



Gastrointestinal Tract Module

Study Guide
Second Year MBBS 2021 - 2022





RAWALPINDI MEDICAL UNIVERSITY

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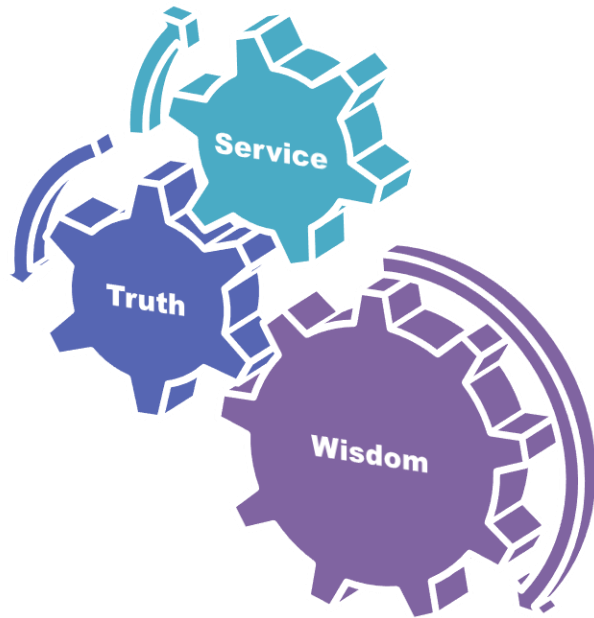
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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

GIT Module

Discipline wise Details of Modular Content

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

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

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

Module Committee		Module Task Force Team	
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Focal Person Behavioral Sciences	Dr. Saadia Yasir		
Focal Person Community Medicine	Dr. Afifa Kulsoom		
Focal Person Quran Translation Lectures	Dr. Fahad Anwar		

Module I -GIT Module

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

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

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

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

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

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

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

Module Outcomes

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

Knowledge

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

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

Skills

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

Attitude

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

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

SECTION - I

Terms & Abbreviations

Contents

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

Tables & Figures

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

Table1. Domains of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

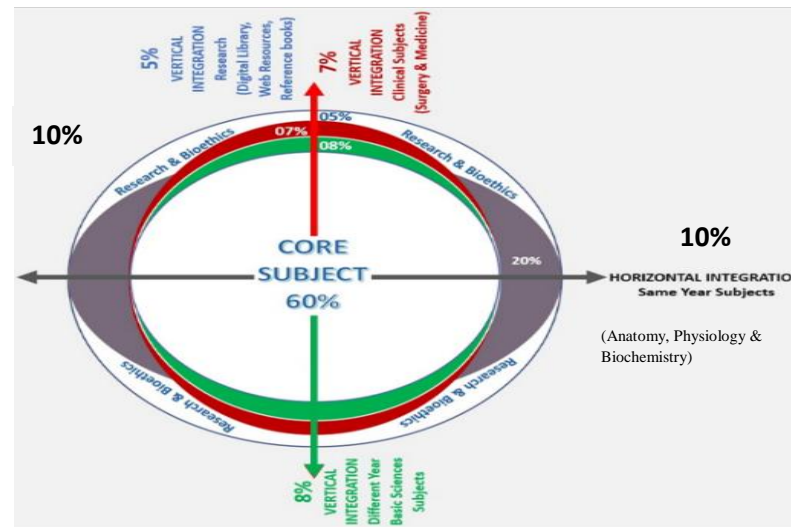


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementation of Small Group Discussions

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

Self-Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

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

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

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

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

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

Physiology Large Group Interactive Session (LGIS)

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

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

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

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

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

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

Biochemistry Large Group Interactive Session (LGIS)

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

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

Anatomy Small Group Discussion (SGDs)

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

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

(Duodenum)	differences		Skill lab	MCQ VIVA OSPE
	<ul style="list-style-type: none"> Enumerate the relations of different parts of duodenum 	C1		
Small Intestine (Jejunum and Ileum)	<ul style="list-style-type: none"> Discuss its clinical importance 	C3	Skill lab	SAQ MCQ VIVA OSPE
	<ul style="list-style-type: none"> Describe jejunum and ileum with their anatomical features 	C2		
	<ul style="list-style-type: none"> Discuss mesentery and its attachment 	C2		
Large Intestine & Appendix	<ul style="list-style-type: none"> Discuss its clinical importance 	C2	Skill lab	SAQ MCQ VIVA OSPE
	<ul style="list-style-type: none"> Enlist various parts of large intestine 	C1		
	<ul style="list-style-type: none"> Demonstrate gross anatomical features of different parts of large intestine 	C2		
	<ul style="list-style-type: none"> Enlist intra and retroperitoneal parts of large intestine 	C1		
	<ul style="list-style-type: none"> Discuss gross features of caecum 	C1		
	<ul style="list-style-type: none"> Describe gross anatomy of appendix 	C1		
	<ul style="list-style-type: none"> Enlist different anatomical positions of vermiform appendix. 	C1		
	<ul style="list-style-type: none"> Mark McBurney's point 	C1		
Liver, Portal hypertension, Portosystemic Anastomosis	<ul style="list-style-type: none"> Demonstrate McBurney's incision 	P	Skill lab	SAQ MCQ VIVA OSPE
	<ul style="list-style-type: none"> Discuss common features, differential diagnosis of acute appendicitis and appendicectomy 	C3		
	<ul style="list-style-type: none"> Describe the anatomical structure of liver. 	C1		
	<ul style="list-style-type: none"> Describe the lobes, surfaces and segments of liver 	C1		
	<ul style="list-style-type: none"> Describe peritoneal reflections, ligaments and bare area of liver. 	C1		
	<ul style="list-style-type: none"> Enumerate visceral relations of liver. 	C1		
	<ul style="list-style-type: none"> Enlist the structures in porta hepatis. 	C1		
	<ul style="list-style-type: none"> Discuss Sub hepatic abscess & Live Biopsy 	C3		
	<ul style="list-style-type: none"> Discuss formation, course and parts of portal vein 	C1		
	<ul style="list-style-type: none"> Enumerate relations and tributaries of portal vein 	C1		
	<ul style="list-style-type: none"> Define portal hypertension 	C1		
Gallbladder and	<ul style="list-style-type: none"> Describe sites of the portocaval anastomosis and their clinical significance 	C3	Skill lab	SAQ
	<ul style="list-style-type: none"> Explain role of portocaval shunts 	C3		
Gallbladder and	<ul style="list-style-type: none"> Describe location & size of gall bladder 	C1	Skill lab	SAQ
	<ul style="list-style-type: none"> Enumerate relations of gallbladder. 	C1		

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

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

Physiology Small Group Discussion (SGDs)

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

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

Biochemistry Small Group Discussion (SGDs)

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

Anatomy Self Directed Learning (SDL)

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

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

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

Physiology Self Directed Learning (SDL)

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

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

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

Biochemistry Self Directed Learning (SDL)

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

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

Histology Practicals Skill Laboratory (SKL)

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

Physiology Practicals Skill Laboratory (SKL)

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

Biochemistry Practicals Skill Laboratory (SKL)

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

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Basic and Clinical Sciences (Vertical Integration)

Case Based Learning (CBL)

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

Large Group Interactive Sessions (LGIS)

Pathology

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

Pharmacology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Anti diarrheal drugs	• Revise the physiology of gastrointestinal motility	C1	LGIS	MCQ
	• Outline the main causes of diarrhea	C1		
	• Enlist the major groups of anti- diarrheal drugs	C1		
	• Identify the role of anti-diarrheal drugs in different types of diarrheas based on their mechanism	C1		
	• Recall the physiology of production of gastric acid and natural protective barriers against it	C1		
	• Recognize different etiological factors responsible for peptic ulcer	C1		
	• Classify different drugs used in peptic ulcer disease based on their mechanism	C1		
	• Discuss briefly major pharmacokinetic and pharmacodynamics features of these drugs	C2		
• Cite main regimens used against peptic ulcer due to H. pylori	C1			

Community Medicine

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

Medicine

Topic	At the end of the lecture, students should be able to	Learning Domain	Learning Strategy	Assessment Tools
Dysphagia	• Define and discuss pathophysiology	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		
Peptic ulcer	• Describe Mechanism of digestion in stomach	C1	LGIS	MCQs
	• Describe Mechanism of APD and GERD	C2		
	• Discuss Peptic ulcer formation	C2		
	• Enlist Clinical features	C2		
	• Enlist Investigations	C1		
	• Describe management	C2		
Jaundice	• Enlist types of Jaundice	C1	LGIS	MCQs
	• Discuss changes in Liver	C2		
	• Describe clinical features	C2		
	• Enlist investigations	C1		
	• Discuss management	C2		
Inflammatory bowel disease	• Describe features of IBD	C2	LGIS	MCQs
	• Classify IBD	C2		
	• Describe pathogenesis of IBD	C2		
	• Describe histological diagnosis of IBD	C1		
	• Enlist complication of IBD	C1		

Surgery

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

Obstetrics & Gynaecology

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

Padiatrics

Topic	At the end of the lecture, students should be able to	Learning Domain	Teaching strategy	Assessment Tools
Acute diarrhea and chronic diarrhea	• Define Acute diarrhea	C1	LGIS	MCQs
	• Describe epidemiology and disease burden	C2		
	• Discuss etiology and causative organisms' pathophysiology	C2		
	• Assess case	C2		
	• Enlist complications of Acute diarrhea	C2		
	• Describe prevention	C2		
	• Define chronic diarrhea	C1	LGIS	MCQs
	• Describe epidemiology and disease burden	C2		
	• Discuss etiology and causative organisms' pathophysiology	C2		
	• Assess case	C2		
	• Enlist complications of chronic diarrhea	C2		
	• Describe prevention	C2		

Radiology & Artificial Intelligence

Topic	At the end of lecture student should be able to	Learning Domain	Teaching Strategy	Assessment Tools
X-ray abdomen	• Identify normal and abnormal radiographs of abdomen (AP view)	C1	LGIS	MCQs
	• Identify filling defects (Barium meal and Barium enema)	C1		
	• Recognize the correct and incorrect positioning of feeding tubes	C1		
CT Scan MRI abdomen	• Identify normal and abnormal CT Scan MRI abdomen	C1	LGIS	MCQs
	• Discuss co-relation with Artificial Intelligence	C2		

Behavioral Sciences

Topic	At The End of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Eating disorders	<ul style="list-style-type: none"> To be able to define eating disorders 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> To be able to describe the types of eating disorders 	C2		
	<ul style="list-style-type: none"> To make differential diagnosis 	C2		
	<ul style="list-style-type: none"> To be able to manage such conditions 	C2		

Biomedical Ethics & Professionalism

Topic	At the End of The Session, Student Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Pakistan Medical & Dental Council Code of Ethics	At the end of the session students should be able to;	C2	LGIS	SAQ MCQ VIVA
	<ul style="list-style-type: none"> Appreciate the value of oath and pledge taken by medical student at the time of graduation from medical school 			
	<ul style="list-style-type: none"> Appraise the importance of principles to be followed by the medical and dental practitioners to fulfil the social contract with the society in order to win the trust of the public in the profession 	C2		
	<ul style="list-style-type: none"> Cognizant with disciplinary proceedings in case of violation of rules laid down by regulatory body 	C1		

Integrated Undergraduate Research Curriculum (IUGRC)

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

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

Family Medicine

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

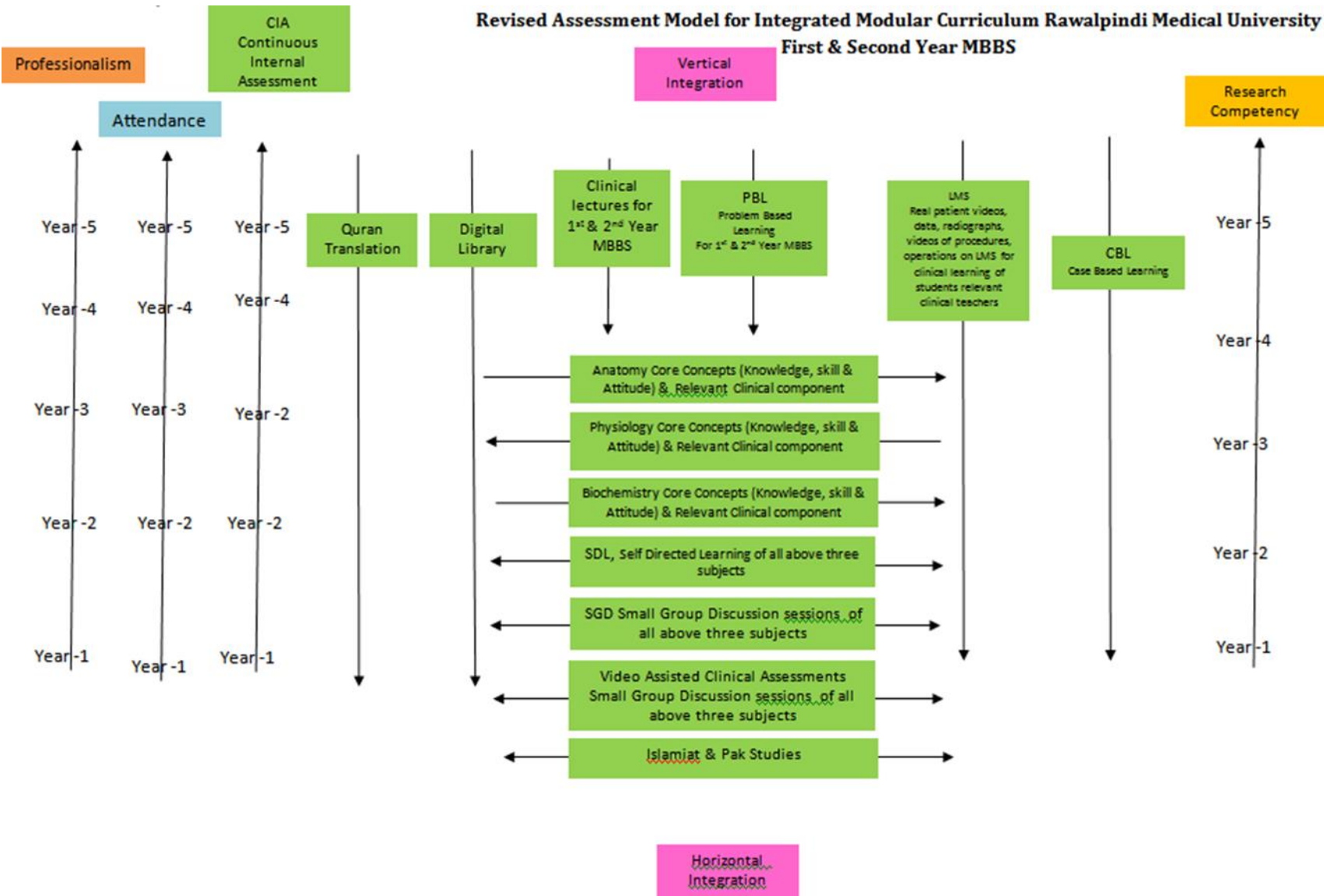
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing in professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in GIT Module

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

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

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

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

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

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

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S.Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition.
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook Of Medical Physiology by Guyton And Hall 14th edition. 2. Ganong ' S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition.
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lehninger Principle of Biochemistry 8th edition. 3. Biochemistry by Devlin 7th edition.
Community Medicine	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Community Medicine by Parikh 25th edition. 2. Community Medicine by M Illyas 8th edition. 3. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Robbins & Cotran, Pathologic Basis of Disease, 10th edition. 2. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. 3. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Lippincot Illustrated Pharmacology 9th edition. 2. Basic and Clinical Pharmacology by Katzung 5th edition.

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

GIT Module Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

GIT Module Team

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

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

Discipline wise Details of Modular Content

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

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

Anatomy:

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

Category A: By Professors

Category B: By Associate & Assistant Professors

Category C: By Senior Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

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

Contact Hours (Faculty)

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

Contact Hours (Students)

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

Physiology:

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

Category A: By HOD and Associate Professor

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

Category C: By Demonstrators and Residents

Teaching Staff / Human Resource of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Biochemistry:

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

Category A: By HOD And Assistant Professor

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

Category C: By All Demonstrator

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

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

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

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

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

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

DATE/DAY	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 2:00pm	Home Assignments(2HRS)	
06-02-2023 MONDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS	BIOCHEMISTRY LGIS	SURGERY LGIS		Inguinal Region And Hernias	SDL Physiology Control Of GI Motility & Factors Affecting GIT Blood Flow
		Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT	Motor functions of stomach, physiology of regulation of gastric emptying	Gluconeogenesis	Fate Of Pyruvate		
07-02-2023 TUESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS	ANATOMY LGIS	BIOCHEMISTRY LGIS		Testes & Scrotum	SDL Physiology Swallowing
		Motor functions of stomach, physiology of regulation of gastric emptying	Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT	Development Of Esophagus & Stomach-1	Histology General Structure of GIT & Esophagus		
08-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS	ANATOMY LGIS	SURGERY LGIS		Peritoneum & Peritoneal Cavity	SDL Biochemistry TCA Cycle Gluconeogenesis Regulation
		Physiology of liver and gall bladder, liver and biliary secretion	Gastric secretion, digestion in stomach, peptic ulcer and gastritis	Histology General Structure of GIT & Esophagus	Development Of Esophagus & Stomach-1		
09-02-2023 THURSDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS	PHYSIOLOGY SGD	BIOCHEMISTRY LGIS		Sub divisions of Peritoneal Cavity	SDL Anatomy Inguinal Region Canal and Hernias
		Gastric secretion, digestion in stomach, peptic ulcer and gastritis	Physiology of liver and gall bladder, liver and biliary secretion	Movements of GIT, control of GIT motility and factors affecting GIT blood flow, hormones of GIT	Citric Acid Cycle		
10-02-2023 FRIDAY	8:00-9:00am	9:00-10:00am	10:00-11:00am	11:00-12:00pm			
	MEDICINE LGIS	ANATOMY LGIS	Quran Translation - II				
	Peptic Ulcer	Development of Stomach-2	Histology Of Stomach	Ibadaat-2	Imaniyaat-2		
11-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	SURGERY LGIS		BIOCHEMISTRY LGIS		Esophagus and stomach	SDL Anatomy Peritoneum & Peritoneal Cavity
		Surgical complications of Peptic Ulcer Disease		Histology Of Stomach	Development of Stomach-2		
		Dr. Ali Kamran (Even)	Dr. Sidra (Odd)	Ass. Prof. Dr Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Aneela (Even)	Dr. Almas (Odd)

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

Time Table For GIT Module (Third Week)
(13-02-2023 to 18-02-2023)

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

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

Time Table For GIT Module (Fourth Week)
(20-02-2023 to 25-02-2023)

