Classify the components of enteric nervous system	Medical Physiology	General Principles of GIT Function - Motility, Nervous Control & Blood Flow
	Discuss the location and significance of myenteric plexus		
	Describe the Meissner's plexus		
	Differentiate between myenteric and Meissner's plexuses		
	Explain the mechanism of developing slow wave		
	Explain the mechanism of developing spike potential		
	Enlist the factors that depolarize & hyperpolarize the GIT Membrane		
	Enlist the excitatory & inhibitory neurotransmitters of enteric nervous system		
	Explain the role of sympathetic & parasympathetic nervous system in controlling GIT function.		
	Enlist the gastrointestinal reflexes & explain the functions of these reflexes		

	Enlist the hormones acting on GIT, their stimuli, site of release and actions		
	Enumerate different types of movements that occur in GIT		
	Discuss the functions and control of GIT movements		
	Discuss the effect of gut activity and metabolic factors on GIT blood flow		
	Explain the nervous control of GIT blood flow		
GIT-P-002	Trace the reflex arc of mastication	Medical Physiology	Oral Cavity & Esophagus
	Explain the process and importance of chewing reflex		
	Enlist the stages of swallowing		
	Describe the mechanism of voluntary stage of swallowing		
	Trace the reflex arc of involuntary stage of swallowing		
	Enlist the steps involved in involuntary stage of Swallowing	Medical Physiology	
	Explain the effect of swallowing on respiration	Medical Physiology	
	Discuss the mechanism of esophageal stage of Swallowing	Medical Physiology	
	Enlist causes of dysphagia	Medical Physiology integrates with Surgery	
	Explain the types and role of different peristalsis originating in esophagus	Medical Physiology	
	Discuss the role of Lower Esophageal Sphincter (Gastroesophageal)	Medical Physiology	
	Discuss the pathophysiology of achalasia & Megaesophagus	Medical Physiology	
	Enlist the features and treatment of achalasia	Medical Physiology	
GIT-P-003	Explain storage function of stomach	Medical Physiology	Stomach
	Describe the basic electrical rhythm of stomach wall	Medical Physiology	
	Explain the role of pyloric pump and pyloric sphincter in gastric emptying	Medical Physiology	

	Explain the factors that promote Stomach Emptying	Medical Physiology	
	Discuss the duodenal (nervous & hormonal) factors that inhibit Stomach emptying	Medical Physiology	
	Enlist the factors that initiate enterogastric inhibitory Reflexes	Medical Physiology	
	Enumerate the causes, features, and pathophysiology of gastritis	Medical Physiology integrates with Medicine	
	Explain the physiological basis of each feature of gastritis	Medical Physiology integrates with Medicine	
	Recommend treatment of gastritis	Medical Physiology integrates with Medicine	
	Enumerate the causes, features, and pathophysiology of peptic ulcer		
	Explain the physiological basis of each feature of peptic Ulcer		
GIT-P-004	Enumerate and explain the hormones and movements of small intestine	Medical Physiology	Small Intestine
	Explain the term “peristaltic rush”		
	Explain the functions of ileocecal valve and sphincter		
	Enumerate the types of intestinal sprue	Medical Physiology integrates with Medicine	
	Enlist the features of intestinal sprue		
	Explain the consequences of sprue on the body		
GIT-P-005	Enumerate the types of movements taking place in colon	Medical Physiology	Large Intestine
	Explain the mechanism of developing movements of colon and their control through Gastrocolic and Duodenocolic Reflexes	Medical Physiology	
	Enlist the defecation reflexes	Medical Physiology	
	Explain the mechanism of defecation reflex	Medical Physiology	
	Trace the reflex arc of defecation	Medical	

		Physiology	
	Name the other autonomic reflexes that affect bowel Activity	Medical Physiology	
	Explain the pathophysiology of constipation	Medical Physiology integrates with Medicine	
	Discuss the causes of diarrhea Describe the cause of Hirschsprung's disease integrate with Medicine	Medical Physiology	
GIT-P-006	Explain the functions of liver	Medical Physiology	Liver
	Differentiate between liver and gall bladder bile and the hormones acting on them	Medical Physiology	
	Enumerate the causes and composition of developing gall stones	Medical Physiology Integrate with Surgery	
GIT-P-007	Explain function and secretions of pancreas	Medical Physiology	Pancreas
	Enlist the causes and pathophysiology of acute and chronic pancreatitis	Integrate with Medicine	
	Enumerate the features of acute pancreatitis and explain the physiological basis of each feature of pancreatitis	Integrate with Medicine	
GIT-P-008.	Describe the stages of vomiting act	Medical Physiology	Vomiting Reflex
	Trace the reflex arc of vomiting	Medical Physiology	
	Explain the role of chemoreceptor trigger zone for initiation of vomiting by drugs or by motion sickness	Medical Physiology	
GIT-P-009	Define Malnutrition	Integrated with Medicine Gastroenterology	Malnutrition
	Identify various causes of malnutrition		
	Identify the risk factors of malnutrition		
	Outline treatment strategies		
GIT-P-010	Define Acute Diarrhea		Acute & Chronic Diarrhea
	Define Chronic Diarrhea		

	Enlist various causes for acute and chronic diarrhea		
CODE	**BIOCHEMISTRY**	**TOTAL HOURS = 40**	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
GIT-B-001	Give the composition and importance of saliva and related clinical disorder (xerostomia)	Biochemistry	Biochemistry of GIT /GIT secretions & digestion and absorption of dietary carbohydrates
	Give the composition and importance of gastric juice with special reference to mechanism of HCl secretion and related clinical disorders (achlorhydria, gastric ulcer		
	Give the composition and importance of pancreatic juice, bile and succus entericus and related clinical disorders (pancreatitis, cystic fibrosis, cholelithiasis).		
	Describe digestion and absorption of dietary carbohydrates along with inherited and acquired disorders (lactose intolerance, sucrase-isomaltase deficiency).		
GIT-B-002	Elaborate key features of various transport systems for entry of glucose into cells.	Biochemistry	Carbohydrate metabolism/ Entry of glucose into cells
GIT-B-003	Enlist the hormones that play important roles in regulating carbohydrate metabolism.	Biochemistry	Carbohydrate metabolism/ Hormonal control of BSL
	Elaborate the metabolic effects of these hormones.		
	Infer the consequences of deficiency and excess of these Hormones		
GIT-B-004	Describe the glycolytic pathway along with its regulation and significance.	Biochemistry	Carbohydrate metabolism/ Glycolysis
	Compare key features of aerobic and anaerobic glycolysis.		
	Calculate the number of ATP produced during aerobic and anaerobic glycolysis.		
	Explain hemolytic anemia in subjects with pyruvate kinase deficiency based on your biochemical knowledge.		

	Clearly differentiate between substrate level phosphorylation and oxidative phosphorylation.		
GIT-B-005	Discuss the metabolic fates of pyruvate.	Biochemistry	Carbohydrate metabolism/ Metabolic fates of pyruvate
	Describe the transport of pyruvate from cytosol to mitochondria.		
	Elaborate the reaction catalyzed by pyruvate dehydrogenase complex (PDH) along with regulation and significance.		
	Enlist inherited and acquired causes of lactic acidosis and give biochemical explanation for lactic acidosis in each condition.		
GIT-B-006	Describe the TCA cycle along with regulation & significance. Calculate the energy yield of TCA	Biochemistry	Carbohydrate metabolism/ Kreb's Cycle
GIT-B-007	Define gluconeogenesis and enumerate gluconeogenic substrates (precursors)	Biochemistry	Carbohydrate metabolism/ Gluconeogenesis
	Delineate the reactions involved in synthesis of glucose from various gluconeogenic substrates.		
	Elaborate the regulation and importance of gluconeogenesis.		
	Explain the significance of Cori cycle and glucosealanine Cycle		
GIT-B-008	Illustrate the reactions of glycogenesis, glycogenolysis along with their regulation and significance	Biochemistry	Carbohydrate metabolism/ Glycogen metabolism
	Enlist various types of glycogen storage diseases (GSDs)		
	Infer the key biochemical and clinical features of various GSDs from the respective enzyme deficiencies.		
GIT-B-009	Describe the reactions and regulation of Hexose Mono Phosphate Pathway (HMP).	Biochemistry	Carbohydrate metabolism/ HMP Hexose Monophosphate Pathway
	Discuss the importance of HMP shunt		
	Explain hemolytic anemia in subjects suffering from		

	G6PD deficiency.		
	Diagnose G6PD (glucose-6-phosphate dehydrogenase) deficiency based on given data.		
GIT-B-010	Describe the reactions, regulation, and biomedical importance of uronic acid pathway and sorbitol pathway	Biochemistry	Carbohydrate metabolism/ Uronic acid pathway & sorbitol pathway
GIT-B-011	Outline the reactions involved in metabolism of galactose and fructose.	Biochemistry	Carbohydrate metabolism/ Metabolism of galactose & fructose
	Infer the key biochemical and clinical features of galactosemia, essential fructosuria, and hereditary fructose intolerance (HFI) from the respective enzyme deficiencies.		
	Explain hypertriacylglycerolemia, hypercholesterolemia, and hyperuricemia associated with fructose loading of liver.		
GIT-B-012	Outline the reactions involved in ethanol metabolism.	Biochemistry	Carbohydrate metabolism/ Ethanol metabolism
	Explain how ethanol consumption causes hypoglycemia and fatty liver.		
GIT-B-013	Diagrammatically illustrate the organization of electron transport chain (ETC) depicting the flow of electrons	Biochemistry	Respiratory chain & oxidative phosphorylation /ETC
	Enlist the components of complex I, II, III, and IV		
	Enumerate clinically important inhibitors of electron transport chain and mention their site of action.		
GIT-B-014	Elaborate the structure of ATP synthase (complex V).	Biochemistry	Respiratory chain & oxidative phosphorylation /ATP synthesis
	Explain how the free energy generated by the transport of electrons by ETC is used to produce ATP from ADP + Pi (i.e. chemiosmotic hypothesis)		
	Elaborate the effect of oligomycin and uncouplers on ATP production.		
	Describe the effect of arsenic poisoning on carbohydrate metabolism and ATP production.		
	Elaborate the glycerol 3-P shuttle and malate-aspartate		

	shuttle for the transfer of reducing equivalents from cytosol into the mitochondria.		
GIT-B-015	Define and classify nutrients into macro and micronutrients. Elaborate the concept and importance of Balanced Diet Enlist the components of balanced diet and elaborate the importance of each component.	Biochemistry	Nutrition/ Balanced diet
GIT-B-016	Delineate special nutritional requirements during pregnancy, lactation, growth, and old age. Suggest dietary advice for patients suffering from diabetes mellitus, hypertension, obesity, renal disease, lactose intolerance, gluten enteropathy, hypercholesterolemia, and hemorrhoids.	Integrate with Community Medicine	Nutrition/ Special nutritional requirements
GIT-B-017	Enlist causes and types of Protein Energy Malnutrition (PEM). Differentiate between Kwashiorkor and Marasmus based on the given data Enlist symptoms and signs Outline treatment strategies	Integrate with community Medicine/ Pediatrics	Nutrition/ PEM
GIT-B-018	Define energy balance. Compare the energy content of macro nutrients and alcohol. Suggest a simple method for estimation of caloric requirements of sedentary adults, moderately active adults, and very active adults	Biochemistry	Nutrition/ Caloric requirements
GIT-B-019	Define basal metabolic rate (BMR) Elaborate the effect of various physiological and pathological factors on BMR.	Biochemistry	Nutrition/ BMR
GIT-B-020	Define body mass index (BMI). Categorize individuals into underweight, normal, overweight, obese, and morbidly obese based on theirs BMI values.	Integrate with community Medicine	Nutrition/ BMI & Obesity

	Elaborate the role of genetic, environmental, and behavioral factors in determining body weight.		
	Clearly differentiate between upper body obesity and lower body obesity.		
	Enlist health risks associated with obesity.		
GIT-B-021	Describe sources, Recommended Dietary Allowance (RDA), biochemical functions, deficiency, and toxicity of vitamin B1, B2, B3, B5 and B7.	Biochemistry	Vitamins/ Energy releasing vitamins & vitamin E and K
	Describe sources, RDA, biochemical functions, deficiency, and toxicity of vitamin E and vitamin K.		
GIT-B-022	Define and classify minerals according to their daily requirements.	Biochemistry	Minerals
	Give sources, functions and biomedical importance of Na, K and Cl.		
	Describe sources, functions and biomedical importance of Mg, Se, I, F, Cu, Cr, Mn, Mo, Zn and Co.		
GIT-B-023	Define Marasmus and Kwashiorkor	Integrated with Pediatrics	Malnutrition
GIT-B-024	Define Acute Hepatitis	Integrated with Medicine Gastroenterology	Acute & Chronic Hepatitis
	Define Chronic Hepatitis		
	Enlist various causes for acute and chronic hepatitis		
	Describe various symptoms and signs of chronic hepatitis		
	Outline treatment strategies		

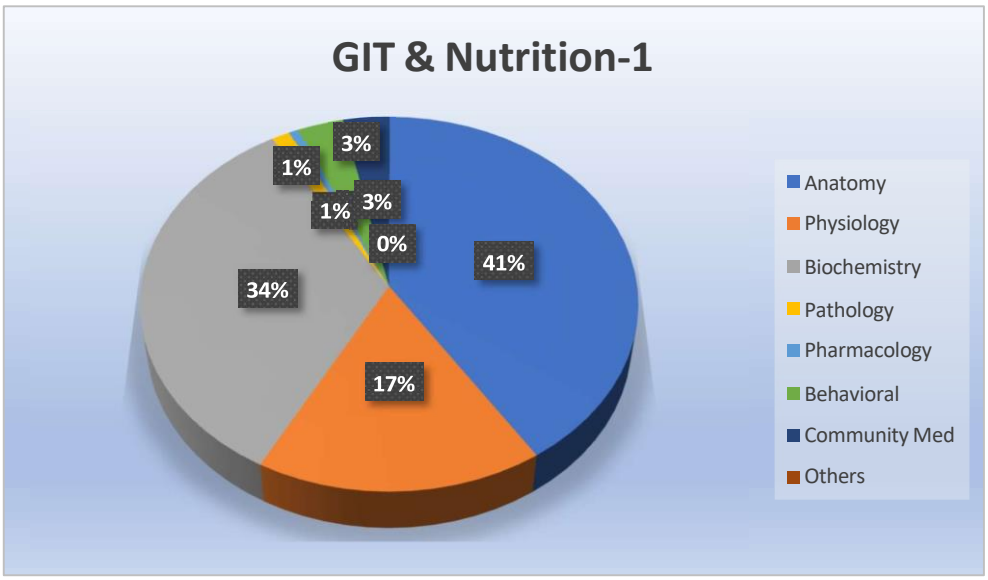
PRACTICAL

CODE	BIOCHEMISTRY	TOTAL HOURS = 11+06	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
GIT-B-025	Estimate blood glucose level by glucose oxidase method and interpret the results	Biochemistry Practical	Estimations of blood/urine analytes
	Determine blood glucose level by glucometer and		

	interpret the result.		
	Perform Glucose tolerance test (GTT) and interpret the results.		
	Determine urine glucose by dipstick method and interpret the result.		
	Estimate serum amylase and interpret the result.		
GIT-B-026	Interpret the results of Lactose tolerance test.		Interpretation of results
GIT-B-027	Determine BMI of given subject and interpret the results.		Determination & interpretation of results
GIT-P-011	Demonstrate Cranial nerve V, IX & X testing	Physiology	Cranial nerve
AGING			
CODE	**THEORY**	**TOTAL HOURS = 01**	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
GIT-CM-001	Identify causes and risk factors for malnutrition in elderly	Community Medicine	Preventive Medicine in Geriatrics
	Outline treatment strategies		
PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS			
CODE	**SPECIFIC LEARNING OBJECTIVES**	**TOTAL HOURS = 03**	
		DISCIPLINE	**TOPIC**
GIT-Ph-001	Classify anti diarrheal drugs and describe the pharmacokinetics, mechanism of action, pharmacological effects, uses and adverse effects	Pharmacology	Anti Diarrheal Drugs
GIT-Pa-001	Describe the etiology, pathogenesis, morphology and clinical features of peptic ulcer disease	Pathology	Peptic Ulcer
GIT-Pa-002	Enumerate common infectious agents of diarrheal diseases Discuss pathogenesis and clinical features of common Pathogens	Pathology	Infectious agents causing Diarrhea

DISEASE PREVENTION & IMPACT			
CODE	**SPECIFIC LEARNING OBJECTIVES**	**TOTAL HOURS = 09**	
		DISCIPLINE	**TOPIC**
GIT-BhS-001	Identify health related behaviors and apply principles of learning to modify eating and addictive patterns	Behavioral Sciences	Health related behaviors
GIT-BhS-002	Discuss health belief model and its application in managing common presentations related to gastro-intestinal system		Health related believes
	Explain the transtheoretical model of changing behaviors to modify the diseases pattern		
GIT-BhS-003	Describe motivational interviewing and outline a management plan to help the individuals with obesity and diabetes to lose weight		Management of Obesity
GIT-BhS-004	Describe and distinguish Medically Un described Symptoms (MUS)		Medically Un described Symptoms
	Describe the association of psychosocial factors with MUS		
	Outline the principles of management plan according to biopsychosocial model		
	Describe role of Cognitive Behavioral Therapy (CBT)		
GIT-BhS-005	To identify effect on mental development of nutritional deficiencies		Role of nutritional deficiencies in mental development
GIT-CM-001	Describe prevention and control of polio, viral hepatitis A, cholera, typhoid and food poisoning	Community Medicine	Epidemiology of communicable diseases (Intestinal infection)
	Describe prevention and control of amoebiasis, ascariasis, hook worm infestation		
GIT-CM-002	Describe the advice to be given for breast feeding, weaning and childhood		Preventive medicine in pediatrics
	Discuss risk factors, prevention and management of protein energy malnutrition (PEM)		

GIT-CM-003	Describe balanced diet for adult and obesity		Nutrition & Health
	Plot and interpret growth chart for children under 5 years of age		
	Describe prevention and control of deficiency of Vitamin A and D		