DATE/DAY	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm – 2:00pm	Home Assignments(2HRS)					
20-02-2023 MONDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD		SDL Physiology Physiology Of Liver / Gall Bladder, Liver And Biliary Secretion	
		Motor function of large gut, defecation reflex and pathophysiology (diarrhea, constipation, ulcerative colitis, mega colon and carcinoma of colon)	Intestinal secretion and its functions, pancreatic juice, its composition and functions, pancreatitis, overall mechanism of digestion and absorption of intestine (amino acids, fatty acids and glucose)	Histology Of Small Intestine	Development Of Small Intestine	Bile & Pancreatic Juice	LFT's Jaundice	Spleen			
		Dr Shazia (Even)	Dr Aneela (Odd)	Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra(Odd)	Dr. Uzma (Even)	Dr. Anoosh (Odd)				
21-02-2023 TUESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY SDL-II		RESEARCH-III LGIS		BIOCHEMISTRY LGIS		DISSECTION/SGD		SDL Physiology LFTs, Jaundice	
		Gastric secretion, digestion in stomach, peptic ulcer and gastritis		Scales of Data Measurement		Nutrition-I	GIT Hormones & Succusertericus		Pancreas		
		Dr. Shazia (Even)	Dr. Sheena (Even)	Dr. Rizwana Shahid (Even)	Dr. Uzma Hayat(Odd)	Dr. Rahat (Even)	Dr. Uzma (Odd)				
22-02-2023 WEDNESDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PBL SESSION-II		SURGERY LGIS		ANATOMY LGIS		DISSECTION/SGD		SDL Biochemistry Individual Sugars	
		PBL SESSION-II		Acute Abdominal Pain		DevelopmentOf Large Intestine	Histology Of Large IntestineI		Large intestine CBL- Acute Appendicitis		
		PBL Team Of Second Year MBBS		Dr. Amjad (Even)	Dr. Kiran (Odd)	Prof. Dr. Ifra (Even)	Ass. Prof. Dr. Maria(Odd)				
23-02-2023 THURSDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	PHYSIOLOGY SDL-III		ANATOMY LGIS		MEDICINE		DISSECTION/SGD		SDL Anatomy Liver And Pancreas	
		Small intestine motility and malabsorption (sprue, paralytic ileus and Crohn's disease)		Histology of Large Intestine-I	Development of Large Intestine	Irritable Bowel Syndrome		Vasculature of GIT (Blood Supply, Venous drainage, Lymphatic drainage)			
		Dr Uzma (Even)	Dr. Fareed (Odd)	Ass. Prof. Dr. Maria (Even)	Prof. Dr. Ifra (Odd)	Dr. Aqsa (Even)	Dr. Sadia (Odd)				
24-02-2023 FRIDAY	8:00-9: 00AM		9:00-10:00am		10:00-11:00am		11:00-12:00pm				
	RESEARCH-IV		PHYSIOLOGY SDL-IV		PAK STUDIES/ISLAMIYAT-I		PAK STUDIES/ISLAMIYAT-I				
	Measures of central tendency		Intestinal secretion and its functions, pancreatic juice, its composition and functions		Toheed	Qayam e Pakistan, Aghraaz o Maqasid	Qayam e Pakistan, Aghraaz o Maqasid	Toheed			
	Dr. Rizwana Shahid (Even)	Dr. Uzma Hayat(Odd)	Dr. Shazia (Even)	Dr. Sheena (Odd)	Mufti Naeem Sherazi (Even)	Qari Aman Ullah(Odd)	Qari Aman Ullah(Even)	Mufti Naeem Sherazi (Odd)			
25-02-2023 SATURDAY	Practical &CBL/SGD Topic & Venue Mentioned at The End	BIOCHEMISTRY LGIS		ANATOMY LGIS		PHARMACOLOGY LGIS		PAK STUDIES/ISLAMIYAT			SDL Anatomy (Blood Supply, Venous drainage, Lymphatic drainage)
		GIT Hormones & Succusertericus	Nutrition-I	Development Of Body Cavities-I	Histology Of Large Intestine-II	Anti-Diarrheal Drugs & drugs for Peptic Ulcer Disease		Tehreek-E-Pakistan Islaahi Tehreekain	Akhi rat-I	Akht -I	
		Dr. Uzma (Even)	Dr. Rahat (Odd)	Ass. Prof. Dr. Arsalan (Even)	Ass. Prof Dr Maria (Odd)	Dr. Uzma Omer		Qari Aman Ullah (Even)	Mufi Naeem Sherazi (Odd) (Even)	Qari Aman Ullah (Odd)	

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

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

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

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

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

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

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

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

SECTION-VI

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

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

Annexure-I
(Sample MCQ & SEQ Papers)

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

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

**RAWALPINDI MEDICAL UNIVERSITY
GIT MODULE EXAM 2ND YEAR MBBS
ANATOMY SEQs**

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

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

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

e. 30%

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

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

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

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

1. Glycogen:

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

2. End product of carbohydrate digestion is:

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

3. Regulatory enzyme of Glycogenolysis is:

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

4. End product of anaerobic glycolysis is:

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

SEQ

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

b. Discuss fate of pyruvate. 02

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

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




Renal Module

Study Guide

Second Year MBBS 2022 - 2023



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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

Renal Module

Discipline wise Details of Modular Content

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

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

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

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1.	Vice Chancellor RMU	Prof. Dr. Muhammad Umar	1.	Coordinator	Dr. Sheena Tariq (Senior Demonstrator of Physiology)
2.	Director DME	Prof. Dr. Rai Muhammad Asghar	2.	DME Focal Person	Dr. Sidra Hamid (DHPE) (Assistant Professor of Biochemistry)
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13.	Focal Person Behavioral Sciences	Dr. Saadia Yasir			
14.	Focal Person Community Medicine	Dr. Afifa Kulsoom			
15.	Focal Person Quran Translation Lectures	Dr. Fahad Anwar			

Module II – Renal Module

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

Module Outcomes

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

Knowledge

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

Skills

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

Attitude

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

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

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

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

Tables & Figures

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

Table1. Domains of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

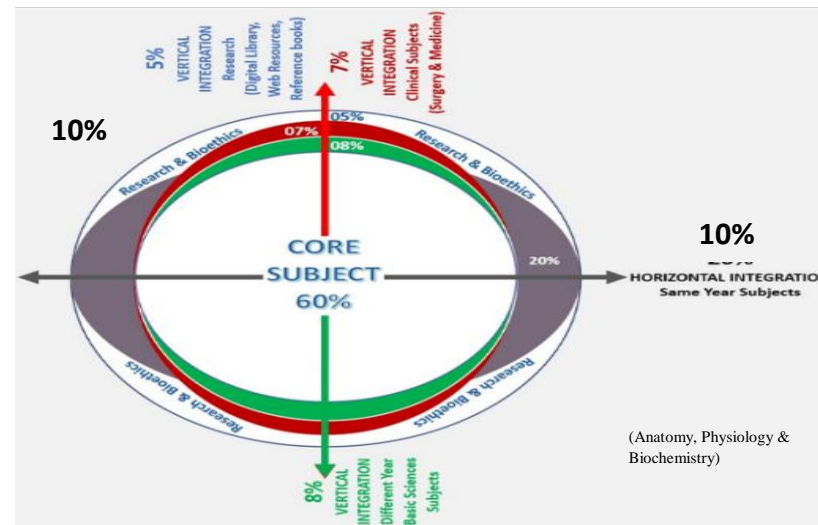


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementation of Small Group Discussions

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

Self-Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

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

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

Physiology Large Group Interactive Session (LGIS)

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

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

Biochemistry Large Group Interactive Session (LGIS)

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

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

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

Anatomy Small Group Discussion (SGDs)

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

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

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

Physiology Small Group Discussion (SGDs)

Topic	Learning Objectives Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tools
GFR & RBF	• Explain factors effecting GFR	C2	SGD	MCQ
	• Discuss determinants of RBF	C2		SEQ
	• Explain autoregulatory mechanism of GFR & RBF	C2		VIVA OSPE
Micturition	• Describe the physiological anatomy & nervous connections of urinary bladder	C1	SGD	MCQ

	<ul style="list-style-type: none"> • Explain Micturition reflex • Discuss abnormalities of Micturition 	C2		SEQ VIVA OSPE
Clearancemethods	<ul style="list-style-type: none"> • Define Renal clearance 	C1	SGD	MCQ SEQ VIVA OSPE
	<ul style="list-style-type: none"> • Enumerate & Explain clearance methods to quantify renal functions 	C1		
	<ul style="list-style-type: none"> • Explain filtration fraction 	C2		
Acid basebalance	<ul style="list-style-type: none"> • Describe mechanism of action of buffer systems of body fluid 	C1	SGD	MCQ SEQ VIVA OSPE
	<ul style="list-style-type: none"> • Discuss buffering power of respiratory & renal system 	C2		
	<ul style="list-style-type: none"> • Explain the acid base disorders 	C2		

Biochemistry Small Group Discussion (SGDs)

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

Anatomy Self Directed Learning (SDL)

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

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

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

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

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

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

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

Histology Practicals Skill Laboratory (SKL)

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

Physiology Practicals Skill Laboratory (SKL)

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

Biochemistry Practicals Skill Laboratory (SKL)

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

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Basic and Clinical Sciences (Vertical Integration)

Case Based Learning (CBL)

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

Large Group Interactive Sessions (LGIS)

Padiatrics

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

Radiology & Artificial Intelligence

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Prenatal ultrasonography	<ul style="list-style-type: none"> • Interpret normal ultrasonography of renal system 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> • Discuss features of different congenital abnormalities of renal system 	C2		

Community Medicine

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Biostatistics-1 Basic concepts and uses (Descriptive). Data and its types.	<ul style="list-style-type: none"> • Define biostatistics and correlate its importance in medical research. 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Understand data and its types 	C2		
Biostatistics-2 Basic concepts and uses (Descriptive). Data and its types.	<ul style="list-style-type: none"> • Define biostatistics and correlate its importance in medical research. 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Understand data and its types 	C2		

Obstetrics & Gynaecology

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Physiological changes in the renal system in pregnancy	<ul style="list-style-type: none"> • The anatomic and functional changes in the renal system in pregnancy 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> • The changes in indices of renal function during pregnancy 	C2		

Dermatology

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

Biomedical Ethics and Professionalism

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

Integrated Undergraduate Research Curriculum (IUGRC)

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

Family Medicine

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

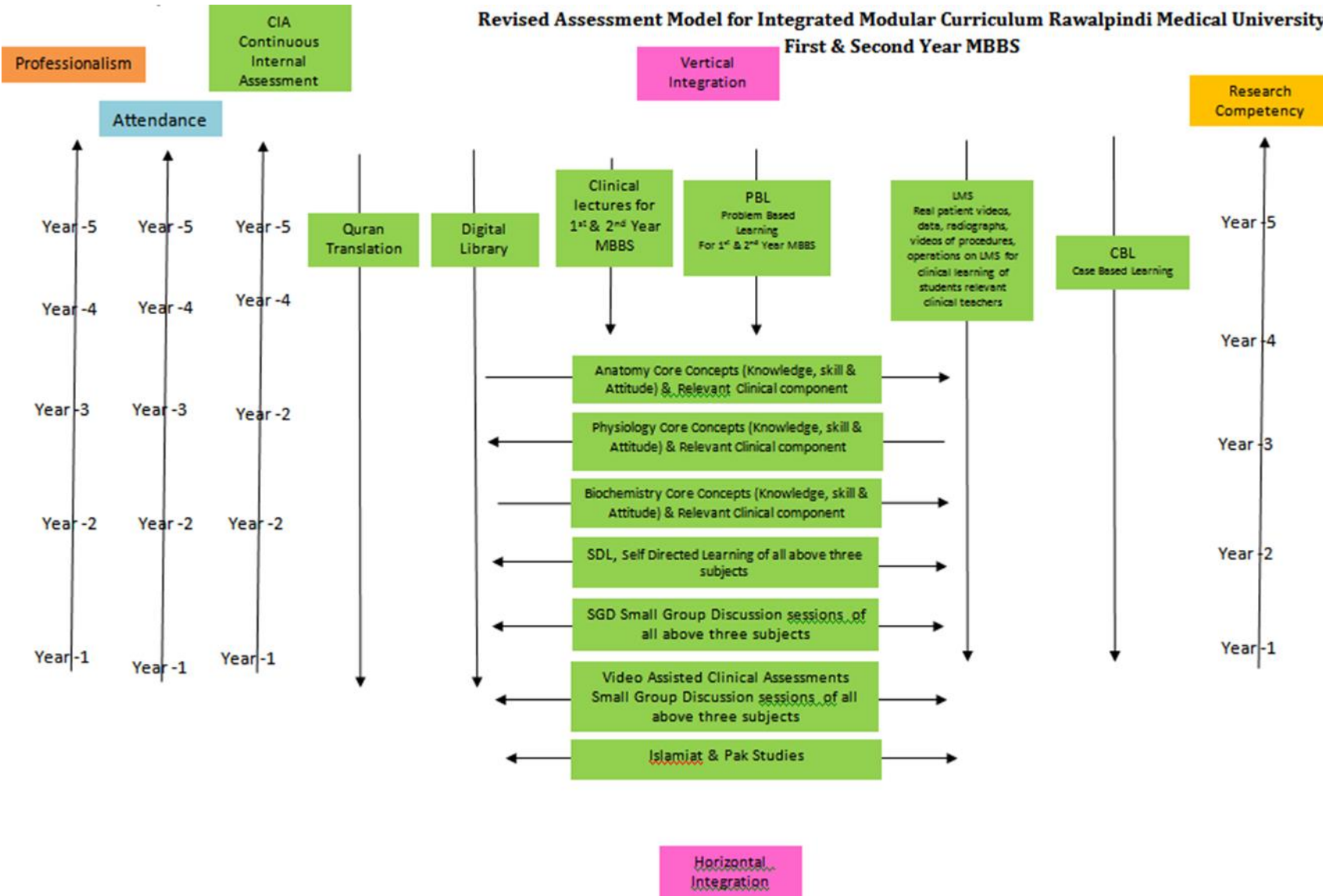
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in Renal Module I

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

No. of Assessments of Anatomy for Second Year MBBS

Renal Module

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

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

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

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

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition.
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook Of Medical Physiology by Guyton And Hall 14th edition. 2. Ganong ' S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition.
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lehninger Principle of Biochemistry 8th edition. 3. Biochemistry by Devlin 7th edition.
Community Medicine	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Community Medicine by Parikh 25th edition. 2. Community Medicine by M Illyas 8th edition. 3. Basic Statistics for the Health Sciences by Jan W Kuzma 5th edition.
Pathology/Microbiology	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Robbins & Cotran, Pathologic Basis of Disease, 10th edition. 2. Rapid Review Pathology, 5th edition by Edward F. Goljan MD. 3. http://library.med.utah.edu/WebPath/webpath.html
Pharmacology	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Lippincot Illustrated Pharmacology 9th edition. 2. Basic and Clinical Pharmacology by Katzung 5th edition.

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Renal Module Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

Renal Module Team

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

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

Discipline wise Details of Modular Content

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

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

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

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

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

Contact Hours (Faculty)

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

Contact Hours (Students)

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

Categorization of Modular Content of Physiology

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

	Sheena)					
	Renal failure & hemodialysis (Dr. Sheena)					

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

Teaching Staff / Human Resource of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Categorization of Modular Content of Department of Biochemistry:

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

Category A*: By HOD and Assistant Professor

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

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

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

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

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

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

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

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

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

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

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

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

Renal Module Fourth Week (03-04-2023 To 08-04-2023)

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

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

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

SECTION-VI

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

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

Table of Specification for Integrated OSPE

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

Table Of Specification for Gross Anatomy OSPE

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

Annexure-I

(Sample MCQ, SEQ Papers & OSPE)

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

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

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

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

1. A male newborn was delivered vaginally at 38 weeks. Pregnancy was uneventful, and no fetal anomalies were detected at prenatal ultrasound controls. The neonate presented at birth with exposed, everted bladder that was clearly visible immediately below umbilical stump, a completely dorsally opened urethra. The scrotum was normally developed, but caudally displaced
 - a. What is the most probable diagnosis? (1)
 - b. Give embryological basis of this congenital anomaly (4)

2. a. Draw and label histological structure of urinary bladder in relaxed and distended state. (3)
 - b. Briefly describe microscopic features of Filtration Apparatus of Kidney (2)

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

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

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

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

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

3. Phenylalanine:

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

2. Following is true about Potassium:

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

4. Following is the cause of Respiratory acidosis:

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

SEQ

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

b. Discuss causes of metabolic acidosis. 02

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

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

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

3. Following is not code of ethics.

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

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

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

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

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

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

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

OSPE BLOCK - I
DEPARTMENT OF ANATOMY

Station No. 1 Time Allowed: 1 Min 30secs

Histology sketch copy will be assessed for

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

Station No. 2 Time Allowed: 1 Min 30secs

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

OSPE BLOCK - I
DEPARTMENT OF PHYSIOLOGY

Unobserved Station

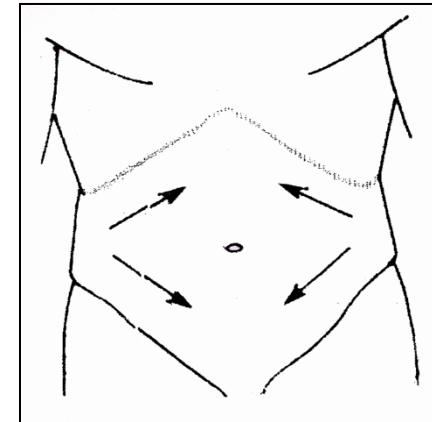
Time Allowed: 2 minutes

**Task: **

Carefully read and answer the following questions:

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

1
1
1



OSPE BLOCK - I
DEPARTMENT OF BIOCHEMISTRY

Station No. 1

Time Allowed: 2 Mins

Observed station

Perform Benedict's Test on given urine sample. 03

Station No. 2

Time Allowed: 2 Mins

Observed station

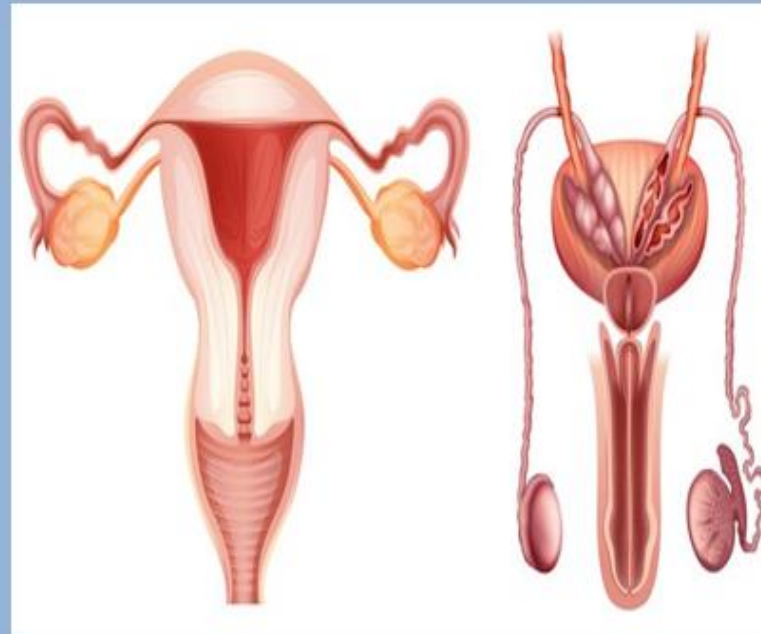
Perform Rothera's test on urine sample. 03



Reproduction Module

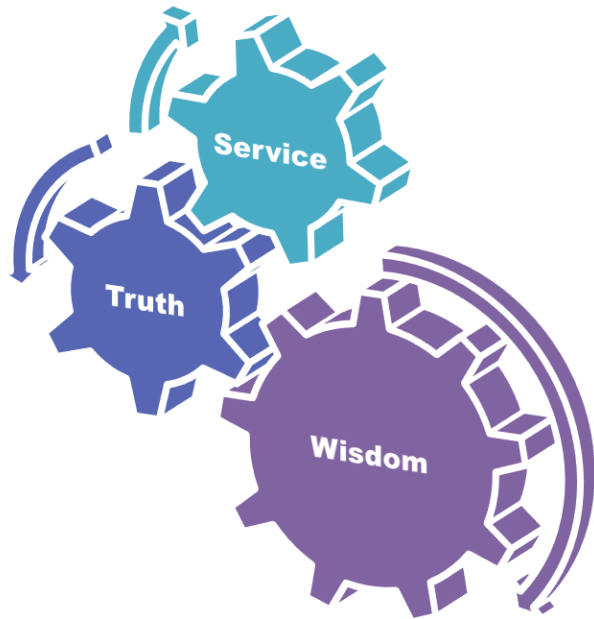
Study Guide

Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

Reproduction Module

Discipline Wise Details of Modular Contents

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

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

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Reproduction Module Team

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

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

Module III – Reproduction Module

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

Module Outcomes

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

Knowledge

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

Skills

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

Attitude

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

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

SECTION - I

Terms & Abbreviations

Contents

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

Tables & Figures

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

Table1. Domains of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

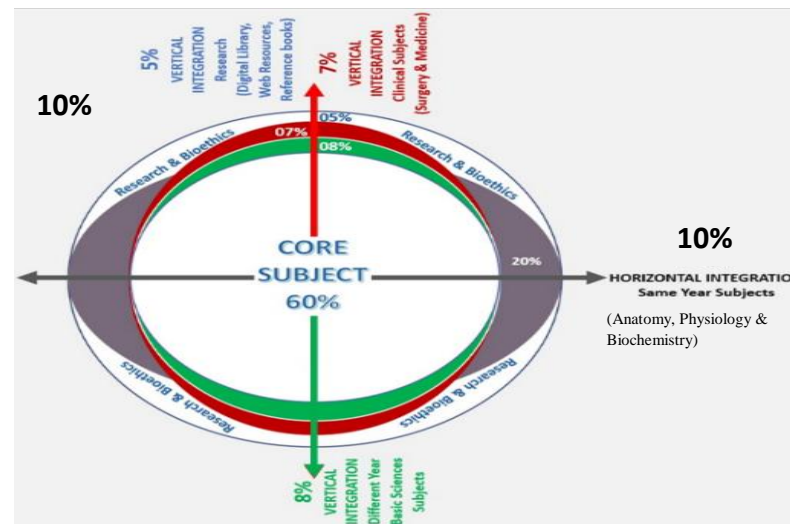


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementation of Small Group Discussions

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

Self-Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

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

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

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

Physiology Large Group Interactive Session (LGIS)

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

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

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

Biochemistry Large Group Interactive Session (LGIS)

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

Anatomy Small Group Discussion (SGDs)

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

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

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

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

Physiology Small Group Discussion (SGDs)

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

Biochemistry Small Group Discussion (SGDs)

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

Anatomy Self Directed Learning (SDL)

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

Male external genitalia	<ul style="list-style-type: none"> • Identify the anatomical structures of external genitalia • Demonstrate anatomical position of testis • Enlist layers of scrotum with its neurovasculature • Discuss clinical anatomy of scrotum • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 418-419). • https://www.youtube.com/watch?v=ai7MjQvenKs • https://www.youtube.com/watch?v=5eHvZ2gyR1Y • https://www.youtube.com/watch?v=N66sAZH1VA8
Testis	<ul style="list-style-type: none"> • Identify the structure • Demonstrate anatomical position of testis • Discuss layers and structure of testis • Discuss important clinical anatomy related to testis • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 2, Page 208-215). • https://www.youtube.com/watch?v=ai7MjQvenKs • https://www.youtube.com/watch?v=5eHvZ2gyR1Y • https://www.youtube.com/watch?v=N66sAZH1VA8
Male genital ducts	<ul style="list-style-type: none"> • Describe the anatomical position of vas deferens, seminal vesicles, ejaculatory ducts on model • Discuss the anatomical relations of vas deferens, seminal vesicles, ejaculatory ducts • Discuss clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 376 -381). • https://www.youtube.com/watch?v=N66sAZH1VA8 • https://www.youtube.com/watch?v=ai7MjQvenKs
Prostate	<ul style="list-style-type: none"> • Identify the position of prostate • Demonstrate the anatomical features and relations of prostate • Discuss clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 376 -381). • https://www.youtube.com/watch?v=93Aygq248u_8 • https://www.youtube.com/watch?v=ai7MjQvenKs
Ovaries	<ul style="list-style-type: none"> • Identify the site of ovarian fossa • Discuss anatomical relations of ovary • Discuss neurovasculature and hormonal effects on ovaries • Discuss important clinical anatomy of ovary • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 391-392). • https://www.youtube.com/watch?v=AREHaMIs9Y4 • https://www.youtube.com/watch?v=2tOtIqSNqbc

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

Deep perineal pouches	<ul style="list-style-type: none"> • Discuss in detail the contents of deep perineal pouches in male and female • Discuss important clinical anatomy related to deep perineal pouches. • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 406-409, 414). • https://www.youtube.com/watch?v=q0Ax3rLFC6M • https://www.youtube.com/watch?v=OwWk6tqsW8o
Blood supply of pelvis and perineum	<ul style="list-style-type: none"> • Identify major blood vessels & nerves of pelvis and perineum • Demonstrate anatomical relationships • Describe important clinical anatomy related to blood vessels of pelvis and perineum • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 350-357, 361). • https://www.youtube.com/watch?v=xYu56Luwlds • https://www.youtube.com/watch?v=o4TplbDDcj8
Lymphatic drainage of pelvis and perineum	<ul style="list-style-type: none"> • Identify major lymphatic vessels of pelvis and perineum • Discuss lymphatic drainage of pelvis and perineum • Discuss important clinical anatomy • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 400-402). • https://www.youtube.com/watch?v=F-Ba96V0R-c • https://www.youtube.com/watch?v=o4TplbDDcj8
Sacral and Coccygeal plexus	<ul style="list-style-type: none"> • Identify various branches of sacral and coccygeal plexus • Discuss anatomical relations • Describe root values of each branch of plexus and its related applied • Read a relevant research article • Use digital library 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 3, Page 357-361). • https://www.youtube.com/watch?v=DZ0IL1tHNxo • https://www.youtube.com/watch?v=f7Zig8eBCqY • https://www.youtube.com/watch?v=JqUleDnXuEI

Physiology Self Directed Learning (SDL)

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

Biochemistry Self Directed Learning (SDL)

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

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

Histology Practicals Skill Laboratory (SKL)

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

Physiology Practicals Skill Laboratory (SKL)

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

Biochemistry Practicals Skill Laboratory (SKL)

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

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Case Based Learning Objectives (CBL)

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

Vertical Integration LGIS Pathology

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

Community Medicine

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

Family Medicine

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

Surgery

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

Obstetrics & Gynaecology

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

Biomedical Ethics and Professionalism

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

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

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

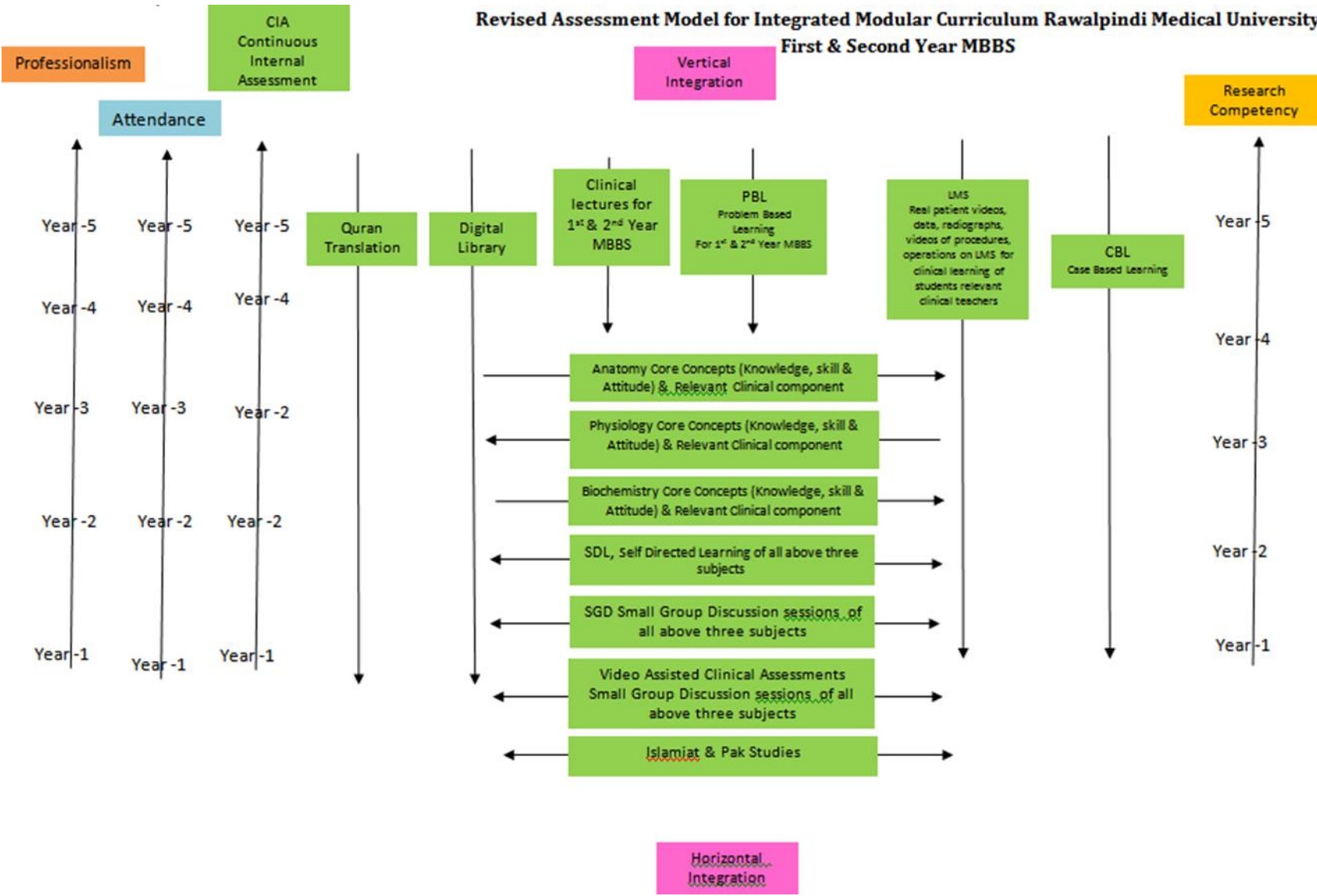
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing in professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in Reproduction Module

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCiCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> 2. https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> 1. https://youtu.be/2_owp8kNMus (Female Reproductive system) 2. https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbmAtg (Dr Najeeb lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 2. https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> 1. https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE 2. https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Lehninger Principle of Biochemistry 8th edition. 2. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis • https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p>

- https://www.youtube.com/watch?v=A5u_TY1A0t8
- https://www.youtube.com/watch?v=A5u_TY1A0t8
- <https://www.youtube.com/watch?v=VXWyWzbigrg>
- <https://www.youtube.com/watch?v=e2KFVvI8Akk>
- <https://www.youtube.com/watch?v=n7Uec8Jtr4E>
- <https://www.youtube.com/watch?v=J9jhg90A7Lw>

E. HEC Digital Library

- <https://www.ncbi.nlm.nih.gov/books/NBK29/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/>
- <https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/>

F. Biochemistry Journals

- <https://academic.oup.com/bmb/article/11/2/126/256755>
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone>

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Reproduction Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Reproduction Module Team

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

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

Discipline wise Details of Modular Contents

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

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

Categorization of Modular Contents Anatomy

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

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

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

Contact Hours (Faculty)

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

Contact Hours (Students)

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

Physiology

Category A*	Category B**	Category C***				
LGIS	LGIS	PBL	CBL	Practical's	SGD	SDL
<ul style="list-style-type: none"> • Monthly Ovarian Cycle, ovulation • (Monthly Endometrial Cycle and Menstruation) 	<ul style="list-style-type: none"> • Physiological anatomy of male reproductive system & spermatogenesis • Physiological anatomy female reproductive system • Semen, capacitation & acrosome reaction • Male sex hormones, abnormalities of male sexual function and spermatogenesis • Response of mother's body to pregnancy, Parturition • Female sex hormones (oestrogen and progesterone) • Lactation, milk composition, breast feeding • Puberty, menarche, menopause, postmenopausal symptoms & anovulatory cycles, abnormalities of secretion by ovaries • Fertilization of ovum, transport, implantation, functions of placenta • Hormonal factors in pregnancy, special functional problems in neonate. Prematurity and its problems. 		<ol style="list-style-type: none"> 1. Menorrhagia 2. Infertility 3. Contraception 	<ol style="list-style-type: none"> 1. Pregnancy test 2. Ophthalmoscopy 3. Revision of Reflexes 		<ol style="list-style-type: none"> 1. Fertilization of ovum, transport, implantation, Functions of placenta 2. Growth & functional development of fetus, Adjustments of infant to extrauterine life, Growth & development in child 3. Special functional problems in neonate. Prematurity and its problems

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Biochemistry

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

Category A*: By HOD and Assistant Professor

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

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Reproduction Module (First Week)
(25-04-2023 To 29-04-2023)

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

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

(Reproduction Module Second Week)

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

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

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

Reproduction Module (Third Week)

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

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

Topics for Practical with Venue						Topics for Small Group Discussion & CBLs With Venue			
<ul style="list-style-type: none"> Histology of uterus, uterine tube and ovary (Anatomy Histology Practical) Venue- Histology Laboratory Milk Analysis (Biochemistry Practical) Venue- Biochemistry Laboratory Examination of III, IV & VI Cranial Nerves (Physiology Practical) Venue – Physiology Lab 						<ul style="list-style-type: none"> Physiology SGD: Special Problems of Prematurity (In Neonate) (Venue: Lecture Hall No 5) Biochemistry SGD: Synthesis mechanism of action and functions of sex hormones: Lecture Hall No 2) 			
Schedule for Practical / Small Group Discussion						Venue for Second Year Batches for Anatomy Dissection / Small Group Discussion			
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue
Monday	C	B	E	A	D	A	01-90	Dr. Sadia Baqir	Lecture Hall No. 04 Anatomy
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	LTC-1
Wednesday	E	D	B	C	A	C	181-270	Dr. Mariyam	LTC-4
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad	Lecture Hall No.03 Anatomy Lecture Hall
Friday	C	B	E	A	D				
Saturday	A	E	C	D	B				

Venue for Second Year Batches For PBL, SGD & Biomedical (Club Activity) Team-II				Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue	Biochemistry				Physiology	
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Muhammad Usman	1.	Batch – A	01-70	Dr. Faiza Zafar	Dr. Aneela / Dr. Najam-us-Sehar
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)	Dr. Ali Zain	3.	Batch – C	141-210	Dr. Romasa	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)	Dr. Kamil Tahir	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)	Dr. Maryam Abbas (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)	Dr. Nayab (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01	
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Najam-us-Sehar (SGD) Dr. Sheena Tariq (PBL)	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04	
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)					
Topic Details Of SDL Biochemistry								
<ul style="list-style-type: none"> Constituents of Purine & Pyrimidine Bases Salvage Pathway of Purine Metabolism Pyrimidine metabolism 								

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

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

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

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

SECTION-VI

Table of Specification (TOS) For Reproduction Module Examination

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

Annexure I

(Sample MCQ & SEQ Papers)

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

1. A 30 year old male having mumps came to emergency with high grade fever with feeling of heaviness, pain and swelling of scrotum. What is the most likely diagnosis
 - a. Orchitis
 - b. Cryptorchidism
 - c. Prostatitis
 - d. Salpingitis
 - e. Urethritis

3. A baby was brought to a GP Clinic with the opening of the urethra on the downward curve of penis. The baby has
 - a. Epispadias
 - b. Bladder exstrophy
 - c. Omphalocele
 - d. Rectocele
 - e. Hypospadias

5. A woman came to gynae OPD with pain lower abdomen and pelvis. Medical officer suspected rupture of ovarian cyst which was confirmed on Ultrasound of pelvis as there was a collection of fluid in the rectouterine pouch. Culdocentesis was decided via syringe, the needle would be introduced through:
 - a. Anterior fornix of vagina .
 - b. Posterior fornix of vagina .
 - c. Anal canal
 - d. Rectum
 - e. Urethra.

2. A 70-year-old male presented to OPD with severe dull backache, loss of weight and severe fatigue. His Prostate Specific Antigen were raised. On Direct Rectal Examination a hard, immobile and irregular mass was confirmed anteriorly. Most likely diagnosis is
 - a. BPH
 - b. Sciatica
 - c. PID
 - d. Prostatic Cancer
 - e. Prostatitis

4. While crossing road an elder woman was run over by a speeding car. She was taken to the emergency department by the police where an X-ray examination of the pelvis revealed the disruption of the sacroiliac joint and fracture of the body of the pubis.

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

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

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

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

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

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

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

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

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

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

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

SEQ

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

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

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



CNS Module

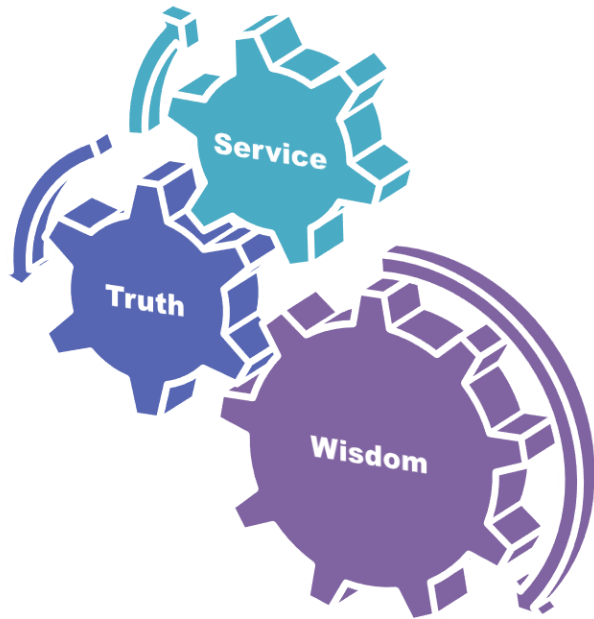
Study Guide

Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

CNS Module

Discipline Wise Details of Modular Contents

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

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

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CNS Module Team

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

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

Module IV – CNS Module

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

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

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

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

Module Outcomes

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

Knowledge

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

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

Skills

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

Attitude

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

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

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

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

Tables & Figures

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

Table1. Domains of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

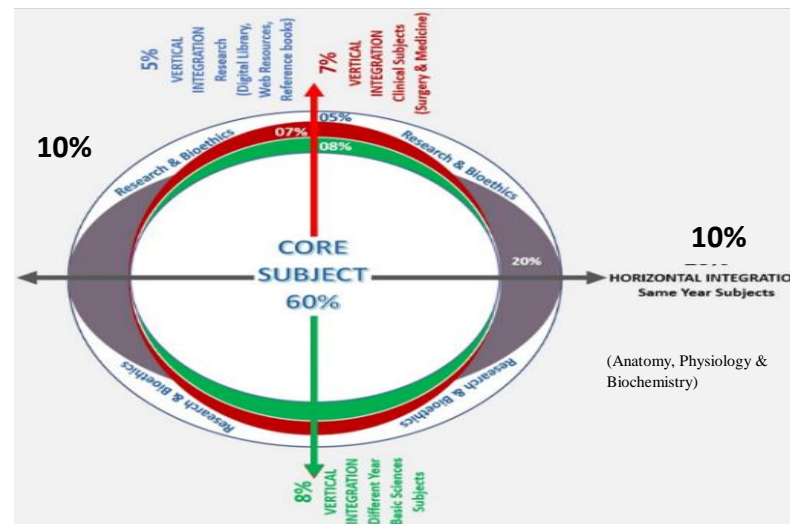


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementation of Small Group Discussions

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

Self-Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

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

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

Physiology Large Group Interactive Session (LGIS)