Module Weeks	Recommended Minimum Hours
06	152

Weekly Planner

2nd Year MBBS 2024. GIT

WEEK – 1 **THEME:** Oral cavity& esophagus

Date 04 March to 08 March 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 4th March	**LGIS PERL** *HOD	**LGIS** **Biochemistry 001** **Saliva, Gastric Juice**		**LGIS Physiology 001 general principles of GIT functions**	**LGIS** **Oral cavity GIT-A-014 HOD* Anatomy SE**	**SGD** **oral cavity & oropharynx GIT-A-001 HOD* Anatomy Gross**	**SGD** **oral cavity & oropharynx/TBL GIT-A-001 HOD* Anatomy Gross**	**CFRC**	**S D L**
Tuesday 5th March	**LGIS** **Biochemistry 001** **Pancreatic Juice, Bile and Succus entericus**	**LGIS** Health related behaviours GIT-bhS-001 **Behavioural Sciences** *Dr. Sadia*		**LGIS Physiology 001 general principles of GIT functions-motility, nervous control and blood flow**	**LGIS** **Foregut GIT-A-015 HOD* Anatomy SE**	**SGD** **oral cavity & oropharynx GIT-A-001 HOD* Anatomy Gross**	**Biochemistry 001** **Digestion and Asorption of Carbohydrates**	**2:15pm-3:00pm** **LGIS** Islamiat/Pak studies *H.O.D	
Wednesday 6th March	**Practicals** **Histology (A)** **Physiology /CFRC (B)** **Biochemistry (C)**			**LGIS** **Biochemistry 003** **Entry of Glucose into cell, Hormones in Carbohydrate metabolism**	**LGIS** **Foregut GIT-A-015 HOD* Anatomy SE**	**LGIS Physiology 002 Oral cavity**	**SGD** **oral cavity & oropharynx GIT-A-001 HOD* Anatomy Gross**	**LGIS** **QURAN.** *Prof. M. Ali*	
Thursday 7th March	**Practicals** **Histology (B)** **Physiology /CFRC (C)** **Biochemistry (A)**			**LGIS** **Biochemistry 003** **Metabolic effect, Deficiency and Excess of hormones**	**SGD** **Dissection class / Museum activity Anatomy Gross**	**Biochemistry 004** **Glycolysis**	**LGIS** **Epidemiology of communicable diseases GIT-CM-001 Community/Medicine *HOD**	**LGIS** **Health related believes** GIT-BHS-002 **Behavioural Sciences** *Dr. Sadia*	
Friday 8th March	**Practicals** **Histology (C)** **Physiology/CFRC (A)** **Biochemistry (B)**			**LGIS** **Oral cavity GIT-A-018 Anatomy SH** *HOD	**LGIS** **Physiology 002 Esophagus**	Biochemistry 004 Regulation of Glycolysis, ATP Produced during Glycolysis, Pyruvate kinase deficency	**1:15pm-2:00pm** Jumma Prayer	**LGIS PERL** *HOD	

Weekly Planner

2nd Year MBBS 2024. GIT

Week 2 THEME: Abdominal wall& peritoneum

Date 11 Mar to 15 Mar 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 11 March	ANATOMY TEST	LGIS Biochemistry 005 Metabolic Fates, PDH complex, Lactic acidosis	B R E A K	LGIS Physiology 003 Stomach-1	LGIS Foregut GIT-A-015 HOD* Anatomy SE	SGD Anterior abdominal wall GIT-A-002 HOD* Anatomy Gross	Biochemistry 006 TCA	CFRC	S D L
Tuesday 12 March	Biochemistry test	LGIS Management of obesity GIT-BHS-003 Behavioural Sciences Dr. Sadia		LGIS Physiology 003 Stomach-2	LGIS Foregut GIT-A-015 HOD* Anatomy SE	SGD Anterior abdominal wall GIT-A-002 HOD* Anatomy Gross	Biochemistry 007 Gluconeogenesis and Its regulation	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 13 March	Practicals Histology (A) Physiology /CFRC (B) Biochemistry (C)			LGIS Biochemistry 009 HMP and its Regulation	LGIS Foregut GIT-A-015 HOD* Anatomy SE	LGIS Physiology 004 Small Intestine	SGD Anterior abdominal wall GIT-A-002 HOD* Anatomy Gross	LGIS QURAN. *Prof. M. Ali*	
Thursday 14 March	Practicals Histology (B) Physiology /CFRC (C) Biochemistry (A)			LGIS Biochemistry 009 G6PD Deficency	LGIS Epidemiology of communicable diseases GIT-CM-001 Community/Medicine *HOD	LGIS Physiology 006 Liver	SGD Anterior abdominal wall GIT-A-002 HOD* Anatomy Gross	SGD Anterior abdominal wall/TBL GIT-A-002 HOD* Anatomy Gross	
Friday 15 March	Practicals Histology (C) Physiology/CFRC (A) Biochemistry (B)			LGIS Oral cavity GIT-A-018 Anatomy SH *HOD	Biochemistry 008 Glycogensis and Regulation	Biochemistry 008 Glycogenolysis and Regulation	1:15pm-2:00pm Jumma Prayer	LGIS Medically undescribed symptoms GIT-BHS-004 Behavioural Sciences Dr. Sadia	

Weekly Planner

2nd Year MBBS 2024 - GIT

WEEK – 3 **THEME** STOMACH

Date 18 Mar to 22 Mar 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 18 Mar	**Physiology Test**	**LGIS** Biochemistry 008 GSDs	B R E A K	LGIS Physiology 005 Large intestine	LGIS Midgut GIT-A-016 HOD* Anatomy SE	SGD Anterior abdominal wall GIT-A-002 HOD* Anatomy Gross	**CFRC**	**CFRC**	S D L
Tuesday 19 Mar	LGIS Biochemistry 010 Regulation od Uronic acid pathway, Sorbitol pathway	LGIS Peptic Ulcer GIT-Pa-001 HOD* Pathology		LGIS Physiology 008 Vomiting reflex	LGIS Midgut GIT-A-016 HOD* Anatomy SE	SGD Peritoneum GIT-A-004 HOD* Anatomy Gross	Biochemistry 011 Metabolism of Galactose	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 20 Mar	Practicals Histology (A) Physiology /CFRC (B) Biochemistry (C)			LGIS Biochemistry 011 Metabolism of Furctose	LGIS Hindgut GIT-A-017 HOD* Anatomy SE	**LGIS PERL** *HOD	SGD Peritoneum GIT-A-004 HOD* Anatomy Gross	LGIS QURAN. *Prof. M. Ali*	
Thursday 21 Mar	Practicals Histology (B) Physiology /CFRC (C) Biochemistry (A)			LGIS Biochemistry 012 Ethanol and Fatty liver	LGIS Physiology 007 Pancreas	SGD Esophagus GIT-A-005 HOD* Anatomy Gross	SGD Stomach GIT-A-006 HOD* Anatomy Gross	*LGIS Medically undescribed symptoms GIT-BHS-004 Behavioural Sciences*	
Friday 22 Mar	Practicals Histology (C) Physiology/CFRC (A) Biochemistry (B)			LGIS Oral cavity GIT-A-018 Anatomy SH *HOD	Biochemistry 013 Complexes of ETC	Biochemistry 013 inhibitor of ETC, Structure of ATP Synthase	1:15pm-2:00pm Jumma Prayer	LGIS Role of nutritional deficiencies in mental development GIT-BHS-005 **Behavioural Sciences** *Dr. Sadia*	

2nd Year MBBS - 2024 GIT

WEEK – 4 THEME Small& large Intestine

Date 25 Mar to 29 Mar 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 25 Mar	**ANATOMY TEST**	**LGIS** **Biochemistry** **014 Chemiosmotic Hypothesis, Oligomycin and uncouplers**	**B** **R** **E** **A** **K**	**LGIS Physiology 009 Malnutrition**	**LGIS** **Hindgut** **GIT-A-017** **HOD*** **Anatomy SE**	**SGD** **Dissection class/ Museum activity** **Anatomy Gross**	**CFRC**	**CFRC**	**S** **D** **L**
Tuesday 26 Mar	**Biochemistry test**	**LGIS** Anti diarrheal drugs GIT-PH-001 Hod* Pharmacology		**Tutorial Physiology**	SGD Small & large intestine GIT-A-007 HOD* **Anatomy Gross**	**SGD** **Small & large intestine/TBL** **GIT-A-007** **HOD*** **Anatomy Gross**	**Biochemistry** **014 Arsenic poisoning, Shuttles**	**2:15pm-3:00pm** **LGIS** Islamiat/Pak studies *H.O.D	
Wednesday 27 Mar	**Practicals** **Histology (A)** **Physiology /CFRC (B)** **Biochemistry (C)**			**LGIS** **Biochemistry** **015 Balanced Diet**	**SGD** **Small & large intestine** **GIT-A-007** **HOD*** **Anatomy Gross**	**Tutorial Physiology**	**LGIS** GIT-Pa-002 Infectious agents causing diarrhea HOD* Pathology	**LGIS** **QURAN.** *Prof. M. Ali*	
Thursday 28 Mar	**Practicals** **Histology (B)** **Physiology /CFRC (C)** **Biochemistry (A)**			**LGIS** **Biochemistry** **016** **Dietary Advice**	**SGD** **Liver** **GIT-A-008** **HOD*** **Anatomy Gross**	**LGIS** GIT-CM-001 Preventive Medicine in Geriatics HOD* **AGING**	**LGIS** **Preventive medicine in pediatrics** **GIT-CM-002** **Community Medicine** ***HOD**	**LGIS** **PERL** *HOD	
Friday 29 Mar	**Practicals** **Histology (C)** **Physiology/CFRC (A)** **Biochemistry (B)**			**LGIS** **Oral cavity** **GIT-A-018** **Anatomy SH** ***HOD**	**Biochemistry** **017** **Kwashiorkor and Marasmus**	**Biochemistry** **017** **Kwashiorkor and Marasmus**	**1:15pm-2:00pm** Jumma Prayer	**LGIS** **PERL** *HOD	

Weekly Planner

2nd Year MBBS 2024 GIT

WEEK – 5 **THEME** Liver & Billary Apparatus

Date 08 to 19 Apr 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 08th /15 Apr	**LGIS PERL** *HOD	LGIS Biochemistry 018 Estimation of Caloric requirements	B R E A K	LGIS Physiology 010 Acute and chronic diarrhoea	SGD Liver GIT-A-008 HOD* Anatomy Gross	SGD Dissection class/ Museum activity Anatomy Gross	**CFRC**	**CFRC**	S D L
Tuesday 9th/16 Apr	LGIS Biochemistry 019 BMR	LGIS Preventive medicine in pediatrics GIT-CM-002 Community Medicine *HOD		Tutorial Physiology	SGD Liver GIT-A-008 HOD* Anatomy Gross	SGD Billary system GIT-A-009 HOD* Anatomy Gross	Biochemistry 020 BMI	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 17 Apr	Practicals/OSPE Histology (A) Physiology /CFRC (B) Biochemistry (C)			LGIS Biochemistry 020 Upper & Lower body Obesity	Tutorial Physiology	SGD Pancreas GIT-A-010 HOD* Anatomy Gross	SGD Spleen GIT-A-011 HOD* Anatomy Gross	LGIS QURAN. *Prof. M. Ali*	
Thursday 18 Apr	Practicals/OSPE Histology (B) Physiology /CFRC (C) Biochemistry (A)			LGIS Biochemistry 020 Helath Risks associated with obesity	SGD Sigmoid colon, Rectum & anal canal GIT-A-012 HOD* Anatomy Gross	LGIS Stomach GIT-A-019 HOD* Anatomy SH	LGIS Nutrition & health GIT-CM-003 Community Medicine *HOD	**LGIS PERL** *HOD	
Friday 19 Apr	Practicals/OSPE Histology (C) Physiology/CFRC (A) Biochemistry (B)			LGIS Small intestine GIT-A-020 HOD* Anatomy SH	Biochemistry 021 Vitamin B1,B2, B3	Biochemistry 021 Vitamin B5, B7	1:15pm-2:00pm Jumma Prayer	**LGIS PERL** *HOD	

Weekly Planner

2nd Year MBBS 2024 GIT

WEEK – 6 THEME Pancreas & Spleen

Date 22 Apr to 26 Apr 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 22 Apr	MODULE TEST	MODULE TEST	B R E A K	LGIS Physiology 006 GIT (Revision)	SGD Sigmoid colon,Rectum & Anal canal GIT-A-012 HOD* Anatomy Gross	SGD Surgical Intervention GIT-A-013 HOD* Anatomy Gross	Biochemistry 021 Vitamin E	CFRC	S D L
Tuesday 23 Apr	LGIS Biochemistry 021 Vitamin K	LGIS PERL *HOD		LGIS Physiology 007 GIT (Revision)	SGD Dissection class/ Museum activity Anatomy Gross	SGD Anatomy Gross	Biochemistry 022 Functions of Na, K and Cl	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 24 Apr	Practicals Histology (A) Physiology /CFRC (B) Biochemistry (C)			LGIS Biochemistry 022 Mg, Se, I, F	LGIS Physiology 004 GIT(Revision)	SGD Anatomy Gross	SGD Anatomy Gross	LGIS QURAN. *Prof. M. Ali*	
Thursday 25 Apr	Practicals Histology (B) Physiology /CFRC (C) Biochemistry (A)			LGIS Biochemistry 022 Cu, Cr, Mn	SGD Anatomy Gross	Biochemistry 022 Mo, Zn, Co	LGIS Large intestine GIT-A-021 HOD* Anatomy SH	LGIS PERL *HOD	
Friday 26 Apr	Practicals Histology (C) Physiology/CFRC (A) Biochemistry (B)			MINOR MODULE TEST	Biochemistry 023	Biochemistry 024	1:15pm-2:00pm Jumma Prayer	LGIS PERL *HOD	

C-FRC GIT SCHAEDULE FOR 2nd YEAR MBBS SESSION 2023-2027

S. No	Week	Date/Time	Topic	Batch No	Venue	Facilitator	Log Book Entries
1.	Week 1	04-03-24 02.15pm-3.00pm	Abdominal Examination C-FRC	A B C	Lect Hall # 2	*C-FRC In charge	3 Log book Entries
2.	Week 2	11-03-24 02.15pm-03.00pm	Abdominal General Examination C-FRC	A B C	Lect Hall # 2	*C-FRC In charge	3 Log book Entries
3.	Week 3	18-03-24 01.15pm-03.00pm	X ray Abdomen C-FRC	A B C	HOD Radiology Deptt Hospital	*HOD *C-FRC In charge	2 Log book Entries
4.	Week 4	25-03-24 01.15pm-03.00pm	Abdominal Examination Liver, spleen and kidney C-FRC	A B C	Lect Hall # 2	*HOD *C-FRC In charge	3 Log book Entries
5.	Week 4	27.03.24 08.00am-10.00am	Abdominal Examination Liver, spleen and kidney C-FRC	B	HOD Medicine Hospital	*HOD *C-FRC In charge	3 Log book Entries
6.	Week 4	28-03-24 08.00am-10.00am	Abdominal Examination Liver, spleen and kidney C-FRC	C	HOD Medicine Hospital	*C-FRC In charge	3 Log book Entries
7.	Week 4	29-03-24 08.00am-10.00am	Abdominal Examination Liver, spleen and kidney C-FRC	A	HOD Medicine Hospital	*HOD *C-FRC In charge	3 Log book Entries
8.	Week 5	15-04-24 01.15pm-03.00pm	Shifting Dullness C-FRC	A B C	Lect Hall # 2	*HOD *C-FRC In charge	3 Log book Entries
9.	Week 5	17-04-24 08.00am-10.00am	Shifting Dullness C-FRC	B	HOD Medicine Hospital	*HOD *C-FRC In charge	3 Log book Entries
10.	Week 5	18-04-24 08.00am-10.00am	Shifting Dullness C-FRC	C	HOD Medicine Hospital	*C-FRC In charge	3 Log book Entries

11.	Week 5	19-04-24 08.00am- 10.00am	Shifting Dullness C-FRC	A	HOD Medicine Hospital	*HOD *C-FRC In charge	3 Log book Entries
12.	Week 6	22-04-24 1.15pm- 3.00pm	dehydration in infant/young and ORS Formulation C-FRC	A B C	Lect Hall # 2	*HOD *C-FRC In charge	2 Log book Entries
13.	Week 6	24-04-24 08.00am- 10.00am	dehydration in infant/young and Formulation ORS C-FRC	B	HOD Medicine Hospital	*HOD C-frc In charge	2 Log book Entries
14.	Week 6	25-04-24 08.00am- 10.00am	dehydration in infant/young and Formulation ORS C-FRC	C	HOD Medicine Hospital	*C-FRC In charge	2 Log book Entries
15.	Week 6	26.04.24 08.00am- 10.00am	dehydration in infant/young and Formulation ORS C-FRC	A	HOD Medicine Hospital	*C-FRC In charge	2 Log book Entries

BLOCK 4
RENAL-1 MODULE 2

Modular Outcome:

- Discuss the gross and microscopic anatomy of kidney and urinary system.
- Explain the embryological development of kidney and urinary tract
- Explain common developmental abnormalities of renal system
- Identify role of renal system in maintaining blood pressure and acid base balance
- Enlist functions of kidney and pathologies related to them.
- Explain method of electrolyte balance and pathologies related to it.
- Highlight pathologies related to kidneys and their distinctive clinical features

Interpret investigations done to diagnose abnormal structural and functional presentations.

NORMAL STRUCTURE			
THEORY			
CODE	**GROSS ANATOMY**	**TOTAL HOURS = 14**	
	SPECIFIC LEARNING OUTCOMES	**DISCIPLINE**	**TOPIC**
R-A-001	Describe gross features and facial coverings of kidneys.	Human Anatomy	Kidney
	Compare and contrast the relations of right and left kidneys.		
	Describe blood supply, lymphatics and nerve supply of kidney		
	Discuss the clinical aspects of kidneys		
	Demonstrate the surface marking and radiographic anatomy of kidney. Identify the side of kidney		
R-A-002	Compare and contrast the relations of right and left Ureter	Human Anatomy	Ureter
	Give the constrictions of ureter		
	Describe the blood supply nerve supply and lymphatics of ureter		
	Identify the ureter.		
R-A-003	Describe the gross anatomical features, relations, surfaces, blood supply, nerve supply and lymphatics of urinary bladder	Human Anatomy	Urinary bladder
	Give the clinical corelates of urinary bladder		
	Identify the gross features and surfaces of urinary Bladder		
R-A-004	Interpret basic urological signs/symptoms & investigations.	Integrate with urology	Sign/symptom/investigations
R-A-005	Describe the etiology, and management of urinary retention.		Urinary retention
R-A-006	Identify and describe the various anatomic landmarks of the renal system on	Integrate with Radiology	radiograph

	radiographs.		
R-A-007	Describe the parts of urethra.	Human Anatomy	Urethra
CODE	**EMBRYOLOGY & POST-NATAL DEVELOPMENT**	**TOTAL HOURS = 05**	
	SPECIFIC LEARNING OUTCOMES	**DISCIPLINE**	**TOPIC**
R-A-008	Describe development of intermediate mesoderm and its derivatives	Embryology	Development of urinary system
	Describe the development of pronephros, mesonephros and metanephros	Embryology	
	Describe positional changes during descent of kidney with correlation to its blood supply	Embryology	
	Describe the development of urinary bladder and Urethra	Embryology	
	List and describe the common congenital anomalies of kidney, urinary bladder and urethra.	Embryology	
CODE	**MICROSCOPIC STRUCTURE**	**TOTAL HOURS = 04**	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
R-A-009	Describe the histological, structural organization and functions of kidney with clinicals.	Histology	Structure of kidney
R-A-010	Describe the light and ultrastructure of Juxtaglomerular apparatus and glomerular filtration barrier	Histology	Juxtaglomerular apparatus
R-A-011	Describe the histological structure of ureter	Histology	Structure of ureter
R-A-012	Describe the histological structure of urinary bladder Discuss clinical correlates (Cystitis, Urinary bladder cancer, Urinary Tract Infections (UTIs))	Histology	Structure of urinary bladder