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

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

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

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

	<ul style="list-style-type: none"> • Enlist and Explain properties of reflex action 	C1,C2		
	<ul style="list-style-type: none"> • Compare & contrast spinal animal with decerebrate animal 	C2		
	<ul style="list-style-type: none"> • Describe organization of spinal cord for motor functions 	C1		
	<ul style="list-style-type: none"> • Explain the concept of cortical & subcortical control. • Define UMN & LMN 	C2		
Introduction to cerebellum Neuronal circuits of cerebellum Cerebellum and its motor functions	<ul style="list-style-type: none"> • Describe physiological anatomy of cerebellum 	C1	LGIS	MCQ SEQ VIVA
	<ul style="list-style-type: none"> • Classify the functional parts of cerebellum & mention their functions 	C2		
	<ul style="list-style-type: none"> • Describe neuronal circuits of cerebellum in detail 	C1		
	<ul style="list-style-type: none"> • Enumerate the afferent and efferent pathways 	C1		
	<ul style="list-style-type: none"> • Describe the functional unit of cerebellar cortex & deep cerebellar nuclei 	C1		
	<ul style="list-style-type: none"> • Explain the role of purkinje cell, Deep nuclear cells and inhibitory cells of cerebellum in overall functions of cerebellum 	C2		
	<ul style="list-style-type: none"> • Explain role of climbing fibers 	C2		
	<ul style="list-style-type: none"> • Discuss the turn-on and turn-off mechanism 	C2		
Muscle spindle & Golgi tendon organ Role of muscle spindle and Golgi tendon organ in voluntary motor activity	<ul style="list-style-type: none"> • Enlist and explain motor functions of cerebellum 	C1		
	<ul style="list-style-type: none"> • Explain the role of vestibulocerebellum, spinocerebellum & neocerebellum in overall motor control by cerebellum 	C2		
	<ul style="list-style-type: none"> • Describe muscle spindle & Golgi tendon organ in detail 	C1	LGIS	MCQ SEQ VIVA
	<ul style="list-style-type: none"> • Explain the receptor function of the Muscle Spindle & Golgi tendon organ 	C2		
	<ul style="list-style-type: none"> • Draw muscle spindle and Golgi tendon organ showing the sensory and motor innervation 	C1		
	<ul style="list-style-type: none"> • Explain the dynamic and static response of muscle spindle & Golgi tendon organ 	C2		
	<ul style="list-style-type: none"> • Briefly describe muscle stretch reflex 	C1		
	<ul style="list-style-type: none"> • Draw the neuronal circuitry of the stretch reflex 	C1		
	<ul style="list-style-type: none"> • Explain the static and dynamic components of stretch reflex 	C2		
	<ul style="list-style-type: none"> • Discuss the clinical applications of stretch reflex 	C2		
<ul style="list-style-type: none"> • Explain negative stretch reflex 	C2			
<ul style="list-style-type: none"> • Explain lengthening reaction and its significance 	C2			
<ul style="list-style-type: none"> • Describe role of muscle spindle and Golgi tendon organ in voluntary muscle activity 	C1			

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

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

Biochemistry Large Group Interactive Session (LGIS)

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

Plasma Cholesterol level	<ul style="list-style-type: none"> Recall normal Plasma Cholesterol level and factors controlling it 	C1	LGIS	MCQs SAQs Viva
Ketone bodies metabolism	<ul style="list-style-type: none"> Explain the synthesis and breakdown of Ketone bodies with related diseases (ketoacidosis) 	C2	LGIS	MCQs SAQs Viva
Biosynthesis of Glycerophospholipid	<ul style="list-style-type: none"> Describe the steps of biosynthesis of Glycerophospholipids with its regulation and clinical significance 	C2	LGIS	MCQs SAQs Viva
Biosynthesis of sphingophospholipids	<ul style="list-style-type: none"> Explain the steps of biosynthesis of sphingophospholipids with its regulation and clinical significance 	C2	LGIS	MCQs SAQs Viva
Introduction to Lipoproteins	<ul style="list-style-type: none"> Discuss the functions and roll of Lipoproteins & apolipoprotein 	C2	LGIS	MCQs SAQs Viva
LDL& HDL	<ul style="list-style-type: none"> Explain the composition, functions and clinical significance of LDL& HDL 	C2	LGIS	MCQs SAQs Viva
	<ul style="list-style-type: none"> Illustrate the mechanism of reverse cholesterol transport 	C3		
Disorders of lipoprotein metabolism	<ul style="list-style-type: none"> Classify and explain the disorders of lipoprotein metabolism (hyper & hypo lipoproteinemia) 	C2	LGIS	MCQs SAQs Viva
Fatty liver & Adipose tissues	<ul style="list-style-type: none"> Interpret conditions leading to Fatty liver 	C3	LGIS	MCQs SAQs Viva
	<ul style="list-style-type: none"> Describe metabolism of adipose tissue & Brown fat 	C2		
Disorders of lipoprotein metabolism	<ul style="list-style-type: none"> Classify and explain the disorders of lipoprotein metabolism (hyper & hypo lipoproteinemia) 	C2	LGIS	MCQs SAQs Viva

Anatomy Small Group Discussion (SGDs)

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

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

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

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

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

Physiology Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Triglycerides & F.A. oxidation	• Explain the functions & uses of triglycerides and steps of oxidation of Fatty acids	C2	SGD	MCQs SAQs Viva
Fatty acid synthesis & cholesterol metabolism	• Describe the steps of fatty acid synthesis, cholesterol, their functions & clinical significance	C2	SGD	MCQs SAQs Viva
Ketone bodies & Phospholipids	• Describe the synthesis & breakdown of ketone bodies and factors affecting them.	C2	SGD	MCQs SAQs Viva
	• Describe the phospholipids synthesis & their functions	C2		
Lipoprotein (HDL)	• Explain HDL synthesis, its functions & clinical significance	C2	SGD	MCQs SAQs

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

Biochemistry Small Group Discussion (SGDs)

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

Anatomy Self-Directed Learning (SDL)

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

Ascending tracts & Descending tracts	<ul style="list-style-type: none"> • Tabulate the sensation, receptor, first to third order neurons, pathways and destinations • Describe and illustrate the pathways of lateral spinothalamic tract, anterior spinothalamic tract, anterior spinocerebellar tract and posterior spinocerebellar tracts • Describe and illustrate the pathways of spinotectal tract, spinoreticular tract and spino-olivary tracts • Describe the anatomical basis of the signs and symptoms in lesions of the ascending tracts 	<ul style="list-style-type: none"> • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://link.springer.com/chapter/10.1007/978-1-4684-7688-0_7
Medulla Oblongata, Pons & Cerebellum	<ul style="list-style-type: none"> • Identify and describe gross features of medulla and identify them on gross specimen/model. • Identify and describe internal structure of medulla on cross sectional diagrams. • Identify and describe the gross features of Pons on a given specimen/model • Identify and describe internal structure of pons on cross sectional diagrams. • Identify and describe the gross features of cerebellum • Describe internal structure of gray and white matter of cerebellar cortex • Describe the cerebellar cortical mechanisms 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 185-247 • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://link.springer.com/chapter/10.1007/978-1-61779-779-8_13
Midbrain and Diencephalon	<ul style="list-style-type: none"> • Identify and describe the gross features of Pons on a given specimen/model • Identify and describe internal structure of pons on cross sectional diagrams. • Describe the boundaries and relations of 4th ventricle • Describe the anatomical basis of trauma, cerebral aqueduct stenosis and vascular lesions of midbrain. 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 209, 363-372 • https://www.youtube.com/watch?v=auogbJFitmI&p=ygUSY25zIGFuYXRvbXkgdmlkZW9z https://link.springer.com/chapter/10.1007/978-3-319-60187-8_8
Cerebrum & Ventricular system	<ul style="list-style-type: none"> • Identify and describe the gross structure of thalamus, epithalamus and subthalamus • Enlist nuclei of thalamus, epithalamus & subthalamus and describe their functions • Identify and describe the functions of tuber cinereum and mamillary bodies • Describe the relations and boundaries of ventricles • Describe the formation of choroid plexus in ventricles 	<ul style="list-style-type: none"> • Snell's Clinical Neuroanatomy 8th Edition, pg no. 249-277, 436-462 • https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9z • https://link.springer.com/article/10.1007/BF00344224 • https://www.tandfonline.com/doi/full/10.1080/10255840701492118

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

Physiology Self-Directed Learning (SDL)

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

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

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

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

		<ul style="list-style-type: none"> • https://www.physio-pedia.com/Reticular Formation
<p>Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity</p>	<ul style="list-style-type: none"> • Describe muscle spindle & Golgi tendon organ in detail • Explain the receptor function of the Muscle Spindle & Golgi tendon organ • Draw muscle spindle and Golgi tendon organ showing the sensory and motor innervation • Explain the dynamic and static response of muscle spindle & Golgi tendon organ • Briefly describe muscle stretch reflex • Draw the neuronal circuitry of the stretch reflex • Explain the static and dynamic components of stretch reflex • Discuss the clinical applications of stretch reflex • Explain negative stretch reflex • Explain lengthening reaction and its significance • Describe role of muscle spindle and Golgi tendon organ in voluntary muscle activity • Explain the role of alpha gamma co activation 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 12, Page 229,234) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. (Chapter 68, Page 476) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 55, Page 686,691) • https://www.osmosis.org/learn/Muscle_spindles_and_golgi_tendon_organ https://youtu.be/CzeAcc39Cyo
<p>Motor cortex & physiological importance of neocortex, Corticospinal or pyramidal tract, Extra pyramidal system</p>	<ul style="list-style-type: none"> • Briefly describe motor areas in cortex • Draw motor & somatic association areas of motor cortex • Explain functions of motor & somatic association areas • Explain allocortex & neocortex • Describe medial and lateral descending pathways • Explain transmission of signals from motor cortex to muscle • Draw course of pyramidal tract • Enlist the functions of pyramidal tract • Mention the effects of lesions in Corticospinal tract • Briefly describe extra pyramidal descending tracts • Describe rigidity and spasticity • Describe location and function of red nucleus 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 02 (Chapter 12, Page 237,240) • Physiology by Linda S. Costanzo 6th Edition.(Chapter 03. Page 110) • Textbook of Medical Physiology by Guyton & Hall.14th Edition. Section 09.(Chapter 56, Page 697) • https://www.physio-pedia.com/Extraparamidal_and_Pyramidal_Tracts https://youtu.be/B88BNYWVkwE

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

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

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

Histology Practicals Skill Laboratory (SKL)

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

Physiology Practicals Skill Laboratory (SKL)

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

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

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

Biochemistry Practicals Skill Laboratory (SKL)

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

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Case Based Learning Objectives (CBL)

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

Vertical Integration LGIS Pathology

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

Pharmacology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Introduction to CNS Pharmacology	<ul style="list-style-type: none"> List the major neurotransmitters in the CNS 	C1	LGIS	MCQ
	<ul style="list-style-type: none"> List the major classes of receptors for each of the primary neurotransmitters and their associated relevant disorders 	C1		
	<ul style="list-style-type: none"> Identify the special considerations associated with CNS drug delivery 	C1		
	<ul style="list-style-type: none"> Cite main drug groups acting on the CNS 	C1		

Medicine

Topic	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Stroke	<ul style="list-style-type: none"> Discuss pathophysiology, Blood supply of brain (Anterior and posterior Circulation), which part of brain supplied by various arteries, Physiology of brain pathways (Corticospinal and Corticobulbar pathways), Types of Stroke, clinical features, management 	C1 C2	LGIS	MCQs
Spinal Cord and Peripheral Nervous system	<ul style="list-style-type: none"> Various types of pathways and cells, Peripheral Nerves and neuromuscular junction, difference between upper and lower motor neurons, various types of Plegias (Paraplegia, Hemiplegia, Quadriplegia), Various types of neuropathies and myasthenia Gravis and discuss pathophysiology 	C1 C2	LGIS	MCQs
Cerebellar Disorders	<ul style="list-style-type: none"> Brain parts involved in Movement and Co-ordination, how movements are brought about, possible lesions and discuss pathophysiology, types of disorders, clinical features, management 	C1 C2	LGIS	MCQs
Meningitis	<ul style="list-style-type: none"> Define and discuss pathophysiology and discuss symptoms and signs Discuss the causes Describe the management 	C1 C2 C2	LGIS	MCQs
Epilepsy and other convulsive disorders	<ul style="list-style-type: none"> Define and discuss pathophysiology Discuss the causes 	C1 C2	LGIS	MCQs

	• Describe the management	C2		
Encephalitis	• Define and discuss and discuss pathophysiology, symptoms and signs	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe the management	C2		

Surgery

Topic	At The End Of This LGIS, Second Year MBBS Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Brain tumors	• Classify Brain Tumors	C1	LGIS	MCQ
	• Outline clinical features of brain tumors. • Approach towards a SOL brain	C1		
Brain abscess	• Define Brain Abscess	C1	LGIS	MCQ
	• Outline clinical features of brain abscess	C1		
Head injury	• Define head injury	C1	LGIS	MCQ
	• Mechanism of Head injury	C1		
	• Clinical features of head injury	C1		
	• Glassgow coma Scale	C1		
Poly trauma Patient	• Define polytrauma	C1	LGIS	MCQ
	• Describe triage	C1		
	• ATLS Protocol	C1		

Obstetrics & Gynecology

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

Pediatrics

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

	<ul style="list-style-type: none"> • Discuss Associated problems 	C2		
	<ul style="list-style-type: none"> • Discuss Management & Prevention 	C2		
Polio	<ul style="list-style-type: none"> • Scenario of a patient with acute flaccid paralysis 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Student will be able to know 	C1		
	<ul style="list-style-type: none"> • AFP definition 	C1		
	<ul style="list-style-type: none"> • Discuss Etiology & Epidemiology of Polio 	C2		
	<ul style="list-style-type: none"> • Discuss Pathogenesis 	C2		
	<ul style="list-style-type: none"> • Discuss Clinical features 	C2		
	<ul style="list-style-type: none"> • Discuss Management 	C2		
	<ul style="list-style-type: none"> • Discuss Complications & sequel 	C2		
	<ul style="list-style-type: none"> • Prevention – vaccination 	C1		

Radiology

Practical	At The End Of This Skill Lab, Should Be Able To Illustrate:	Learning Domain	Teaching Strategy	Assessment Tools
Skull radio graph	<ul style="list-style-type: none"> • Interpret Normal Skull Radiograph 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Discuss fractures and other diseases with their clinical significance 	C2		
CT- scan brain	<ul style="list-style-type: none"> • Interpret normal anatomical structures 	C2	LGIS	MCQs
MRI & CT Scan	<ul style="list-style-type: none"> • List some indications for contrast enhanced MRI and CT 	C1	LGIS	MCQs
CT scan	<ul style="list-style-type: none"> • Discriminate between a subdural and epidural hematoma at CT (4) Describe imaging signs of a subarachnoid hemorrhage 	C2	LGIS	MCQs

ENT

Topic	At The End Of This LGIS, Second Year MBBS Students Should Be Able To:	Learning Domain	Teaching Strategy	Assessment Tools
Acoustic neuroma	<ul style="list-style-type: none"> • Recognize signs and symptoms of acoustic neuroma 	C1	LGIS	MCQs

Ophthalmology

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

Behavioral sciences

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

Longitudinal Themes

Biomedical Ethics

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

Integrated Undergraduate Research Curriculum (IUGRC)

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

Family Medicine

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

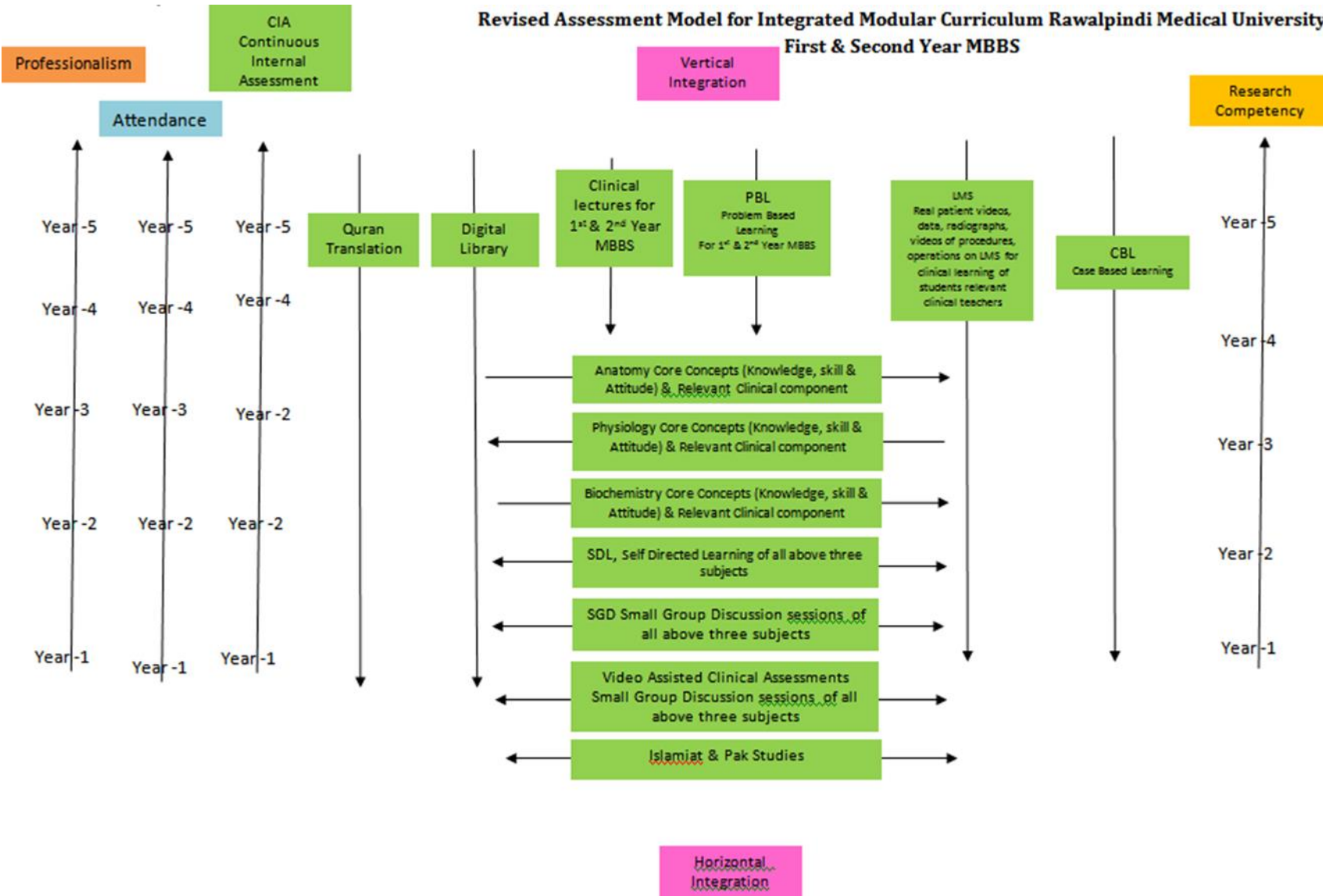
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing in professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in CNS Module

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Neuroanatomy</p> <ol style="list-style-type: none"> 1. Snell's Clinical Neuroanatomy by Rayan Splittgerber 9th Edition. <p>B. Gross Anatomy</p> <ol style="list-style-type: none"> 2. Gray's Anatomy By Prof. Susan Standring 42th Edition, Elsevier. 3. Clinical Anatomy For Medical Students By Richard S.Snell 10th Edition. 4. Clinically Oriented Anatomy By Keith Moore 9th Edition. 5. Cunningham's Manual Of Practical Anatomy By G.J. Romanes, 16th Edition, Vol-I, Ii And Iii <p>C. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th Edition. 2. Medical Histology By Prof. Laiq Hussain 7th Edition. <p>D. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th Edition. 2. Langman's Medical Embryology 14th Edition. <p>E. YouTube Links</p> <ol style="list-style-type: none"> 6. https://www.youtube.com/watch?v=auogbJFitmI&pp=ygUSY25zIGFuYXRvbXkgdmlkZW9z 7. https://www.youtube.com/watch?v=Z3fLmpepJfg&list=PLmzZnYRTmRK8BTd1iJtzry0WhOYkpcap0g 8. https://www.youtube.com/watch?v=q8NtmDrb_qo&pp=ygULY25zIGFuYXRvbXk%3D 9. https://www.youtube.com/watch?v=ADAOsuaOSCk&list=PLTF9h-T1TcJgx3OFachdjHPMX6VE4VDS1 <p>F. HEC Digital Library Links</p> <ol style="list-style-type: none"> 10. https://link.springer.com/chapter/10.1007/978-981-15-7771-0_3 11. https://link.springer.com/chapter/10.1007/978-1-4684-7688-0_7 12. https://link.springer.com/chapter/10.1007/978-1-61779-779-8_13 13. https://link.springer.com/chapter/10.1007/978-3-319-60187-8_8 14. https://link.springer.com/article/10.1007/s00701-013-1937-0 15. https://link.springer.com/article/10.1007/BF00344224 <p>G. Journal Links</p> <ol style="list-style-type: none"> 1. https://www.tandfonline.com/doi/abs/10.3109/02688699308995089 2. https://www.tandfonline.com/doi/full/10.1080/10255840701492118 3. https://link.springer.com/referenceworkentry/10.1007/978-3-540-29678-2_1315 <ol style="list-style-type: none"> 1. https://link.springer.com/book/10.1007/978-1-4615-1235-6

Physiology

A. Textbooks

1. Textbook Of Medical Physiology by Guyton And Hall.14th edition
2. Ganong's Review of Medical Physiology.25TH Edition

B. Reference books

1. Human Physiology by Lauralee Sherwood 10th edition.
2. Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.
3. Best & Taylor Physiological Basis of Medical Practice 13th edition.
4. Berne & Levy Physiology 7th edition.

C. Internet References

1. <https://www.ncbi.nlm.nih.gov/books/NBK539861/>
2. <https://teachmephysiology.com/nervous-system/sensory-system/pain-pathways/>
3. https://www.osmosis.org/learn/Somatosensory_pathways
4. <https://www.kenhub.com/en/library/anatomy/autonomic-nervous-system>
5. https://www.diffen.com/difference/Parasympathetic_nervous_system_vs_Sympathetic_nervous_system

D. HEC Library

1. <https://www.sciencedirect.com/topics/neuroscience/synaptic-transmission>
2. <https://nba.uth.tmc.edu/neuroscience/m/s2/chapter04.html>
3. <https://www.sciencedirect.com/topics/neuroscience/blood-cerebrospinal-fluid-barrier>
4. <https://www.sciencedirect.com/science/article/abs/pii/S0021992422000892>

E. Youtube links

1. <https://youtu.be/AG7Ev2hJGFk>
2. <https://youtu.be/cZwb8zqAPXc>
3. <https://youtu.be/5c8maFAhqIc>
4. <https://youtu.be/432AD7JZnKE>
5. <https://youtu.be/j9pUItHAAhs>
6. <https://youtu.be/7pGKa-1tSJw>
7. <https://youtu.be/gBOAYgMxq-Q>
8. <https://youtu.be/DPHoTicFfLs>

F. Journal of Physiology

1. <https://www.sciencedirect.com/science/article/abs/pii/S0021992422000892>
2. <https://www.sciencedirect.com/topics/psychology/learning-and-memory>
3. https://www.physio-pedia.com/Reticular_Formation
4. <https://www.sciencedirect.com/science/article/pii/S2214751923000026>

Biochemistry	<p>A. Textbooks</p> <ol style="list-style-type: none">1. Harper's Illustrated Biochemistry 32th edition.2. Lehninger Principle of Biochemistry 8th edition.3. Biochemistry by Devlin 7th edition. <p>B. Website</p> <ol style="list-style-type: none">1. https://www.alilamedicalmedia.com/-/g...2. https://ninjanerd.org <p>C. Youtube</p> <ul style="list-style-type: none">• https://youtu.be/GuSqOsm3QV8• https://youtu.be/y9zsDFdMvZY <p>D. HEC Library and Journals</p> <p>https://www.ncbi.nlm.nih.gov/books/NBK305896/</p>
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SECTION - V

Time Table

Clinically Oriented Integrated Modular Curriculum for Second Year MBBS

CNS Time Table

Second Year MBBS

Session 2021 - 2022

Batch- 49

CNS Module Team

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

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

Discipline wise Details of Modular Contents

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

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

Categorization of Modular Contents

Anatomy

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

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Anatomy

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

Contact Hours (Faculty)

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

Contact Hours (Students)

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

Physiology

Category A & B*	Category C***				
LGIS	PBL	CBL	Practical's	SGD	SDL
<ul style="list-style-type: none"> • Organization of nervous system, Mechanism of synaptic transmission • Classification of sensory receptors, Properties of sensory receptors • Properties of synaptic transmission • Physiology of pain, Dual pathway for transmission of pain, Analgesia System and Thermal sensations • Sensory pathways for transmitting somatic signals • Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function • Somatosensory cortex & lesions of Somatosensory cortex • Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation • CSF, Blood brain barrier, Blood CSF Barrier, Lumber puncture • Concept of Association areas, • Concept of Dominant and non-dominant cerebral hemispheres • Limbic system, • Functions of hypothalamus • Speech and aphasia • Learning and memory • Reticular activating system and sleep • EEG and epilepsy • Introduction to motor nervous system & Reflex action, Conditioned reflexes & Properties of 		<ol style="list-style-type: none"> 1. CVA 2. Gullain Barr syndrome 	<ol style="list-style-type: none"> 1. Examination of sensory nervous system 2. Examination of Motor System 3. Examination of Cerebellar System 5. Ophthalmoscopy 6. Determination of field of vision 	<ol style="list-style-type: none"> 1. Synapse & sensory Receptors 2. Autonomic Nervous System 3. Motor nervous system , muscle spindle and Golgi tendon organ 4. Motor Nervous System 5. Basal Ganglia & limbic system 6. Analgesia system 7. Cerebellum 	<p>On Campus:</p> <ol style="list-style-type: none"> 1. Sensory pathways for transmitting somatic signals 2. Somatosensory cortex & lesions of Somatosensory cortex 3. Introduction to autonomic nervous system Basic Characteristics of sympathetic & parasympathetic function 4. Excitatory & inhibitory effects of sympathetic & parasympathetic stimulation 6. CSF, Blood brain barrier, Blood CSF Barrier, Lumber puncture 7. Limbic system, 8. Functions of hypothalamus 9. Learning and memory 10. Concept of Association areas, Concept of Dominant and nondominant cerebral hemispheres 11. Speech and aphasia 12. EEG and epilepsy 13. 14. Reticular activating system and sleep 15. Muscle spindle & Golgi tendon organ, Role of muscle spindle and 16. Golgi tendon organ in voluntary motor activity 17. Motor cortex & physiological importance of neocortex, 18. Corticospinal or pyramidal tract,

reflex action,Control of spinal cord reflexes by higher centers

- Introduction to cerebellum, Neuronal circuits of cerebellum,
- and its motor functions
- Muscle spindle & Golgi tendon organ, Role of muscle spindle and Golgi tendon organ in voluntary motor activity
- Manifestations of cerebellar disease
- Polysynaptic reflexes & Transection of spinal cord,
- Role of brain stem in controlling motor functions & Lesions of motor system
- Motor cortex & physiological importance of neocortex, Corticospinal or pyramidal tract, Extra pyramidal system
- Basal Ganglia & Lesions

Extra pyramidal system
19. Basal Ganglia & Lesions

- Off Campus:**
1. Organization of nervous system
 2. Classification of sensory receptors
 3. Sensory pathways for transmitting somatic signals
 4. Physiology of pain, Dual pathway for
 5. transmission of pain,
 6. CSF, Blood brain barrier, Blood CSF Barrier,
 7. Lumber puncture
 8. Muscle spindle &
 9. Golgi tendon organ,
 10. Hypothalamus
 11. Properties of reflex
 12. action,Control of spinal cord
 13. reflexes by higher centers
 14. Reticular activating system
 15. and sleep, EEG and epilepsy
 16. Introduction to cerebellum,
 17. Neuronal circuits of cerebellum
 18. Basal Ganglia & Lesions
 - 19.

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resource of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Biochemistry

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

Category A*: By HOD and Assistant Professor

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

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

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

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

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

Break

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

CNS Module (Second Week) (12-06-2023 To 17-06-2023)

Date/Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:009m - 12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)					
12-06-2023 Monday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)	Biochemistry (LGIS)		Physiology SDL No. 2		Break	SGD / Dissection	SDL Physiology Sensory pathways for transmitting somatic signals-II			
		Introduction to ANS .Basic Characteristics of Sympathetic & Parasympathetic	Sensory Pathways for transmitting Somatic Signals	LDL, HDL metabolism	Fatty Acid Oxidation I	Somato Sensory Cortex & its Lesious		Descending Tracts and their clinicals				
Dr. Uzma (Even)	Dr. Fahd (Odd)	Dr.Isma (Even)	Dr. Aneela (Odd)	Dr. Fahd (Even)	Dr. Ali Zain (Odd)	SGD / Dissection						
13-06-2023 Tuesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)	Anatomy (LGIS)		Biochemistry (LGIS)			SGD / Dissection	SDL Physiology Physiology of pain Dual pathway for transmission of pain			
		Somatosensory cortex and lesions of somatosensory cortex	Excitatory and inhibitory effects of sympathetic and parasympathetic stimulation	Histology Of spinal cord and peripheral nerve	Embryology Development of Rhombencephalon	Fatty acid oxidation I		LDL, HDL metabolism		Lesions of Spinal Cord		
Dr. Fahd (Even)	Dr. Uzma (Odd)	Asst. Prof. Dr. Maria Tasleem (Even)	Asst. Prof. Dr.Arsalan Manzoo(Odd)	Dr. Aneela (Even)	Dr. Isma (Odd)	SGD / Dissection	SDL Biochemistry HDL & LDL Metabolism					
14-06-2023 Wednesday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)	Anatomy (LGIS)		Surgery			SGD / Dissection	SDL Anatomy Meninges, Spinal ,cord			
		Excitatory and inhibitory effects of sympathetic and parasympathetic stimulation	Somatosensory cortex and lesions of somatosensory cortex	Embryology Development of Rhombencephalon	Histology Of spinal cord and peripheral nerve	Spinal injury and Head injury		Medulla Oblongata				
Dr. Uzma (Even)	Dr. Fahd (Odd)	Asst. Prof. Dr. Arsalan Manzoor (Even)	Asst. Prof. Dr. Maria Tasleem (Odd)	Dr. Soban Sarwar Gondal(Even)	Dr. Usman Malik (Odd)	SGD / Dissection						
15-06-2023 Thursday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (LGIS)	Research Club Activity		Biochemistry (LGIS)		SGD / Dissection	SDL Anatomy Meninges, Spinal ,cord				
		Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres	CSF, Blood Brain Barrier Blood CSF Barrier, Lumbar puncher			Hyperlipidemia And Fatty Liver			Fatty acid oxidation II			
Dr. Shazia (Even)	Dr. Maryam (odd)	Reseach team 2		Dr. Isma (Even)	Dr. Aneela (Odd)							
16-06-2023 Friday	8:00am-9:00am	9:00am-10:00am	10:00am-11:00am	11:00am-12:00pm								
	Medicine	Physiology (LGIS)	Radiology		SGD/DISSECTION							
	Spinal cord and peripheral nervous system	CSF, Blood Brain Barrier Blood CSF Barrier, Lumbar puncher	Concept of Association areas, Concept of Dominant and non-dominant cerebral hemispheres		Skull Radiograph				Midbrain			
Dr Javeria Malik(Even)	Dr Riffat (even)	Dr .Maryam (Even)	Dr. Shazia (odd)	Dr Riffat (even)	Dr Saba (Odd)							
17-06-2023 Saturday	Practical & CBL/SGD Topics & Venue Mentioned at the end	Physiology (SGD)	Anatomy (LGIS)		Obs & Gynae		Break	Pakstudies/Isl				SDL Anatomy Ascending tracts & Descending tracts
		Analgesia system	PBL Team - 2	Histology of cerebellum	Embryology Development of Mesencephalon & Prosencephalon	Seizures during pregnancy(eclampsia/epilepsy)		musawat	Tehreek-e- Pakistan (1940-1947)	Tehreek-e-Pakistan (1940-1947)	musawat	
Asst. Prof. Dr. Maria Tasleem (Even)	Asst. Prof. Dr. Arsalan Manzoor (Odd)	Dr Ismat Batoool (Even)		Dr Sadia Waheed (Odd)	Mufti Naem (Odd)	QariAmanUllah (Odd)		QariAman Ullah (Even)	Mufti Naem (Odd)			

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

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

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

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

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

26th June,2023 To 22nd July, 2023

Summer Vacations &
Eid Ul Azha Holidays

CNS Module (Fourth Week) (24-07-2023 To 29-07-2023)

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

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

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

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

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

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

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

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

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

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

SECTION-VI

Table of Specification (TOS) For CNS Module Examination

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

Table of Specification for Integrated OSPE

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

Table of Specification for Gross Anatomy OSPE

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

Annexure I

(Sample MCQ, SEQ & OSPE Papers)

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

1. A patient was unable to maintain his balance with feet & heel close together. He was also unable to detect sensations of vibration when vibrating tuning fork was placed on joints of lower limb. Which of the following spinal cord tract is likely to be effected?
 - a. Rubrospinal
 - b. Corticospinal
 - c. Fasciculus gracilis
 - d. Fasciculus cuneatus
 - e. Lateral spinothalamic

3. A 75-year-old female suffered a stroke that produced loss of pain and temperature sensations from the left side of her face (along her forehead, cheek, and jaw). She had no other sensory or motor losses. Her physician advised MRI of brain to rule out the cause. Which structure is most likely to be suffered?
 - a. Left medial lemniscus
 - b. Right spinal trigeminal nucleus
 - c. Left spinothalamic tract
 - d. Right spinothalamic tract
 - e. Left spinal trigeminal nucleus

5. Internal capsule is a white matter structure situated in each cerebral hemisphere. Which one of the following passes through the sublenticular part of internal capsule?
 - a. Optic Radiation
 - b. Auditory Radiation
 - c. Temporopontine fibres
 - d. Anterior Thalamic radiation
 - e. Corticonuclear fibres

2. A diagnosed case of hypertension presented with weakness of left lower limb and difficulty in movements. On examination he also had impaired sensations of two point discrimination and vibration. On protrusion of the tongue it deviated to right side. Depending on the knowledge of Neuroanatomy which part is affected?
 - a. Midbrain
 - b. Pons
 - c. Medulla oblongata
 - d. Cerebellum
 - e. Hypothalamus

4. Computed tomography (CT) scan showed an area of hemorrhage in the region of the calcarine fissure. To determine the most likely neurologic deficit produced by this hematoma, which test should be performed?
 - a. Rapid independent finger movements
 - b. Visual fields
 - c. Cognitive functions in word definition
 - d. Tongue movements
 - e. Muscle tone and coordination

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

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

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

RAWALPINDI MEDICAL UNIVERSITY
CNS MODULE 2ND YEAR MBBS
PHYSIOLOGY MCQS

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

RAWALPINDI MEDICAL UNIVERSITY
CNS MODULE 2ND YEAR MBBS
PHYSIOLOGY SEQS

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

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

1. Oxidation of fatty acid decrease in:

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

3. Inherited defect in enzymes of β oxidation cause:

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

2. 3- hydroxybutyrate:

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

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

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

SEQ

Q. a. Describe the metabolism of chylomicrons. 03

b. Discuss causes of carnitine deficiency. 02

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

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

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

Station No. 1 Time Allowed: 2 Min

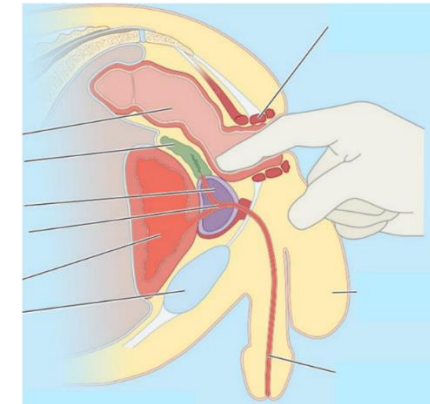
Histology sketch copy will be assessed for

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

Station No. 2 Time Allowed: 2 Min

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

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



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DEPARTMENT OF PHYSIOLOGY
2nd Year MBBS OSPE Block-II

Station No. Time Allowed: 2 Minutes

MRI of a patient suggests thrombosis of superior cerebellar artery,

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

Station No. Time Allowed: 2 Minutes

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

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DEPARTMENT OF BIOCHEMISTRY
2nd Year MBBS OSPE Block-II

Station No. 1 Time Allowed: 2 Mins

Observed Station

Pipette out 100 microliters from given solution 03

Station No. 2 Time Allowed: 2 Mins

Observed Station

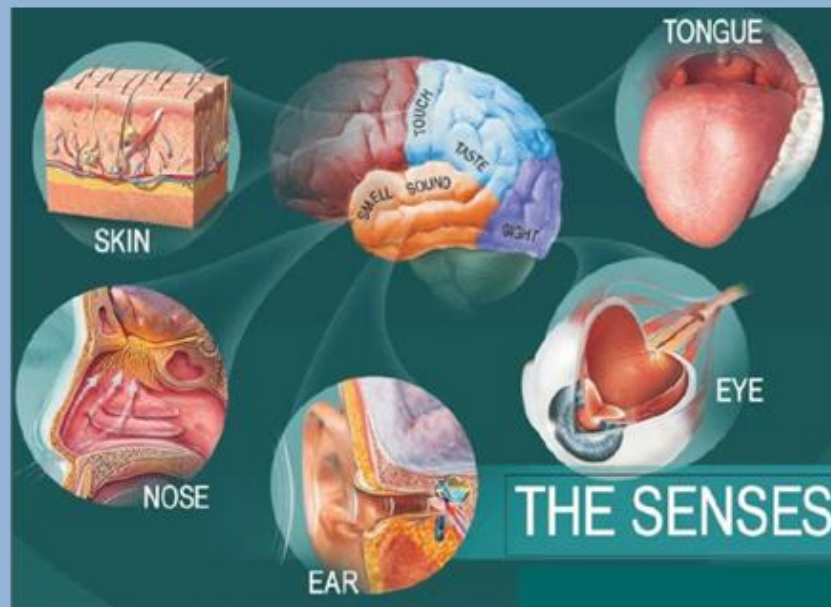
Observe the slide under the microscope. Give one identifying feature. 03