PRACTICAL

CODE	HISTOLOGY	TOTAL HOURS = 06	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
R-A-013	Identify and draw and label the histological structure of kidney and enumerate points of identification	Practical	Kidney
R-A-014	Identify, draw and label the histological structure of ureter and enumerate its points of identification	Practical	Ureter
R-A-015	Identify, draw and label the histological structure of urinary bladder and enumerate its points of Identification	Practical	Urinary bladder

NORMAL FUNCTION

THEORY

CODE	MEDICAL PHYSIOLOGY	TOTAL HOURS = 36	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
R-P-001	Describe major composition of intracellular and extracellular fluids	Physiology	Body fluid compartment
	Define Hypo and hypernatremia		
	Explain the causes of hypo & hypernatremia and their effects on Composition of body fluid Compartments		
	Describe difference between iso-osmotic, hyper-osmotic, hypo-osmotic fluids		
R-P-002	Enumerate causes of Intracellular and extracellular edema	Integrate with Medicine	Edema
	Describe safety factors that prevent edema		
R-P-003	Explain the functions of the kidney	Physiology	Function
R-P-004	Describe the mechanism of micturition and its Control		Micturition reflex

	Explain the role of higher center on micturition		
	Explain the physiological anatomy and innervation of bladder		
	Discuss the voluntary control of micturition		
R-P-005	Explain the causes, pathophysiology, and features of atonic bladder. Discuss the causes, pathophysiology, and features of automatic bladder. Write the causes, pathophysiology, and features of uninhibited neurogenic bladder	Integrate with Pathology	Abnormalities of micturition
R-P-006	Enlist the steps of urine formation	Physiology	Urine formation
	Explain the physiological anatomy and functions of glomerular capillary membrane		
	Discuss the composition of filtrate		
	Explain the minimal change nephropathy and increase permeability to plasma protein		
R-P-007	Define Glomerular Filtration Rate (GFR).	Physiology	Glomerular filtration
	Describe the determinants of GFR		
	Explain the factors affecting GFR		
	Discuss the hormones and autocoids that affect GFR		
	Explain mechanisms of autoregulation of GFR		
	Enlist the physiological and pathological factors that decrease GFR		
	Explain the effects of angiotensin II blocker on GFR during renal hypoperfusion		
R-P-008	Enumerate different types of transport along the kidney tubules for reabsorption	Physiology	Reabsorption
	Explain the reabsorption and secretion along different parts of the Nephron		
	Explain the regulation of tubular reabsorption		
	Discuss the forces / pressure and hormones that		

	determine renal tubular reabsorption		
	Explain the reabsorption of water along different parts of nephron		
	Define obligatory and facultative reabsorption		
	Discuss the characteristics of late distal tubules and cortical collecting ducts		
	Discuss the characteristics of medullary collecting Ducts		
R-P-009	Explain the use of clearance method to quantify kidney function	Physiology	Clearance method
R-P-010	Describe mechanism of re-absorption of sodium along different parts nephrons	Physiology	Transport maximum
	Define and explain the term Transport maximum for the substances		
	Define filtered load for the substance		
	Justify the difference of transport maximum and renal threshold of glucose in renal tubules		
R-P-011	Explain the renal mechanisms for excreting Dilute urine	Physiology	Urine concentration and dilution
	Explain the mechanism for forming a concentrated Urine		
	Discuss the role of urea in the process of counter current multiplier mechanism		
	Describe the countercurrent exchange in vasa Recta to preserve hyperosmolarity of renal medulla		
R-P-012	Define and explain the term obligatory urine volume. Define and explain free water clearance. Define Urine specific gravity.	Physiology	Obligatory urine volume
R-P-013	Enumerate different abnormalities of urinary concentrating ability	Physiology	Disorders of urine concentrating ability
R-P-014	Enumerate the types of Diabetes insipidus	Integrate with	Diabetes

	Enlist the features of diabetes insipidus	Medicine	insipidus
	Explain the pathophysiology and treatment of central diabetes insipidus		
	Discuss the pathophysiology of nephrogenic diabetes insipidus		
R-P-015	Make the flow chart to show the Osmoreceptor-antidiuretic hormone (*ADH*) feedback mechanism for regulating extracellular fluid osmolarity in response to a water deficit.	Physiology	Osmoreceptor-ADH Feedback System
	Enlist the factors which increase and decrease the release of ADH		
R-P-016	Explain the mechanism of thirst		Thirst
R-P-017	Enumerate the factors that can alter potassium distribution between intracellular and extracellular fluids		Renal regulation of potassium
	Discuss the process of secretion of potassium by renal tubules Explain the regulation of internal potassium distribution and potassium secretion		
R-P-018	Explain the control of extracellular fluid osmolarity and sodium concentration		Control of ECF osmolarity
R-P-019	Explain the integration of renal mechanism for control of Extracellular Fluid (ECF)		Control of ECF
	Explain the importance of pressure natriuresis and diuresis in maintaining body sodium and fluid balance		
R-P-020	Explain the renal handling of calcium concentration to regulate plasma calcium concentration		Renal regulation of calcium Renal regulation of phosphate
	Enumerate the factors that alter renal calcium		
	Enlist the factors that alter renal phosphate Excretion		

R-P-021	Explain the nervous and hormonal factors that increase the effectiveness of renal body fluid feedback control	Physiology	Renal body fluid feedback control
R-P-022	Explain the conditions that cause large increase in blood volume and ECF volume Explain the conditions that cause large increase ECF volume but with normal blood volume		ECF and blood volume
R-P-023	Explain the renal handling of H^+ ion.		Acid base balance
R-P-024	Analyze the acid base disturbances on the basis of pH, HCO3 and CO2	Physiology	Acid base disturbance
	Explain the causes and compensation of metabolic Acidosis		
	Explain the causes and compensation of metabolic Alkalosis		
	Explain the causes and compensation of respiratory Acidosis		
	Explain the causes and compensation of respiratory Alkalosis		
	Explain the causes and compensation of mixed acid base disorder		
R-P-025	Define and explain anion gap	Physiology	Anion gap
CODE	**MEDICAL BIOCHEMISTRY**	**TOTAL HOURS = 23**	
	SPECIFIC LEARNING OBJECTIVES	**DISCIPLINE**	**TOPIC**
R-B-001	Describe digestion and absorption of dietary proteins along with the inherited and acquired disorders (peptic ulcer, Hartnup disease, gluten enteropathy and cystic fibrosis). Elaborate the mechanisms involved in renal reabsorption of amino acids and discuss related disorders (Hartnup disease and cystinuria)	Medical Biochemistry	Protein digestion and absorption, reabsorption, and related disorders
R-B-002	Clearly differentiate between protein digestion and	Medical	Protein

	degradation. Compare the salient feature of the two major mechanisms for degradation of body proteins. Elaborate the concept of protein turnover and quote examples of short lived and long-lived proteins.	Biochemistry	Metabolism/ Protein degradation and turnover
R-B-003	Define amino acid pool. Delineate the sources and fates of amino acids. Give definition of nitrogen balance and its three states. Give physiological and/or pathological conditions associated with each state of nitrogen balance.	Medical Biochemistry	Protein Metabolism/ Amino acid pool and nitrogen balance
R-B-004	Enlist 7 important reactions involved in amino acid metabolism and give a brief introduction of each. (Deamination, Transamination, Trans-deamination, Deamidation, Decarboxylation, Transmethylation & Transpeptidation)	Medical Biochemistry	Protein Metabolism/ Introduction to Reactions involved in catabolism
R-B-005	Define transamination. Describe the reactions catalyzed by ALT (alanine transaminase) and AST (aspartate aminotransferase) with special reference to the role of pyridoxal phosphate in the transfer of amino group. Give diagnostic and prognostic importance of serum ALT and AST. Elaborate the importance of transamination reaction in amino acid metabolism.	Medical Biochemistry	Protein Metabolism/ Transamination
R-B-006	Define oxidative deamination. Describe the reaction catalyzed by glutamate dehydrogenase (GDH) along with its significance.	Medical Biochemistry	Protein Metabolism/ Trans deamination

	Define trans deamination.		
R-B-007	Define deamidation. Describe deamidation reaction catalyzed by glutaminase and asparaginase along with their significance. Explain how does L-asparaginase help in the management of certain types of leukemia. Elaborate the mechanism for shunting of glutamine from liver to kidneys during acidosis. Give advantage of shunting.	Medical Biochemistry	Protein Metabolism/ Deamidation
R-B-008	Define decarboxylation. Describe important decarboxylation reactions along with their significance	Medical Biochemistry	Protein Metabolism/ Decarboxylation
R-B-009	Give sources of ammonia in human body. Describe how ammonia is transported to liver with special reference to the role of glutamine and alanine in this transport mechanism.	Medical Biochemistry	Protein Metabolism/ Sources and transport of ammonia
R-B-010	Elaborate the reactions and regulation of urea cycle. Enlist the inherited and acquired causes of hyperammonemia in each condition. Give the biochemical mechanisms underlying ammonia intoxication. Discuss dietary and therapeutic measures for the management of patients with hyperammonemia (phenylbutyrate, lactulose, antibiotics).	Medical Biochemistry	Protein Metabolism/ Urea cycle, ammonia intoxication and its management
R-B-011	Trace the pathways for synthesis of non-essential amino acids (NEAA) (alanine, aspartate, glutamate,	Medical Biochemistry	Protein Metabolism/ Biosynthesis of

	glutamine, asparagine, proline, serine, glycine, cysteine, and tyrosine)		NEAA
R-B-012	Discuss the fate of carbon skeletons of amino acids. Categorize amino acids into glucogenic, ketogenic or both depending upon the intermediates produced during their catabolism. Outline the catabolic pathways of amino acids that yield oxaloacetate. Outline the catabolic pathways of amino acids that yield α-ketoglutarate. Outline the catabolic pathways of amino acids that yield pyruvate. Outline the catabolic pathways of amino acids that yield fumarate. Outline the catabolic pathways of amino acids that yield succinyl CoA. Outline the catabolic pathways of amino acids that yield acetyl CoA or acetoacetyl CoA.	Medical Biochemistry	Protein Metabolism/ Degradation of carbon skeleton of amino acids
R-B-013	Describe the metabolism of methionine. Discuss cause, Key diagnostics features and management of homocystinuria.	Biochemistry/ integrate with Pediatrics	Protein Metabolism/ Inborn errors of amino acid metabolism
	Describe the catabolism of branched chain amino acids. Discuss cause, key diagnostic features, and management of Maple Syrup Urine disease	Biochemistry/ integrate with Pediatrics	