Special Senses Module

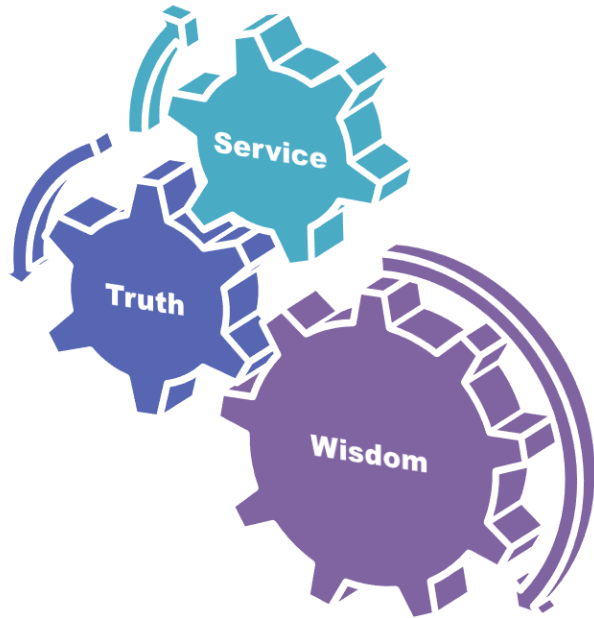
Study Guide

Second Year MBBS 2022 - 2023



University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

Special Senses Module

Discipline Wise Details of Modular Contents

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

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

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Special Senses Module Team

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

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

Module III – Special Senses Module

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

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

Module Outcomes

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

Knowledge

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

Skills

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

Attitude

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

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

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

Tables & Figures

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

Table1. Domains of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

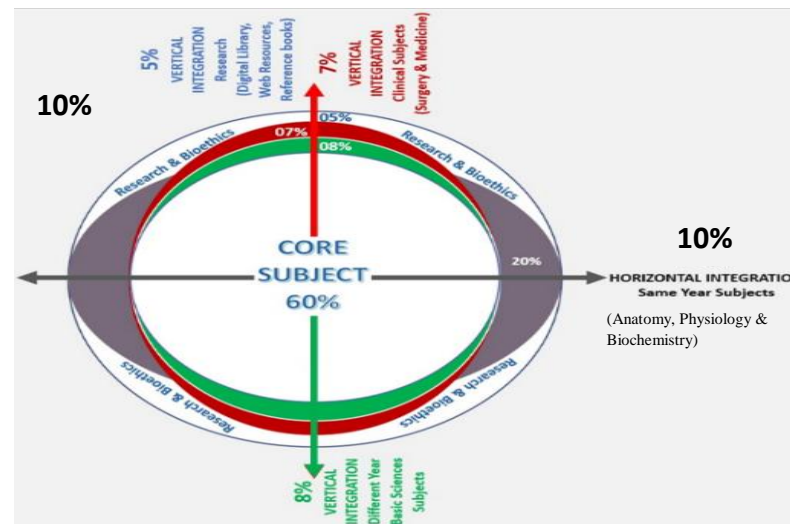


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementation of Small Group Discussions

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

Self-Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Model

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

Horizontally Integrated Basic Sciences (Anatomy, Physiology & Biochemistry)

Anatomy Large Group Interactive Session (LGIS)

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

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

Histology

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

Physiology Large Group Interactive Session (LGIS)

Topics	Learning Objectives	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to Physiology of Eye & Optics of vision. General Principles of optics, Physiological basis for errors of refraction	<ol style="list-style-type: none"> 1. Explain the basic physiology of eye and its refractive surfaces 2. Discuss the physical principles of optics 3. Describe the mechanism of accommodation and its control 4. Describe the errors of refraction (Myopia, hyperopia, astigmatism and their correction by using different lens systems 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02,Vision (Chapter 09, Page 177,185) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 85 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 374-378) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition,Vision(Chapter 64,Page 1086) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 10. (Chapter 50, Page 627-635) 	<ul style="list-style-type: none"> • https://www.britannica.com/science/human-eye • https://youtu.be/laEFdIxW0rA 	<ol style="list-style-type: none"> 1.C2 2. C2 3. C2 4.C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Introduction to Physiology of external ear, Middle ear	<ol style="list-style-type: none"> 1.Describe physiology of external ear 2.Describe physiology of middle ear 3. Explain structure of middle ear 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 02, (Chapter 10, Page 199) • Physiology by Linda S. Costanzo 6th Edition,Neurophysiology chapter 3, page 92 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10,Page 364-371) 	<ul style="list-style-type: none"> • https://youtu.be/VRLm7cpmZSk • https://www.sciencedirect.com/science/article/pii/S0378595522002192 	<ol style="list-style-type: none"> 1. C2 2. C2 3. C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

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

basis for photo transduction	<ol style="list-style-type: none"> Describe the mechanism of activation of Rods Explain the photochemistry of color vision 	<ul style="list-style-type: none"> Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 87 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 379-387) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 51, Page 641) 	<ol style="list-style-type: none"> Vision 19676/ https://youtu.be/k9lrM5iPNuY 	4. C2		MCQ (LMS based Assessment, MST based Assessment) OSPE
Hearing abnormalities, Tuning fork tests and audiometry	<ol style="list-style-type: none"> Explain the auditory nervous pathway and abnormalities associated with it. Describe the function of cerebral cortex in hearing. 	<ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition (Chapter 62, Page 1067) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 53, Page 672) 	<ol style="list-style-type: none"> https://youtu.be/FgF91K7dU8Y https://youtu.be/acYMy9b0F2A https://www.uptodate.com/contents/image?imageKey=PC%2F58032&topicKey=PC%2F15359&source=see_link 	<ol style="list-style-type: none"> C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information	<ol style="list-style-type: none"> Explain the neural circuitry of the Retina Describe the physiology of visual pathway Name the optic lesion associated with visual pathway 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 09, Page 189, 193) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 90 Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 51, Page 644)(Chapter 52, Page 653-657) 	<ol style="list-style-type: none"> https://youtu.be/wiYmTAuVimg https://youtu.be/cG5ZuK0_qtc https://teachmeanatomy.info/head/cranial-nerves/optic-cnii/ 	<ol style="list-style-type: none"> C2 C2 C1 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

Vestibular system	<ol style="list-style-type: none"> Describe the function of the organ of corti Explain vestibular system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 10, Page 209) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 95 Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition, (Chapter 63, Page 1072) 	<ol style="list-style-type: none"> https://www.physio-pedia.com/Vestibular_System https://youtu.be/ryGMI3SpxCE https://youtu.be/mc p7qLh8_5c 	<ol style="list-style-type: none"> C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control	<ol style="list-style-type: none"> Explain the muscular control of eye movement Describe the fixation movements of eye Define accommodation reflex and pupillary light reflex Name the optic lesion associated with visual pathway 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 09, Page 190) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 374-378) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 52, Page 657) 	<ol style="list-style-type: none"> https://youtu.be/evLyI35m8xU https://teachmeanatomy.info/head/organs/eye/extraocular-muscles/ 	<ol style="list-style-type: none"> C2 C2 C2 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Sense of Taste and pathophysiology	<ul style="list-style-type: none"> List the primary sensation of taste Explain the mechanism of taste perception and its transmission into central nervous system 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 11, Page 221) Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 100 Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 361) Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 54, Page 675-679) 	<ol style="list-style-type: none"> https://youtu.be/K9JSBzEEA0o https://youtu.be/mFm3yA1nsIE https://www.sciencedirect.com/topics/nursing-and-health-professions/taste 	<ol style="list-style-type: none"> C1 C2 	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

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

Biochemistry Large Group Interactive Session (LGIS)

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

Anatomy Small Group Discussion (SGDs)

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

	<ul style="list-style-type: none"> • Read relevant research article 	C3		
	<ul style="list-style-type: none"> • Use digital library 	C3		
Temporomandibular joint (TMJ)	<ul style="list-style-type: none"> • Discuss the temporomandibular joint, its type, formation and neurovascular supply. 	C2	Skills Lab	MCQ SAQ VIVA
	<ul style="list-style-type: none"> • Describe the movement's axis and muscles involved. 	C2		
	<ul style="list-style-type: none"> • Correlate clinically disorders of the temporo- mandibular joint. 	C3		
	<ul style="list-style-type: none"> • Read relevant research article 	C3		
	<ul style="list-style-type: none"> • Use digital library 	C3		
Face	<ul style="list-style-type: none"> • Discuss limits of face. 	C2	Skills Lab	MCQ SAQ VIVA
	<ul style="list-style-type: none"> • Tabulate the muscles of face. (Superficial and deep) origin, insertion, nerve supply and action. 	C2		
	<ul style="list-style-type: none"> • Discuss their role in facial expression. 	C2		
	<ul style="list-style-type: none"> • Describe facial nerve palsy upper and lower motor neuron. 	C3		
	<ul style="list-style-type: none"> • Discuss nerve supply of face. 	C1		
	<ul style="list-style-type: none"> • Discuss superficial and deep vasculature of face. 	C1		
	<ul style="list-style-type: none"> • Read relevant research article 	C3		
	<ul style="list-style-type: none"> • Use digital library 	C3		
Scalp and temple	<ul style="list-style-type: none"> • Explain the extent of scalp 	C2	Skills Lab	SAQ VIVA
	<ul style="list-style-type: none"> • Describe the Scalp layers, nerves & vessels 	C2		
	<ul style="list-style-type: none"> • Discuss the clinical correlates like scalp injuries and scalp wounds. 	C2		
	<ul style="list-style-type: none"> • Read relevant research article 	C3		
	<ul style="list-style-type: none"> • Use digital library 	C3		
Orbit	<ul style="list-style-type: none"> • Discuss its location, surfaces and borders 	C2	Skills Lab	MCQ SAQ VIVA
	<ul style="list-style-type: none"> • Describe its muscular and ligamentous attachment. 	C2		
	<ul style="list-style-type: none"> • Describe eyeball movements in relation to recti and oblique muscles. 	C2		
	<ul style="list-style-type: none"> • Discuss role of levator palpebrae superioris 	C2		
	<ul style="list-style-type: none"> • Discuss clinical correlations of different coats of eyeball. 	C2		
	<ul style="list-style-type: none"> • Explain extent and subdivisions of pharynx 	C2		
	<ul style="list-style-type: none"> • Read relevant research article 	C3		
	<ul style="list-style-type: none"> • Use digital library 	C3		

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

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

Physiology Small Group Discussion (SGDs)

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

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

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

Anatomy Self Directed Learning (SDL)

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

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

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

Physiology Self Directed Learning (SDL)

Topics Of SDL	Learning Objective	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
<p>ON CAMPUS Introduction to Physiology of external ear, Middle ear</p>	1. Describe physiology of external ear 2. Describe physiology of middle ear 3. Explain structure of middle ear	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 02, (Chapter 10, Page 199) • Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 92 • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. Sensory Physiology (Chapter 10, Page 364-371) ❖ Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 10. (Chapter 53, Page 663) 	1. https://youtu.be/VRLm7cpmZSk 2. https://www.sciencedirect.com/science/article/pii/S0378595522002192	1. C2 2. C2 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE SDL Evaluation
Functions of Inner ear, Physiology of Hearing	1. Describe the physiology of hearing and function of tympanic membrane and ossicular system. 2. Define impedance matching and attenuation reflex	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 02, Vision (Chapter 10, Page 200, 204) • Physiology by Linda S. Costanzo 6th Edition, Neurophysiology chapter 3, page 93 	1. https://youtu.be/Ie2j7GpC4JU 2. https://youtu.be/qgdqp-oPb1Q 3. https://www.urmc.rochester.edu/encyclopedia/content.aspx?ContentTypeId=00000000-0000-0000-0000-000000000000	1. C2 2. C1 3. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,

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

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

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

Biochemistry Self Directed Learning (SDL)

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

Histology Practicals Skill Laboratory (SKL)

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

Physiology Practicals Skill Laboratory (SKL)

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

Biochemistry Practicals Skill Laboratory (SKL)

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

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Case Based Learning Objectives (CBL)

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

Vertical Integration LGIS

Pharmacology

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

Medicine

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

Sugery

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

Peadiatrics

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

Radiology

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

ENT

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

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

Eye

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

Cataract	Cataract	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> • Define 			
	<ul style="list-style-type: none"> • Types of cataract • Surgical procedures 			
Ocular trauma & Ocular Procedures	Ocular Trauma	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> • Blunt 			
	<ul style="list-style-type: none"> • Penetrating 			
	<ul style="list-style-type: none"> • Chemical Burns 			
	<ul style="list-style-type: none"> • Laceration 			
	Ocular Procedures	C1		
	<ul style="list-style-type: none"> • Cataract surgeries • Glaucoma Surgeries • Laser And refractive Surgeries 			
Cornea	Corneal Ulcer	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> • Bacterial 			
	<ul style="list-style-type: none"> • Viral 			
	<ul style="list-style-type: none"> • Fungal 			
Conjunctivitis	<ul style="list-style-type: none"> • Define conjunctivitis 	C1	LGIS	MCQs,
	<ul style="list-style-type: none"> • Discuss the causes & types 			
	<ul style="list-style-type: none"> • Explain management in detail 			

Behavioural Sciences

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

Family Medicine

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

Biomedical Ethics & Professionalism

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

Integrated Undergraduate Research Curriculum (IUGRC)

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

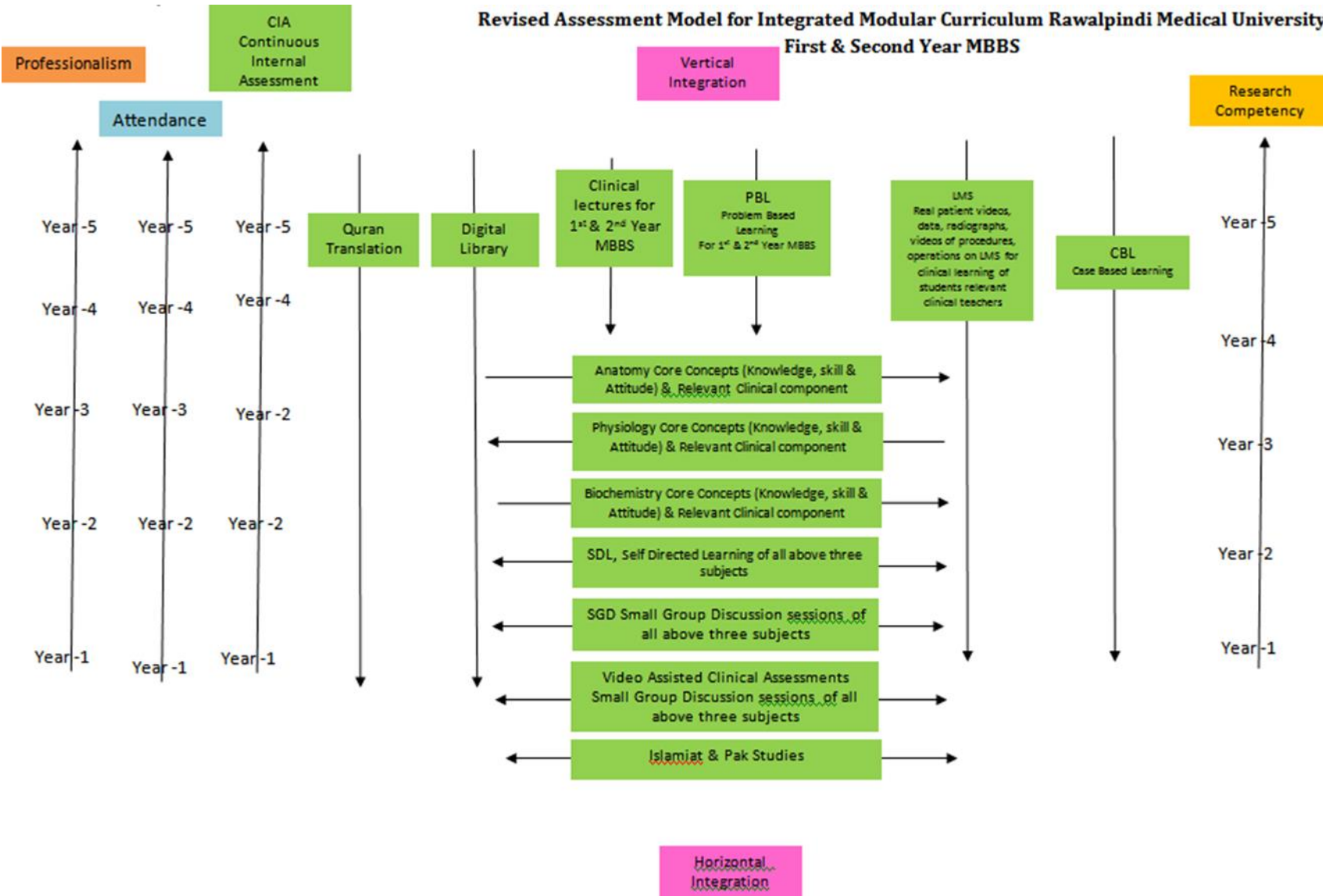
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing in professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in Special Senses Module

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCiCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> 2. https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> 1. https://youtu.be/2_owp8kNMus (Female Reproductive system) 2. https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbmAtg (Dr Najeeb lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 2. https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> 1. https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE 2. https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Lehninger Principle of Biochemistry 8th edition. 2. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis • https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p>

- https://www.youtube.com/watch?v=A5u_TY1A0t8
- https://www.youtube.com/watch?v=A5u_TY1A0t8
- <https://www.youtube.com/watch?v=VXWyWzbigrg>
- <https://www.youtube.com/watch?v=e2KFVvI8Akk>
- <https://www.youtube.com/watch?v=n7Uec8Jtr4E>
- <https://www.youtube.com/watch?v=J9jhg90A7Lw>

E. HEC Digital Library

- <https://www.ncbi.nlm.nih.gov/books/NBK29/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/>
- <https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/>

F. Biochemistry Journals

- <https://academic.oup.com/bmb/article/11/2/126/256755>
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone>

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Special Senses Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Special Senses Module Team

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

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

Discipline wise Details of Modular Contents

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

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

Categorization of Modular Contents Anatomy

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

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

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

Contact Hours (Faculty)

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

Contact Hours (Students)

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

Physiology

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

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

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

Biochemistry

Category A*	Category B**	Category C***			
LGIS	LGIS	PBL	CBL	Practical's	SGD
<ul style="list-style-type: none"> • Neurotransmitter • Second Messenger 	<ul style="list-style-type: none"> • Receptors • G-Proteins • Role of Vitamin A in Vision 		Night Blindness	<ul style="list-style-type: none"> • Lipid Profile • Urine Report Revision • Spectrophotometer Revision 	<ul style="list-style-type: none"> • Neurotransmitters • G-Proteins

Category A*: By HOD and Assistant Professor

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

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

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

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

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

Special Senses Module (First Week)
(21-08-2023 To 26-08-2023)

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

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

Special Senses Module (Second Week) (28-08-2023 To 02-09-2023)

Date /Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)				
28-08-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	ENT		PHYSIOLOGY LGIS		BIOCHEMISTRY (LGIS)		Break	CBL/ DISSECTION	SDL Anatomy Orbit boundaries Extraocular muscles	
		Nasal polyp& Sinusitis & Diseases of External Nose		Photochemistry of vision &Physiological basis for photo transduction		Hearing abnormalities, Tuning fork tests and audiometry			Role Of Vitamin A In Vision		G-Proteins
Dr. Sundas Masood (even)		Dr. Tabasum (Odd)		Prof. Dr. Samia /Dr. Uzma (Even)		Dr. Aneela (Odd)			Dr.Almaas(Even)	Dr. Isma (Odd)	
29-08-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY (LGIS)		BIOCHEMISTRY (LGIS)			SGD/DISSECTION	SDL Anatomy Vessels and Nerves of orbit	
		Hearing abnormalities, Tuning fork tests and audiometry		Photochemistry of vision &Physiological basis for photo transduction		Histology of Eye-II			Development of Eye-II		G-Proteins
Dr. Aneela (Even)		Prof. Dr. Samia / Dr. Uzma(Odd)		Assist. Prof. Dr. Maria (Even)		Prof. Dr. Ifra Saeed (Odd)			Dr. Ismaa (Even)	Dr. Almaas (Odd)	
30-08-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY (LGIS)		EYE		SGD/DISSECTION	SDL Physiology Photochemistry of vision &Physiological basis for photo transduction		
		Light & dark adaptation, Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information		Vestibular system		Development of Eye-II		Histology of Eye-II		Cataract & Glaucoma & Anti glaucoma drugs	
Dr. Uzma (Even)		.Dr. Sidra (odd)		Prof. Dr. Ifra Saeed (Even)		Assist. Prof. Dr. Maria (Odd)		Dr. Ambreen (even)	Dr. Bilal (Odd)		
31-08-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY (LGIS)		EYE		SGD/DISSECTION	SDL physiology Vestibular system		
		Vestibular system		Light & dark adaptation,Color vision, Neural functions of the retina, Central neurophysiology of vision, Neural pathways for analysis of visual information		Histology of Ear		Development of Pharyngeal Apparatus		Conjunctivitis Chalazion	
.Dr. Sidra (Even)		Dr.Uzma (Odd)		Assist. Prof. Dr. Maria (Odd)		Prof. Dr. Ifra Saeed (Even)		Dr. Salman (even)	Dr. Fatima (Odd)		
01-09-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM		SDL Biochemistry G-Proteins		
	EYE		PHYSIOLOGY LGIS		ISLAMIAAT		SGD/DISECTION				
	Ocular trauma & Ocular Procedures		Lesions of visual pathway and its effects on field of vision, Movements of eye ball along with neural control		Sense of Taste and pathophysiology		Zimidaari aur taluqaat				Parotid & Temporal region
Dr. Wajeaha (even)		Dr. Sidra Naseem (Odd)		Dr. Uzma (Even)		Dr. Kamil (Odd)		Mufti Naem Sherai (Even)		Qari Aman Ullah(Odd)	
Saturday 02-09-2023	Practical & CBL/SGD Topic mentioned at the end	ANATOMY (LGIS)		BIOCHEMISTRY (LGIS)		PAK STUDIES		Break	SGD/DISECTION	SDL Biochemistry Role Of Vitamin A In Vision	
		Development of Pharyngeal Apparatus		Histology of Ear		Second messenger system			Second messenger system		Pakistan k hamsaya mumalik se taluqaat
Prof. Dr. Ifra Saeed (Odd)		Assist. Prof. Dr. Maria (Even)		Dr. Isma (Even)		DrAneela (Odd)		Qari Aman Ullah (Even)	Mufti Naem Sherai(Odd)		

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

Special Senses Module (Third Week)
(04-09-2023 To 09-09-2023)

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

Break

Break

Topics For Practical with Venue						Topics For Small Group Discussion & CBLs With Venue			
<ul style="list-style-type: none"> External & Internal Ear (Anatomy Histology Practical) Venue-Histology laboratory (Biochemistry Practical) Revision of Spectrophotometer Venue- Biochemistry laboratory Performance of Hearing Test (cochlear function) (Physiology Practical) Venue – Physiology Lab 						<ul style="list-style-type: none"> Physiology SGD: Physiology of Taste & Smell (Venue: Lecture Hall No 5) Biochemistry CBL: Night Blindness 			

Schedule For Practical / Small Group Discussion						Venue For First Year Batches for Anatomy Dissection / Small Group Discussion			
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue
Monday	C	B	E	A	D	A	01-90	Dr. Sajjad Hussain	New lecture Theater complex 4
Tuesday	D	C	A	B	E	B	91-180	Dr. Gaiti Ara	Lecture Hall No. 04 Anatomy Lecture Hall
Wednesday	E	D	B	C	A	C	181-270	Dr Sadia Baqir	New lecture Theater complex 1
Thursday	B	A	D	E	C	D	271 onwards	Dr. Maryam Sohail	Lecture Hall No.03 Anatomy Lecture Hall
Saturday	A	E	C	D	B				

VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II				Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue	Biochemistry				Physiology	
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Muhammad Usman	1.	Batch – A	01-70	Dr. Romessa Naeem	Dr. Syed Ali Moosa
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen	2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Lecture Hall no.02(Basement)	Dr. Ismail	3.	Batch – C	141-210	Dr. Nayab	Dr. Asif Mehmood
Batch-B2	(106-140)	Conference room (Basement)	Dr. Kamil Tahir	4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Izzah Raashid & Dr. Iqra Ayub
Batch-C1	(141-175)	Lecture Hall no.04(Basement)	Dr. Maryam Abbas (PGT Physiology)	5.	Batch - E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Lecture Hall no.05(Basement)	Dr. Nayab (PGT Physiology)					
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Iqra Ayub (PGT Physiology)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)					
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Sheena Tariq (Physiology)	Even Roll Number		New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)					

TOPIC DETAILS OF SDL BIOCHEMISTRY
<ul style="list-style-type: none"> Second Messenger

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

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

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

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

SECTION-VI

Table of Specification (TOS) For Special Senses Module Examination

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

Annexure I

(Sample OSPE, MCQ, & SEQ)

Sample Paper of MCQs
Department of Anatomy

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

Sample Paper of SEQs
Department of Anatomy

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

Department of Physiology

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

Department of Biochemistry

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

SEQ

Q. Explain synthesis and fate of catecholamines. 05

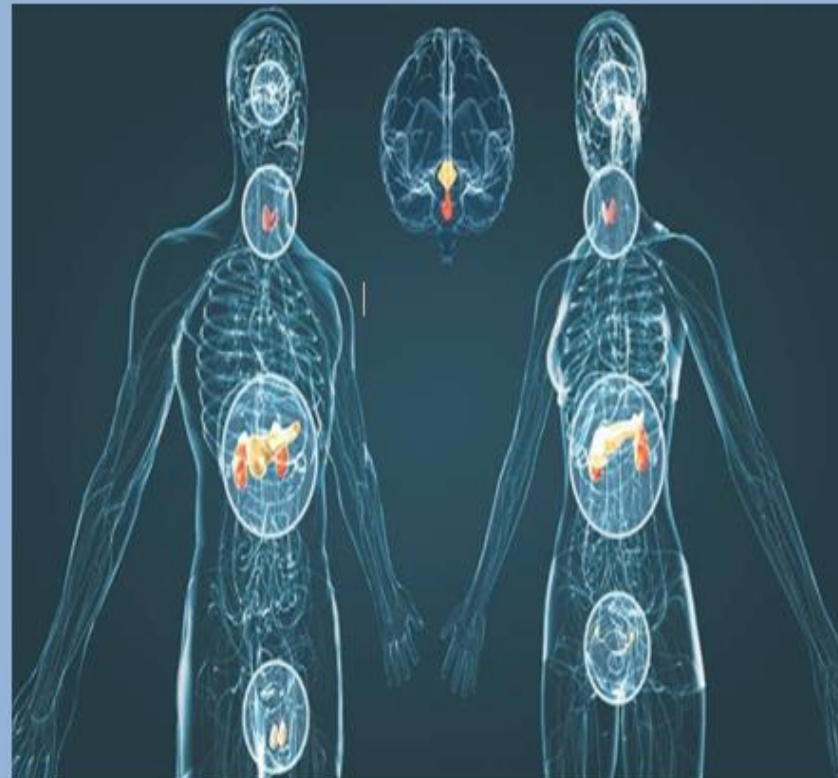
Department of Bioethics


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



Endocrinology Module

Study Guide Second Year MBBS 2021 - 2022



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	Prof. Dr. Samia Sarwar	



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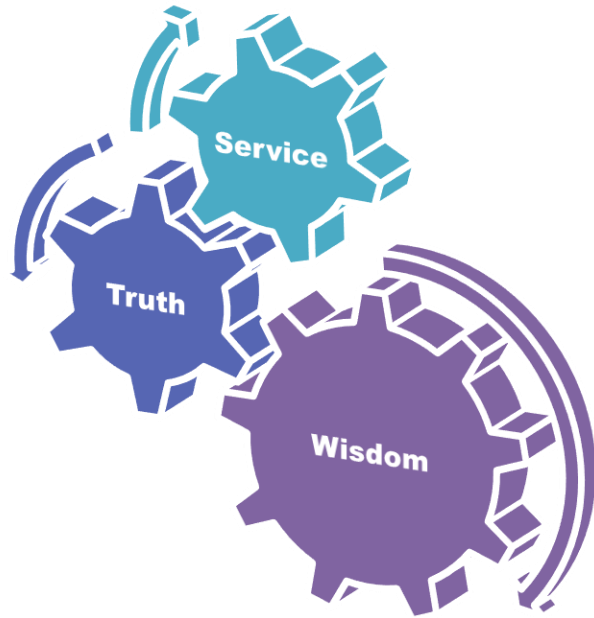
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University Moto, Vision, Values & Goals

RMU Motto



Mission Statement

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

Vision and Values

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

Goals of the Undergraduate Integrated Modular Curriculum

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

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

Second Year MBBS 2023

Study Guide

Endocrinology Module

Discipline wise Details of Modular Contents

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

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

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

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

Module VI – Endocrinology Module

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

Module Outcomes

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

Knowledge

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

Skills

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

Attitude

- Student should observe lab safety rules
Should have professional Attitude

SECTION - I

Terms & Abbreviations

Contents

- Domains of Learning
- Teaching and Learning

Methodologies/Strategies

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

Tables & Figures

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

Table1. Domains Of Learning According to Blooms Taxonomy

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

Teaching and Learning Methodologies / Strategies

Large Group Interactive Session (LGIS)

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

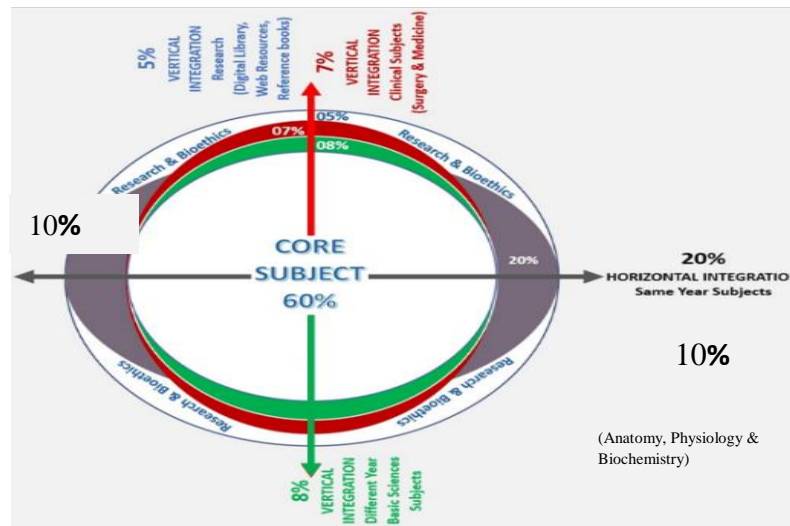


Figure 1. Prof Umar's Model of Integrated Lecture

Small Group Discussion (SGD)

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

Table 2. Standardization of teaching content in Small Group Discussions

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

Table 3. Steps of Implementaion of Small Group Discussions

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

Self Directed Learning (SDL)

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

Case Based Learning (CBL)

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

Problem Based Learning (PBL)

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

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

Figure 2. PBL 7 Jumps Mode

Practical Sessions/Skill Lab (SKL)

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

SECTION – II

Learning Objectives, Teaching Strategies & Assessments

Contents

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

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

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching strategy	Assessment Tool
Histology of pituitary gland and pineal gland	<ul style="list-style-type: none"> • Describe histological structure of pituitary and pineal gland • Enumerate different cells present in both glands • Discuss bio-physiological aspects related to their secretions • Discuss the related clinical • Read relevant research article • Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQs • VIVA
Histology of thyroid and parathyroid glands	<ul style="list-style-type: none"> • Describe histological structure of thyroid and parathyroid gland • Enumerate different cells present in both glands • Discuss bio-physiological aspects related to their secretions • Discuss the related clinical • Read relevant research article • Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQs • VIVA
Histology of adrenal gland	<ul style="list-style-type: none"> • Describe histological structure of adrenal gland. • Enumerate different cells present in gland • Discuss bio-physiological aspects related to secretions. • Discuss the related clinical • Read relevant research article • Use digital library 	C2 C1 C2 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQs • VIVA
Development of pituitary and pineal gland	<ul style="list-style-type: none"> • Describe stages of development of pituitary and pineal glands • Enumerate structures involved in development of glands • Discuss congenital abnormalities related to development of glands • Read relevant research article • Use digital library 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQs • VIVA
Development of thyroid and parathyroid glands	<ul style="list-style-type: none"> • Describe a stage of development of thyroid and parathyroid glands • Enumerate structures involved in development of glands • Discuss congenital abnormalities associated with their development 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQs • VIVA

	<ul style="list-style-type: none"> • Read relevant research article • Use digital library 			
Development of adrenal gland	<ul style="list-style-type: none"> • Describe stages of development of adrenal glands • Enumerate structures involved in the development of gland. • Discuss congenital abnormalities associated with its development. • Read relevant research article • Use digital library 	C2 C1 C3 C3 C3	LGIS	<ul style="list-style-type: none"> • MCQS • SEQS • VIVA

Physiology Large Group Interactive Session (LGIS)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Introduction to endocrinology & Signal transduction - I	<ul style="list-style-type: none"> • Define endocrinology • Describe several types of chemical messenger systems • Enumerate endocrine glands in the body along with their secretions • Compare two major control systems of the body • Identify different locations and properties of hormone receptors • Explain various intracellular signaling pathways after hormone receptor activation • Describe various mechanism of actions of hormones in detail 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 299) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 231) (Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys 	1. C1 2. C1 3. C1 4. C2 5.C1 6.C2 7.C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Hypothalamic–pituitary axis & GH	<ul style="list-style-type: none"> • Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324) 	<ul style="list-style-type: none"> • https://www.mdpi.com/2072-6694/15/15/3820 	C1 C1 C2	LGIS	MCQ SEQ VIVA

	<p>gland along with their secretion and function</p> <ul style="list-style-type: none"> • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of growth hormone • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion 	<ul style="list-style-type: none"> • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) (Chapter 23,Page 775) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929) 	<ul style="list-style-type: none"> • https://youtu.be/fqz4W0wfz4Q • https://resources.wfsahq.org/atotw/the-hypothalamic-pituitary-axis-part-1-anatomy-physiology/ 	<p>C1 C1 C2 C2 C2</p>		<p>VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Introduction to endocrinology & Signal transduction- II</p>	<ul style="list-style-type: none"> • Classify hormones according to solubility and chemical nature • Describe the nature & synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control & clearance of hormones <p>Differentiate different classes of hormones</p>	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling • https://youtu.be/GHwMJnxaiys 	<p>C2 C1 C2 C1 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Abnormalities of</p>	<ul style="list-style-type: none"> • Enlist abnormalities of GH secretion • Describe pan hypopituitarism • Discuss in detail dwarfism & its treatment 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition. Section 03 (Chapter 18, Page 321-334) 	<ol style="list-style-type: none"> 1. https://youtu.be/0GuRf5YPGiA 2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2770000/ 	<p>C1 C1 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA</p>

growth hormone secretion	<ul style="list-style-type: none"> • Explain gigantism & acromegaly • Differentiate gigantism & acromegaly 	<ul style="list-style-type: none"> • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 412) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 23, Page 775) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 14. (Chapter 76, Page 936) 	lm.nih.gov/books/NBK278971/	C2 C2		VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Insulin and glucagon: Structure and metabolic functions	<ul style="list-style-type: none"> • Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 440,446) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22, Page 743) • Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 07 (Chapter 56, Page 902) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition.. Section 14. (Chapter 79, Page 973,982) 	<ol style="list-style-type: none"> 1. https://youtu.be/1c6a0BNsyek 2. https://www.britannica.com/science/insulin 3. https://www.medicalnewstoday.com/articles/316427#overview 	C1 C1 C1 C2 C1 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Hormones of posterior pituitary gland (oxytocin and ADH)	<ul style="list-style-type: none"> • Recall site of synthesis and secretion of posterior pituitary hormones • Describe mechanism of action, stimuli for secretion, functions and regulation of ADH • Discuss functions of oxytocin 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 17, Page 311) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 415) 	<ol style="list-style-type: none"> 1. https://youtu.be/EG1Oeetxpg 2. https://teachmeanatomy.com/endocrine-system/hypothalamus/ 	C1 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based)

		<ul style="list-style-type: none"> Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 849) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 938) 	mus-pituitary/posterior-pituitary/posterior-pituitary-gland/https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/posterior-pituitary-hormones			Assessment, MST based Assessment) OSPE
Regulation of blood Glucose & Diabetes mellitus	<ul style="list-style-type: none"> Describe various factors regulating blood glucose concentration Discuss the importance of blood glucose regulation Discuss the pathophysiology of diabetes mellitus Explain the physiology of diagnosis of diabetes mellitus Explain the treatment of diabetes mellitus Differentiate between type I & type II diabetes mellitus Differentiate between diabetes mellitus & diabetes insipidus 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983) 	<ol style="list-style-type: none"> https://youtu.be/KY85BUcQZew https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html https://www.medicalnewstoday.com/articles/316427 	C1 C2 C2 C2 C2 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE
Aldosterone and cortisol	<ul style="list-style-type: none"> Describe physiological anatomy of adrenal gland Enumerate its various hormones Describe synthesis, transport & metabolism of adrenocortical hormones Describe mechanism, physiological actions 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) 	<ol style="list-style-type: none"> https://youtube/2-Z3Q6BZuBY https://journals.physiology.org/doi/abs/10.1152/ajplega 	C1 C1 C1 C1 C2	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS

	<p>of aldosterone</p> <ul style="list-style-type: none"> • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-inflammatory actions of cortisol</p> <ul style="list-style-type: none"> • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH • Discuss the actions of ACTH 	<ul style="list-style-type: none"> • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955) 	<p>3. https://www.britannica.com/science/aldosterone</p>	<p>C1 C1 C2 C2 C1 C2 C1 C2</p>		<p>based Assessment, MST based Assessment) OSPE</p>
<p>Thyroid hormone: Production, storage and release</p>	<ul style="list-style-type: none"> • Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of tri iodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941) 	<p>1. https://youtu.be/afVX3mINB80</p> <p>2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release</p> <p>3. https://byjus.com/biology/thyroid-hormone/</p>	<p>C1 C2 C2 C1 C2 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

<p>Abnormalities of adrenocortical hormone</p>	<ul style="list-style-type: none"> • Discuss in detail Cushing's syndrome • Differentiate between Cushing disease and Cushing's syndrome • Discuss adrenogenital syndrome • Discuss the physiological anatomy of adrenal medulla • Enumerate various hormones secreted by adrenal medulla • Describe the steps involved in synthesis of catecholamines • Explain the function of catecholamines • Discuss stress response • Describe pheochromocytoma 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 364-373) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 874,875) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78, Page 969) 	<ol style="list-style-type: none"> 1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 2. https://youtu.be/pSeU9Ei-3u4 3. https://medlineplus.gov/adrenalglanddisorders.html 	<p>C2 C2 C2 C1 C1 C2 C2 C1</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Physiological role of thyroid hormone</p>	<ul style="list-style-type: none"> • Describe mechanism of action of thyroid hormone • Explain physiological functions of thyroid hormone 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 343,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 423) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 944) 	<ol style="list-style-type: none"> 1. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 2. https://youtu.be/IXjRsX50JB4 3. https://journals.physiology.org/doi/full/10.1152/physrev.2001.81.3.1097 	<p>C1 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