	(MSUD).		
	Describe the metabolism of tyrosine. Discuss the cause, key diagnostic features, and management of alkaptonuria, albinism, and type 1 tyrosinemia.	Biochemistry/integrate with Pediatrics	
	Give cause, key diagnostic features, and management of phenylketonuria (PKU)	Biochemistry/integrate with Pediatrics	
	Elaborate special roles of glycine, tryptophan, phenylalanine, tyrosine, and methionine	Biochemistry	
R-B-014	Describe ionization of water and elaborate its significance. Discuss water and electrolyte balance in health and disease.		Water, pH, Buffers/ Ionization of water
R-B-015	Define pH and describe the concept of pH scale.		Water, pH, Buffers/ pH and pH scale
R-B-016	Define weak acids and conjugate base.		Water, pH, Buffers/ weak acids and their significance
R-B-017	Define Ka and pKa and give their significance.		Water, pH, Buffers/ Ka And pKa
R-B-018	Describe Henderson-Hasselbach (HH) equation. (no derivation required) along with its application/use.		Water, pH, Buffers/ HH equation and its applications
R-B-019	Define buffers. Enumerate the component of a buffers system and describe their mechanism of action. Enlist important buffers present in blood, plasma, ECF (Extra Cellular Fluid), ICF (Intra Cellular Fluid) and renal tubular fluid. Elaborate the working of bicarbonate buffer and phosphate buffer.		Water, pH, Buffers/ HH equation and its applications

R-B-020	Elaborate the role of kidneys in the regulation of acid base balance.	Biochemistry	Acid Base balance and imbalance/ Renal mechanisms for pH regulation
R-B-021	Elaborate the concept of 1st, 2nd and 3rd line of defense against changes in H^+ ion concentration.		Acid Base balance and imbalance/ Defense mechanisms against changes in H+ concentration
R-B-022	Define acidosis and alkalosis. Classify acid base disorders. Enlist causes of metabolic acidosis and give its compensation. Enlist causes of respiratory acidosis and give its compensation. Enlist causes of metabolic alkalosis and give its compensation. Enlist causes of respiratory alkalosis and give its compensation.	Biochemistry/integrate with Medicine	Acid Base balance imbalance/ Types of acid base disorders
R-B-023	Interpret disorders metabolic and respiratory disorders of acid base balance on basis of sign, symptoms and arterial blood gas (ABG) findings Give biochemical explanation for tetany associated with alkalosis	Biochemistry	Acid Base balance imbalance/ Tetany in alkalosis

PRACTICAL

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 02+10=12	
		DISCIPLINE	TOPIC
R-P-026	Perform a complete examination of the urine sample URS-10 (using urine reagent-10) and interpret its report	Physiology Practical	Interpretation of report
	Determine the specific gravity of urine		
R-B-024	Estimate blood urea level and interpret your results.	Biochemistry Practical	Interpretation of results
	Estimate serum creatinine level and interpret your results. Compare the usefulness of blood urea and serum creatinine in assessment of renal functions.		
	Determination of proteins in urine by dipstick method and interpret your results.		
	Estimate serum acid phosphatase level and interpret your results.		

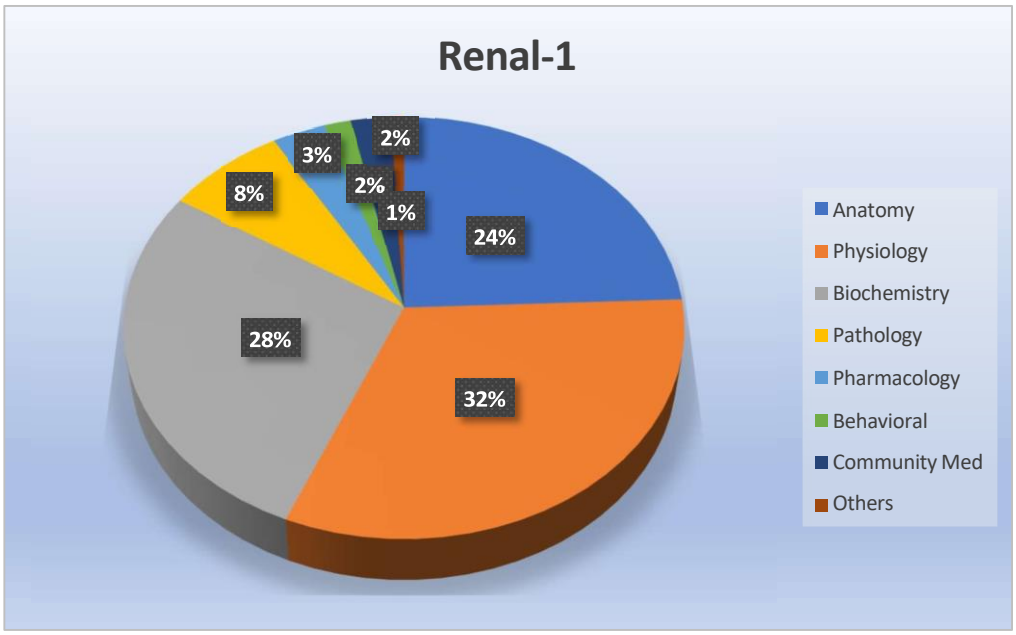
PATHOPHYSIOLOGY AND PHARMACOTHERAPEUTICS

CODE	SPECIFIC LEARNING OBJECTIVES	TOTAL HOURS = 13	
		DISCIPLINE	TOPIC
R-Ph-001	Classify diuretics & carbonic anhydrase inhibitor. MOA, clinical uses, and adverse effects	Pharmacology & Therapeutics	Diuretics
	Describe Thiazide & loop diuretics their Mechanism of Action, clinical uses, and adverse effects.		
	Describe Potassium sparing and osmotic diuretics their mechanism of action, clinical uses, and adverse effects.		
R-Pa-001	Discuss the etiology and pathogenesis of different types of stones.	Pathology	Renal Stones

R-Pa-002	Identify the causes, morphological aspect & outcome of hydronephrosis.		Hydronephrosis
R-Pa-003	Enlist common causative agents of urinary tract infections and describe pathogenesis and clinical features of common causative agents of UTI.		UTI causative agents
R-Pa-004	Define various presentations of glomerulonephritis. Define nephrotic and nephritic syndrome. List various risk factors and outline management of glomerulonephritis.	Integrate with Medicine	Glomerulonephritis
R-Pa-005	Define AKI (acute kidney injury) Identify various risk factors and causes for AKI. Outline management strategies.		Acute Kidney Injury
R-Pa-006	Define UTI (Urinary Tract Infection)		Urinary tract infection
	Identify various risk factors and causes of UTI.		
	Describe signs and symptoms of UTI.		
	Outline management strategies.		

DISEASE PREVENTION AND IMPACT			
CODE	**SPECIFIC LEARNING OBJECTIVES**	**TOTAL HOURS = 04**	
		DISCIPLINE	**TOPIC**
R-CM-001	Discuss the significance of quality of life in disease and treatment settings. Measures of health status. Disability-Adjusted Life Year (DALY) and Quality-Adjusted Life Year (QALY) Life expectancy.	Community Medicine and Public Health	Quality of life
R-BhS-001	To identify the behavioral abnormalities caused by renal function.	Behavioral Sciences	Dementia, uremic encephalopathy, delusion, muscle paralysis & Societal impact
	To identify the cognitive abnormality.		
	To identify the dangers for the patient, his family, and society.		

AGING			
CODE	THEORY	TOTAL HOURS = 02	
	SPECIFIC LEARNING OBJECTIVES	DISCIPLINE	TOPIC
R-Ag-001	To define preventive care in diseases related to urinary system(adults). Primary, secondary, and tertiary prevention.	Community	Disease prevention
R-Ag-002	Define urinary incontinence. Outline management strategies.	Medicine	Urinary incontinence



Module Weeks	Recommended Minimum Hours
04	119

Weekly Planner

2nd Year MBBS 2024. renal

WEEK – 1 THEME: KIDNEY

Date 29 APRIL to 03 MAY 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 29th April	**MINOR MODULE TEST GIT**	LGIS Anatomy Gross		LGIS Anatomy Gross	LGIS Physiology ICF & ECF 001	LGIS Physiology Hypo and hypernatremia 001	LGIS Biochemistry	LGIS Behavioural Sciences *Dr. Sadia*	
Tuesday 30th April	LGIS Community Medicine	LGIS Anatomy Gross		LGIS Physiology Edema 002	LGIS Physiology Functions of kidney 003	LGIS Biochemistry	LGIS Biochemistry	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 1st May	Practicals Histology (A) Physiology(B) Biochemistry (C)			LGIS Anatomy Gross	LGIS Biochemistry	LGIS Physiology Micturation Reflex 004	LGIS Physiology Abnormalities of micturition 005	LGIS QURAN. *Prof. M. Ali*	**S D L**
Thursday 2nd May	Practicals Histology (B) Physiology (C) Biochemistry (A)			LGIS HOD* Anatomy SH	LGIS Physiology Urine formation 006	LGIS Physiology GFR 007	LGIS Biochemistry	LGIS Behavioural Sciences *Dr. Sadia*	
Friday 3rd May	Practicals Histology (C) Physiology(A) Biochemistry (B)			LGIS HOD* Anatomy SH	LGIS Physiology GFR 007	LGIS Biochemistry	1:15pm-2:00pm Jumma Prayer	**LGIS PERL** *HOD	

Weekly Planner

2nd Year MBBS 2024 - Renal

WEEK – 2 THEME kidney

Date 06 May to 10 May 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 6th May	**Physiology Test**	**LGIS** Physiology Reabsorption 008	**B R E A K**	**LGIS** Community Medicine	**LGIS** Anatomy Gross	**LGIS** Anatomy SH	**LGIS** Biochemistry	**LGIS** Biochemistry	**S D L**
Tuesday 7th May	**Anatomy Test**	**LGIS** Biochemistry		**LGIS** Physiology Reabsorption 008	**LGIS** Physiology Clearance method 009	**LGIS** Anatomy Gross	**LGIS** Biochemistry	**2:15pm-3:00pm LGIS** Islamiat/Pak studies *H.O.D	
Wednesday 8th May	**Practical** Histology (A) PHYSIOLOGY (B) Biochemistry (C)			**LGIS** Biochemistry	**LGIS** Anatomy SE	**LGIS** Physiology Transport maximum 010	**LGIS** Physiology Urine concentration 011	**LGIS** QURAN. *Prof. M. Ali*	
Thursday 9th May	**Practical** Histology (B) PHYSIOLOGY (C) Biochemistry (A)			**LGIS** Anatomy SE	**LGIS** Physiology Urine dilution 011	**LGIS** Physiology Urine concentration 011	**LGIS** Biochemistry	**LGIS.** Pharmacology	
Friday 10th May	**Practical** Histology (C) PHYSIOLOGY (A) Biochemistry (B)			**LGIS.** Pharmacology	**LGIS** Physiology Obligatory urine volume 012	**LGIS** Pathology	**1:15pm-2:00pm** Jumma Prayer	**LGIS** PERL	

Weekly Planner

2nd Year MBBS 2024 - Renal

WEEK – 3 THEME urinary bladder

Date 13 May to 17 May 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 13th May	**Physiology Test**	LGIS Physiology Disorders of urine concentrating ability 0013	BREAK	LGIS Pathology	LGIS Biochemistry	LGIS Biochemistry	Museum activity Anatomy Gross	Museum activity Anatomy Gross	SDL
Tuesday 14th May	Biochemistry TEST	LGIS Pathology		LGIS Physiology Diabetes insipidus 014	LGIS Physiology Osmoreceptor- ADH Feedback System 015	PBL Anatomy/ Gross	PBL Anatomy /Gross	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 15th May	OSPE Histology (A) PHYSIOLOGY (B) Biochemistry (C)			LGIS Biochemistry	LGIS Anatomy SE	LGIS Physiology Thirst 016	LGIS Physiology Renal regulation of potassium 017	LGIS QURAN. *Prof. M. Ali*	
Thursday 16th May	OSPE Histology (B) PHYSIOLOGY (C) Biochemistry (A)			LGIS Anatomy SE	LGIS Physiology Control of ECF osmolarity 018	LGIS Physiology Control of ECF 019	LGIS Biochemistry	LGIS Pathology/Medicine	
Friday 17th May	OSPE Histology (C) PHYSIOLOGY (A) Biochemistry (B)			LGIS Pathology	LGIS Physiology Renal regulation of calcium 020	LGIS Biochemistry	1:15pm-2:00pm Jumma Prayer	LGIS. Pharmacology	

Weekly Planner

2nd Year MBBS 2024 - Renal

WEEK – 4 THEME

Date 20 May to 24 May 2024

Days/Time	8:00am-09:00am	09:00am-10:00am	10:00am-10:15am	10:15am-11:15am	11:15am-12:15pm	12:15pm-1:15pm	1:15pm-2:15pm	2.15pm-3.00pm	3:00pm-4:00pm
Monday 20th May	MODULE TEST	MODULE TEST	B R E A K	LGIS Physiology Renal regulation of phosphate 020	LGIS Physiology Renal body fluid feedback control 021	LGIS Biochemistry	Museum activity Anatomy Gross	Museum activity Anatomy Gross	S D L
Tuesday 21 May	LGIS Pathology	LGIS Pathology		LGIS Physiology ECF and blood volume 022	LGIS Physiology Acid base balance 023	LGIS Anatomy SE	LGIS Biochemistry	2:15pm-3:00pm LGIS Islamiat/Pak studies *H.O.D	
Wednesday 22 May	Practical Histology (A) CFRC (B) Biochemistry (C)			LGIS Biochemistry	LGIS Anatomy SE	LGIS Physiology Disturbane of Acid base balance 023	LGIS Physiology Disturbane of Acid base balance 023	LGIS QURAN. *Prof. M. Ali*	
Thursday 23 May	Practical Histology (B) CFRC (C) Biochemistry (A)			LGIS Anatomy SH	LGIS Physiology Anion gap 024	LGIS Physiology Anion gap 024	LGIS Biochemistry	LGIS Pathology/Medicine	
Friday 24 May	Practical Histology (C) CFRC (A) Biochemistry (B)			MINOR MODULE TEST	LGIS Physiology Revision	LGIS Biochemistry	1:15pm-2:00pm Jumma Prayer	LGIS Pathology/Medicine	

C-FRC RENAL SCHAEDULE FOR 2nd YEAR MBBS SESSION 2023-2027

S. No	Week	Date/Time	Topic	Batch No	Venue	Facilitator	Log Book Entries
1.	Week 4	22-05-24 08.00am-10.00am	Detail the steps of urinary catheterization in females & males	B	Skill Lab	*C-FRC In charge	3 Log book Entries
2.	Week 4	23-05-24 08.00am-10.00am	Detail the steps of urinary catheterization in females & males	C	Skill Lab	*C-FRC In charge	3 Log book Entries
3.	Week 4	24-05-24 08.00am-10.00am	Detail the steps of urinary catheterization in females & males	A	Skill Lab	*C-FRC In charge	2 Log book Entries

ASSESSMENT POLICY:

1. Second Professional examination will be held at the end of the Second year MBBS class as per University of Health Sciences schedule.

2. All students must prepare all the subjects, Anatomy (including Histology), Physiology, Biochemistry, Behavioral sciences, Community medicine & public health, Pathology, Pharmacology, mentioned as per above sections including clinical skills and PERL. The assessment will be held in all three blocks, which were taught during Second year MBBS.

3. There will be four papers in the first-year professional examination as per following:

   a) Paper 01 will be based on contents of Block No. 04.

   b) Paper 02 will be based on contents of Block No. 05.

   c) Paper 03 will be based on contents of Block No. 06.

4. All papers will be based on written and Oral/Practical/Clinical examination except Islamic Studies, Ethics, Professionalism, and Pakistan Studies, which will be written only.
5. The written and Oral/Practical/Clinical examination will carry 150 marks each thus a total of 300 marks for each of the three block (Block No. 04, 05 & 06).
6.The total marks of second year MBBS will be 900 (300 marks of each block, 04, 05 & 06) .
7. Major component of the second will include:

- Anatomy including Applied and Clinical Anatomy.
- Physiology including Applied and Clinical Physiology.
- Biochemistry including Applied and Clinical Biochemistry.

8.The Applied and Clinical part of all the above three mentioned component will be based on Clinical correlations.
9.Minor Components of the year include Pathology, Pharmacology and Therapeutics, Community Medicine, Behavioral Sciences, Clinical Foundation 2 and PERL 2.
10.Written Examination:

- There will be one written paper for each of Paper 4, 5 & 6 of the Blocks.
- This written paper will be based on one best type MCQs (70%) and SEQs (30%).
- Each MCQ will have five options (One best option and four distractors) and each will carry 01 Mark.
- There will be no negative marking.
- There will be no sections of SEQs and each will carry 05 Marks.
- SEQs will only be from the major components of first year that is Anatomy, Physiology and Biochemistry.
- There will be total 85 MCQs and 07 SEQs in each of three Block papers that is Block 04, 05 & 06.

- The duration of written paper will be of 180 Minutes or 03 Hours.
- MCQs part will be of 110 Minutes and SEQs will be 70 Minutes.

1. Oral/Practical/Clinical Examination:

- There will an Oral/Practical and Clinical Examination of each paper 4, 5and 6 will consist of a total of twelve (12) OSPE/OSCE/OSVE Stations.
- There will be seven (7) OSPE (objectively structed practical examination) stations from major subject areas.
- There will be two (2) Observed OSCE (objectively structed clinical examination) stations based on C-FRC-2 and PERL-2.
- There will be three (3) Observed interactive OSVE (objectively structed viva examination) from major subject areas. Each OSVE station will have a structured viva to assess.
- Each OSPE/OSCE Observed station will carry 08 Marks.
- Each OSVE station will carry sixteen (16) Marks.
- Duration of Oral/Practical and Clinical Examination is 120 Minutes (2 Hours).
- Time for each OSPE/OSCE/OSVE station will be 08 Minutes.

2. Each student of Second Year MBBS will have to appear in Second Year Professional Examination as follows:

- Block No. 04 (GIT & Nutrition-1 + RENAL) 300 Marks.
- Block No. 05 (Endocrinology & Reproduction-1 + Head & Neck, Special Senses) 300 Marks.
- Block No. 06 (Neurosciences-1 + Inflammation) 300 Marks.

3. No grace marks shall be allowed either in written or practical examination.

4. At least 25% MCQs and 25% SEQ shall cover Applied Clinical Cases scenario to assess high order thinking of Second Year MBBS examination.

Block No. 04 (GIT & Nutrition-1 + RENAL)

The examination of block no. 01 will be as follows:

I. One written paper of 120 Marks having following two parts:

a) Part I shall have eighty-five Multiple Choice Questions (MCQs) with 85 total marks (01 mark for each MCQ) and allocated time will be 110 Minutes.

b) Part II will have seven (7) Structured Essay Questions (SEQs) with 35 total marks (05 marks for each SEQ) and allocated time will be 70 Minutes.

c) Oral/Practical/Clinical Examination shall be of 120 marks.

d) The Continuous Internal Examination conducted by college of enrollment shall carry 60 marks (20% of the total 300 marks) of the Block. These 60 marks will be equally distributed for Written and Oral/Practical/Clinical Examination.

<table>
<tr><th colspan="7">YEAR II</th></tr>
<tr><th>Subject</th><th colspan="2">Theory</th><th colspan="3">Practical Marks</th><th>Total</th></tr>
<tr><td rowspan="4">Block 4 Modules
(GIT & RENAL-1)</td><td>Part I MCQs (85)</td><td>85 marks</td><td>Practical/Clinical Examination</td><td>07 OSPE
02 OSCE
03 OSVE</td><td>56
16
48</td><td rowspan="4">300</td></tr>
<tr><td>Part II SEQs (7)</td><td>35 marks</td><td>Internal Assessment 10%</td><td colspan="2">30 marks</td></tr>
<tr><td>Internal Assessment 10%</td><td>30 marks</td><td rowspan="2">Total</td><td colspan="2" rowspan="2">150</td></tr>
<tr><td>Total</td><td>150</td></tr>
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REGULATION:

1. This examination shall be permitted to any students who:

a) Has been enrolled/registered and completed one academic year proceedings in a constituent or affiliated medical college of University of Health Sciences (UHS).
b) has his/her name been submitted for the purpose of examination to Registrar of UHS from Principal of constituent or affiliated medical college, where he /she is enrolled and eligible as per prerequisite of first year MBBS examination.
c) Has his/her marks of internal assessment of all the Blocks are submitted to Registrar of University of Health Sciences by the Principal of the college along with admission forms.
d) Produces the following certificates duly attested by the Principal of the medical college:
    i. Good Character.
    ii. Attendance Certificate having not less than **85%** attendance of full course in both lectures delivered and practical conducted in second year MBBS.
    iii. Certificate of having passed all the Block examinations conducted by the college of enrollment with **50%** cumulative percentage in aggregate of Block 4, 5 & 6 Second year.
    iv. Candidates failing short of attendance in lectures and practicals shall not be admitted to the annual examination. Student though will be allowed for next examination if they attend **85%** of lectures delivered and practical conducted before the commencement of next examination by remaining enrolled as regular student of the college.

2. The minimum passing marks shall be 50% in written and 50% in Oral/Practical/Clinical Examination and 50% as an aggregate, independently and concomitantly at one and the same time of Second year MBBS examination.
3. Candidates securing more than **85%** marks in any of Block will be declared as distinction in the Block subject he/she secured **80%** marks in written component of that paper. Similarly, If he/she does not pass in second year examination as a whole at and same time shall not be declared to have a distinction in single Block or paper.
4. Any candidate failing to clear one or more papers in annual examination shall be provisionally allowed to join third year. He/she must clear that failed paper in supplementary examination within 4 weeks' time frame, failing to do he/she will be detained back in second year. Under no circumstances he/she shall be promoted to third year MBBS profession until and unless he/she cleared the failed papers.
5. If a student appears by any chance for the first time in Supplementary examination as he/she did not appear in annual examination and failed to clear one or more papers shall be detained in same second year class, no provisional joining in next class shall be allowed.
6. Any student failed to clear second year MBBS in four consecutive attempts inclusive of availed or un-availed after being eligible for examination shall be expelled from college and shall not be allowed to continue MBBS or BDS studies in the college or shall not be allowed to get admission as fresh candidate in either MBBS or BDS. (**Ref**. UHS Circulars/137-20/2750 dated 23-11-2020).

7. The college may arrange remedial classes and one re-sit for each block examination, either with the subsequent block examination or before completion of subsequent block examination, and before or during preparatory leave for the terminal block of the professional year, before issuance of the date sheet for the concerned professional examination, subject to the following conditions:
    i. At the completion of each block, the principal of the college shall submit a detailed report to the university, including cases of the students with short attendance, poor performance / absence in the block examination along with the reasons and evidence for the same, proposed schedule for remedial classes and re-sit examinations.
    ii. Competent Authority UHS will have the cause and the submitted evidence evaluated and documented, before permitting the college to arrange remedial classes and re-sit examination at the concerned block. No college is allowed to conduct remedial classes and re-sit examinations without prior approval of the competent authority.
    iii. The students can appear in re-sit of a block examination along with the subsequent block examination and before or during preparatory leave for the terminal block of the professional year, once the requirement of attendance is met with. Remedial classes shall be permitted only for those students who shall have attended 50% of total attendance of the concerned block in the first instance.
    iv. The valid reason for short attendance in a block or absence from a block examination may include major illness/accident/surgery of the student or death of an immediate relative /being affiliated by a natural calamity or disaster.

8. Every candidate shall submit their admission to Registrar of UHS through Principal of the college where he/she is enrolled and completed Second year MBBS.
9. The marks of internal assessment shall be submitted to Controller of Examination of UHS within 02 weeks after completion of each Block 4, 5 & 6 examination. No Internal Assessment will be accepted after the commencement of annual examination.
10. Parent Teacher Meeting should be schedule after every Block to share the attendance, internal assessment and performance of the students with their parents and University of Health Sciences.
11. Fresh internal assessment for supplementary examination shall not be permissible. Revised internal assessment for detained students can be submitted. A proper continuous internal assessment record shall be maintained by respective departments of the medical college.
12. The candidates will submit their respective fee to UHS through Principal of their College. Principal will deposit student fees through bank draft or pay order or cross cheque in the name Treasurer University of Health Sciences along with admission forms.
13. Only one annual and one supplementary of first professional examination shall be allowed in a particular academic session. In exceptional situations, i.e. national calamities, war or loss of solved answer books in case of accident, special examination may be arranged. This will require permission of syndicate and board of governors.

MBBS 2nd Professional

BLOCK 4

Theme	Written Exam				Oral/practical/clinical Exam			
	Subject	MCQ 1 Mark	SEQ 5 Marks	Marks	OSPE/OSCE/Viva Station			
					OSPE 8 Marks each observe	OSCE 8 Marks each observe	Structured viva 16 Marks each	Marks
Normal Structure	Anatomy & Applied/clinical	23	3	38	3	-	1	40
Normal Function	Physiology & Applied/clinical	16	2	26	2	-	1	32
	Biochemistry & Applied/clinical	20	2	30	2	-	1	32
Disease Burden & Prevention	Community Medicine & Public Health	07	-	07	-	-		-
	Behavioral Sciences	06	-	06	-	-		-
Pathophysiology & Pharmacotherapeutics	Pathology	09	-	09	-	-		-
	Pharmacology	04	-	04	-	-		-
CFRC	CF 1-1	-	-	-	-	1		8
PERLS	PERL 1-1	-	-	-	-	1		8
		85	7x5=35	120	7 Stations x 08 = 56	02 Stations x 08 = 16	3 Vivas x 16 = 48	120

Academic Calendar 2nd Year
2024

BLOCK 4		4th March to 4th June 2024 (11 Wks + 1 wk Spring Break)
	Spring Break	3rd April to 9th April 2024; Eid ul fitr 10-12th April 24
1.	**GIT & Nutrition Module (6wks)**	4th March to 26th April 2024
	Major Module test	22nd April
	Minor Module Test	29th April
2.	**Renal Module (4wks)**	29th April to 24th May 2024.
	Major Module test	20th May 2024
	Minor Module test	24th May 2024
	Block 4 Exam (1wk)	**27th May - 4th June 2024**
	Written	30th May 2024
	OSPE/OSVE	3rd 4th June 2024
BLOCK 5		**5th June to 1st Oct, 2024** **(12 wks + 4wks Summer Break)**
	Summer Break	16 June to 13th July 2024
1.	**Endo, Repro & Genetics Module (7wks)**	**5th June to 16th August 2024**
	Major Module test	12th August, 2024
	Minor Module test	16th August, 2024
	Head & Neck & Sp. Senses Module (5wks)	**19th August – 20th September 2024**

2.	Major Module test	16th September, 2024
	Minor Module test	20th September,, 2024
	Block 5 Exam (1wk)	**23rd September-1st October 2024**
	Written	26thSeptember, 2024
	OSPE/OSVE	30th September & 1st October 2024
BLOCK 6		**2nd October-3rd December 2024 (9 Weeks)**
1.	**Neuro. Module (7wks)**	**2nd October to 15th November 2024**
	Major Module test	11th November, 2024
	Minor Module test	15th November, 2024
2.	**Inflammation Module (1wk)**	**18th-23rd November 2024**
	Block 6 Exam (1wk)	**30th November to 3rd December 2024**
	Written	28thSeptember, 2024
	OSPE/OSVE	2nd 3rd December 2024
PREPARATORY LEAVES (4wks)		**4th to 31st December 2024**
Winter break		**25th December to 31st December 2024**
PROFESSIONAL EXAMS		**January 2025 onwards**

RESOURCE BOOKS:

Anatomy

- Snell's Clinical Anatomy 10th ed.
- Langman's Medical Embryology 12th ed
- Medical Histology by Laiq Hussain Siddiqui 8th ed.
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