<p>Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)</p>	<ul style="list-style-type: none"> • Discuss normal levels and metabolism of calcium and phosphate • Describe the effects of hypocalcemia & hypercalcemia • Explain the absorption and excretion of calcium and phosphate • Discuss in detail bone physiology • Describe the steps involved the activation of Vitamin D • Discuss the actions of vitamin D • Describe the physiological anatomy of parathyroid glands • Describe the chemistry & regulation of secretion of parathyroid hormone • Explain the actions of parathyroid hormones • Describe functions and regulation of calcitonin 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 375-386) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991) 	<ol style="list-style-type: none"> 1. https://youtu.be/JYQL7JEsF_4 2. https://teachmephysiology.com/biochemistry/electrolytes/calcium-regulation 	<p>C2 C1 C2 C2 C1 C1 C1 C2 C1</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)</p>	<ul style="list-style-type: none"> • Enlist disorders of thyroid gland • Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism • Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism • Compare hypothyroidism with hyperthyroidism • Differentiate between pituitary dwarfism and cretinism 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 	<ol style="list-style-type: none"> 1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaSI57c 	<p>C1 C2 C2 C2 C2</p>	<p>LGIS</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

		14. (Chapter 77, Page 950)				
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	<ul style="list-style-type: none"> • Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 23, Page 779) • Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 07 (Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall. 14th Edition. Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> 1. https://www.orthobullets.com/basic-science/9031/ricke 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia 	C2 C1 C1	LGIS	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE

Biochemistry Large Group Interactive Session (LGIS)

Topic	Learning Objectives At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Classification and mechanism of action of hormones	Classify hormones Explain the mechanism of action of hormones	C2 C2	LGIS	MCQs, SAQs & Viva
Thyroxin	Describe nature, formation and mechanism of action of thyroxin Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Parathyroid and Calcitonin	Discuss role of various hormones acting on calcium and phosphate metabolism Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal cortical hormones	Describe synthesis, mechanism of action and functions of aldosterone, cortisol and adrenal androgens Discuss related clinical disorders	C2 C3	LGIS	MCQs, SAQs & Viva
Adrenal medullary hormones	Describe mechanism of action and role of adrenal medullary hormones Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Insulin and glucagon	Explain formation, mechanism of action and role of insulin and glucagon Discuss related diseases	C2 C3	LGIS	MCQs, SAQs & Viva
Blood glucose regulation	Describe regulation of normal plasma glucose level Explain hypoglycemia	C2 C3	LGIS	MCQs, SAQs & Viva

Anatomy Small Group Discussion (SGDs)

Topic	Learning Objectives At the end of lecture students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Bones of neck Hyoid Bone Cervical vertebrae	• Describe the borders and surfaces of body and the two cornuas of hyoid bone.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the attachments on the hyoid bone.	C2		
	• Discuss the related applied of hyoid.	C2		
	• Describe anatomical features of cervical typical & atypical vertebrae .	C2		
	• Discuss the intervertebral joints& movements of cervical region of vertebral column.	C2		
	• Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Fascias of Neck.	• Understand cervical subcutaneous tissue & platysma.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the deep cervical fascia and the formation of layers due to its condensation.	C2		
	• Discuss the attachments and special features of the investing layer.	C2		
	• Describe the attachments and special features of prevertebral fascia.	C2		
	• Describe the attachments and special features of pretracheal fascia.	C2		
	• Discuss the carotid sheath formation, contents and relations.	C2		
	• Differentiate between the buccopharyngeal fascia and pharyngobasilar fascia.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
Superficial structures of the neck	• Discuss the location, attachments & actions of SCM & trapezius.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss suboccipital triangle of neck & its contents.	C2		
	• Discuss related clinicals	C3		
	• Discuss the location, attachments & actions of SCM & trapezius .	C2		
	• Describe boundaries & location of posterior cervical region .	C2		
	• Discuss related clinicals	C2		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical	• Describe boundaries of posterior triangle.	C2	Skill lab	MCQS

region-(Muscles & triangles)	• Discuss the muscles in lateral cervical region.(splenius capitus ,levator scapulae ,middle scalene &posterior scalene.	C2		SEQS VIVA OSPE
	• Describe boundaries and contents of occipital triangle	C2		
	• Discuss boundaries and contents of subclavian triangle	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library.	C3		
lateral cervical region-(Neuro vascular organization)	• Discuss arteries in lateral cervical region (supra scapular artery, 3rd part of subclavian artery ,	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss veins of lateral cervical region (EJV&subclavian vein)	C2		
	• Discuss nerve supply of lateral cervical region	C2		
	• Discuss lymphatic drainage in lateral cervical region.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
Anterior cervical region-(Muscles)	• Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss the anatomical basis of torticollis	C3		
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Anterior Cervical Region-(Vessels of neck & Cervical plexus)	• Discuss arterial supply in anterior cervical region (carotid system of arteries)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss venous drainage in anterior cervical region	C2		
	• Discuss formation of cervical plexus	C2		
	• Enumerate branches of cervical plexus	C2		
	• Discuss area of distribution	C2		
	• Describe clinical and applied anatomy	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Submandibular Region	• Discuss the relations of digastric, mylohyoid and hyoglossus muscles.	C2	Skill lab	MCQS SEQS
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of submandibular salivary gland.	C2		
	• Describe the details of Wharton's duct, its opening and related clinicopathological	C2		

	conditions			VIVA OSPE
	• Describe the gross features, relations, blood supply, lymphatic drainage and nerve supply of sublingual salivary gland.	C2		
	• Tabulate the comparison of three salivary glands.	C2		
	• Describe the connections and branches with area of supply by the sub-mandibular ganglion.	C2		
	• Read relevant research article	C3		
	• Use digital library	C3		
Soft Palate	• Discuss the anatomy of soft palate along with attachment of muscles and their actions.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Describe boundaries of tonsillar fossa.	C2		
	• Discuss related clinicals	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Deep structures of neck	• Discuss prevertebral muscles (ant.vertebral muscles & lateral vertebral muscles)	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss related clinicals.	C3		
	• Read relevant research article	C3		
	• Use digital library	C3		
Root of Neck	• Discuss arteries & veins in root of neck.	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss nerve supply in root of neck.	C2		
	• Discuss related clinicals.	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
Thyroid and para thyroid glands	• Discuss anatomy & functions of thyroid & parathyroid gland	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss blood supply of thyroid gland	C2		
	• Discuss lymphatic drainage & nerve supply of thyroid gland	C2		
	• Discuss related clinicals.	C3		
	• Read a relevant research article	C3		
	• Use digital library	C3		
larynx	• Discuss larynx in detail with its cartilages and muscles.	C2		
	• Discuss blood supply of larynx	C2		

	• Discuss functions of larynx	C2	Skill lab	MCQS SEQS VIVA OSPE
	• Discuss trachea (revisit).			
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
Pharynx	• Use digital library	C3	Skill lab	MCQS SEQS VIVA OSPE
	• Tabulate muscles of pharynx with origin, insertion, nerve supply and actions	C2		
	• Discuss nerve supply of Pharynx	C2		
	• Discuss blood supply of larynx	C2		
	• Discuss esophagus (revisit)	C2		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
Pancreas & Adrenal gland	• Use digital library	C3	Skill lab	MCQS SEQS VIVA OSPE
	• Describe location of pancreas & Adrenal gland	C2		
	• Enlist different parts of pancreas	C2		
	• Describe relations of pancreas	C2		
	• Discuss blood supply of pancreas	C2		
	• Discuss the clinical Anatomy of pancreas	C3		
	• Discuss related clinicals	C3		
	• Read a relevant research article	C3		
• Use digital library	C3			

Physiology Small Group Discussion (SGDs)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
Signal transduction & Growth hormone.	<ul style="list-style-type: none"> Define endocrinology Describe several types of chemical messenger systems Enumerate endocrine glands in the body along with their secretions Compare two major control systems of the body 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 16, Page 299) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 395) Human Physiology by Dee 	<ul style="list-style-type: none"> https://youtu.be/QLcxQT1fb_c https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/intro 	1. C1 2. C1 3. C1 4. C2 5. C1 6. C2 7. C1	SGD	MCQ SEQ VIVA VOCE MCQ (LMS based)

	<ul style="list-style-type: none"> Identify different locations and properties of hormone receptors Explain various intracellular signaling pathways after hormone receptor activation Describe various mechanism of actions of hormones in detail 	<p>Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 231) (Chapter 23,Page 765)</p> <ul style="list-style-type: none"> Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<p>duction-to-cell-signaling https://youtu.be/GHwMJnxaiys</p>			<p>Aseessment, MST based Assessment) OSPE</p>
Thyroid Hormones	<ul style="list-style-type: none"> Recall physiological anatomy of thyroid gland Briefly explain secretions of thyroid gland Compare the features of tri iodothyronine with thyroxine Describe the steps of synthesis of thyroid hormone Discuss in detail half-life, release, and transport of thyroid hormones <p>Explain regulation of secretion of thyroid hormone</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941)</p>	<ol style="list-style-type: none"> https://youtu.be/afVX3mlNB80 https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release https://byjus.com/biology/thyroid-hormone/ 	<p>C1 C2 C2 C1 C2 C2</p>	<p>SGD</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

<p>Insulin and Glucose Metabolism</p>	<ul style="list-style-type: none"> Describe physiological anatomy of pancreas Describe chemistry, synthesis and transport of insulin Describe the factors which affect secretion of insulin Discuss mechanism of action of insulin Describe the physiological actions of insulin Explain mechanism of insulin secretion Describe mechanism of action of glucagon Discuss regulation of secretion of glucagon <p>Explain the functions of glucagon</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 440,446) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982)</p>	<ol style="list-style-type: none"> https://youtu.be/1c6a0BNs_yek https://www.britannica.com/science/insulin https://www.medicalnewstoday.com/articles/316427#overview 	<p>C1 C1 C1 C2 C1 C2 C2</p>	<p>SGD</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)</p>	<ul style="list-style-type: none"> Discuss in detail hypoparathyroidism Describe hyperparathyroidism <p>Describe osteoporosis</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> https://www.orthobullets.com/basic-science/9031/rickets https://youtu.be/Srm2GH1dusg https://www.webmd.com/osteoporosis/what-is-osteomalacia 	<p>C2 C1 C1</p>	<p>SGD</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

<p>Insulin and Glucagon: Structure and metabolic functions (Second week)</p>	<ul style="list-style-type: none"> Describe physiological anatomy of pancreas Describe chemistry, synthesis and transport of insulin Describe the factors which affect secretion of insulin Discuss mechanism of action of insulin Describe the physiological actions of insulin Explain mechanism of insulin secretion Describe mechanism of action of glucagon Discuss regulation of secretion of glucagon <p>Explain the functions of glucagon</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 24, Page 429,445) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 440,446) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22, Page 743) Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 07 (Chapter 56, Page 902) Textbook of Medical Physiology by Guyton & Hall. 14th Edition. Section 14. (Chapter 79, Page 973,982) 	<ol style="list-style-type: none"> https://youtu.be/1c6a0BNsyek https://www.britannica.com/science/insulin https://www.medicalnewstoday.com/articles/316427#overview 	<p>C1 C1 C1 C2 C1 C2 C1 C2</p>	<p>SGD</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>
<p>Adrenal gland and its hormones (Fourth week)</p>	<ul style="list-style-type: none"> Describe physiological anatomy of adrenal gland Enumerate its various hormones Describe synthesis, transport & metabolism of adrenocortical hormones Describe mechanism, physiological actions of aldosterone Explain the phenomenon of aldosterone escape Describe regulation of aldosterone secretion Enlist abnormalities of aldosterone secretion Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology. 25TH Edition. Section 03 (Chapter 20, Page 351-364) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 23, Page 765) Physiological Basis of Medical Practice by Best & Taylor's. 13th Edition. Section 07 (Chapter 53, Page 866) Textbook of Medical Physiology by Guyton & Hall. 14th Edition. Section 14. (Chapter 78, Page 955) 	<ol style="list-style-type: none"> https://youtube/2-Z3Q6BZuBY https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 https://www.britannica.com/science/aldosterone 	<p>C1 C1 C1 C1 C2 C1 C1 C2 C2 C1 C2 C1 C2</p>	<p>SGD</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment, MST based Assessment) OSPE</p>

	inflammatory actions of cortisol • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion regulation of secretion of ACTH Discuss the actions of ACTH					
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Biochemistry Small Group Discussion (SGDs)

Topic	At The End Of Tutorial Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Classification of endocrine hormones,	• Classify Endocrine hormones	C1	SGD	MCQs SAQs Viva
	• Discuss the mechanism of action of endocrine hormones	C2		
Adrenocortical Hormones	• Elaborate formation, functions & related disorders of adrenocortical hormones	C2	SGD	MCQs SAQs Viva

Anatomy Self Directed Learning (SDL)

Topics	Learning objectives	Learning Resources
Bones of neck Hyoid Bone, Cervical vertebrae	• Describe the borders and surfaces of body and the two cornuas of hyoid bone.	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 982-985). • https://youtu.be/Mrtt9s72a7I?si=-ICPtI4ihH7g0tKE • https://youtu.be/4Q244XGveyQ?si=TH6lM2Jf43P_SBv3
	• Discuss the attachments on the hyoid bone.	
	• Discuss the related applied of hyoid.	
	• Describe anatomical features of cervical typical & atypical vertebrae .	
	• Discuss the intervertebral joints& movements of cervical region of vertebral columnn.	
	• Discuss the anatomical basis of cervical pain & injuries of cervical vertebral column	
	• Read relevant research article	
	• Use digital library.	
Sternocleidomastoid region & superficial & deep fascias of neck	• Discuss the location, attachments & actions of SCM & trapezius .	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, P 989-992). • https://youtu.be/nSaaWPzG4Zk?si=Muj6xMLX8fYkPOie • https://youtu.be/dEpCSJajCew?si=OM4W_bKbS7Eodte4
	• Describe boundaries & location of posterior cervical region .	
	• Discuss suboccipital triangle of neck & its contents.	
	• Discuss related clinicals	
	• Discuss the location,attachments & actions of SCM & trapezius .	
	• Describe boundaries & location of posterior cervical region .	
	• Discuss related clinicals	
	• Read relevant research article	
• Use digital library.		
Lateral cervical region	• Describe boundaries of posterior triangle.	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 992-999). • https://youtu.be/bk9KA2nR7PA?si=jBEZeD-MWZ83ne6a • https://youtu.be/kPUwVJE_j0I?si=-Ozn5s_bZLuoq-a
	• Discuss the muscles in lateral cervical region .	
	• (splenius capitus ,levator scapulae ,middle scalene &posterior scalene.	
	• Describe boundaries and contents of occipital triangle	
	• Discuss boundaries and contents of subclavian triangle	
	• Discuss related clinicals	
	• Read relevant research article	
	• Use digital library.	

Anterior Triangle of neck & its subdivisions	<ul style="list-style-type: none"> • Discuss the Muscles in anterior cervical region (suprahyoid muscle group & infrahyoid muscle group) 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page,999-1005). 	
	<ul style="list-style-type: none"> • Discuss the anatomical basis of torticollis 	<ul style="list-style-type: none"> • https://youtu.be/hnLtAYvAMkw?si=EWZCqciSD2K91uo4 	
	<ul style="list-style-type: none"> • Discuss related clinicals. 	<ul style="list-style-type: none"> • https://youtu.be/YOgE2pmXfZg?si=7hU-ZAw7wcaomUyI 	
	<ul style="list-style-type: none"> • Discuss arteries in anterior cervical region (carotid system of arteries) 		
	<ul style="list-style-type: none"> • Discuss veins in anterior cervical region 		
	<ul style="list-style-type: none"> • Discuss formation of cervical plexus 		
	<ul style="list-style-type: none"> • Enumerate branches of cervical plexus 		
	<ul style="list-style-type: none"> • Discuss area of distribution 		
	<ul style="list-style-type: none"> • Read relevant research article 		
	<ul style="list-style-type: none"> • Use digital library 		
Thyroid and para thyroid gland	<ul style="list-style-type: none"> ▪ Discuss anatomy & functions of thyroid& parathyroid gland 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1018-1021). 	
	<ul style="list-style-type: none"> ▪ Discuss blood supply of thyroid gland 	<ul style="list-style-type: none"> • https://youtu.be/7_Rd7HEZPI?si=mhoplCBjHSUL6pwI 	
	<ul style="list-style-type: none"> ▪ Discuss lymphatic drainage of thyroid gland 	<ul style="list-style-type: none"> • https://youtu.be/ruOirrIc6oY?si=frzfEV7Lqb52Pp6Q 	
	<ul style="list-style-type: none"> ▪ Discuss nerve supply of thyroid gland 		
	<ul style="list-style-type: none"> ▪ Discuss related clinicals. 		
	<ul style="list-style-type: none"> • Read a relevant research article 		
	<ul style="list-style-type: none"> • Use digital library 		
Soft palate, larynx	<ul style="list-style-type: none"> • Discuss the anatomy of soft palate. 	<ul style="list-style-type: none"> • Clinical Oriented Anatomy by Keith L. Moore.6TH Edition. (Chapter 8, Page 1021-1032). 	
	<ul style="list-style-type: none"> • Along with attachment of muscles and their actions. 	<ul style="list-style-type: none"> • https://youtu.be/eBn3PMX0tfk?si=hCg37nm5DsR6T1_s 	
	<ul style="list-style-type: none"> • Describe boundaries of tonsillar fossa. 	<ul style="list-style-type: none"> • https://youtu.be/4SDETzyJCVI?si=zWSHGf-prTqR1kqi 	
	<ul style="list-style-type: none"> • Discuss larynx in detail with its cartilages and muscles. 		
	<ul style="list-style-type: none"> • Discuss blood supply of larynx 		
	<ul style="list-style-type: none"> • Discuss functions of larynx 		
	<ul style="list-style-type: none"> • Discuss trachea (revisit). 		
	<ul style="list-style-type: none"> ▪ Discuss related clinicals 		
	<ul style="list-style-type: none"> ▪ Read a relevant research article 		
	<ul style="list-style-type: none"> • Use digital library 		

Physiology Self Directed Learning (SDL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy	Assessment Tools
<p>(ON CAMPUS) Regulation of blood Glucose & Diabetes mellitus</p>	<ul style="list-style-type: none"> Describe various factors regulating blood glucose concentration Discuss the importance of blood glucose regulation Discuss the pathophysiology of diabetes mellitus Explain the physiology of diagnosis of diabetes mellitus Explain the treatment of diabetes mellitus Differentiate between type I & type II diabetes mellitus Differentiate between diabetes mellitus & diabetes insipidus 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 435-438,446-448) Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 445) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 22,Page 743) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 915) ❖ Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 983) 	<ol style="list-style-type: none"> https://youtu.be/KY85BUcQZew https://www.pharmaguideline.com/2022/01/hormonal-regulation-of-blood-glucose-level.html https://www.medicalnewstoday.com/articles/316427 	C1 C2 C2 C2 C2 C2 C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation
Abnormalities of adrenocortical hormone	<ul style="list-style-type: none"> Discuss in detail Cushing's syndrome Differentiate between Cushing disease and Cushing's syndrome Discuss adrenogenital syndrome Discuss the physiological anatomy of adrenal medulla Enumerate various hormones secreted by adrenal medulla Describe the steps involved in synthesis of catecholamines Explain the function of catecholamines Discuss stress response Describe pheochromocytoma 	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 364-373) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 431,434,437) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) Physiological Basis of Medical Practice by Best & Taylor's.13th 	<ol style="list-style-type: none"> https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109 https://youtu.be/pSeU9Ei-3u4 https://medlineplus.gov/adrenalglanddisorders.html 	C2 C2 C2 C2 C1 C1 C2 C2 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation

		Edition. Section 07(Chapter 53,Page 874,875) Textbook of Medical Physiology by Guyton & Hall.14 th Edition..Section 14. (Chapter 78, Page 969)				
Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	<ul style="list-style-type: none"> • Discuss in detail hypoparathyroidism • Describe hyperparathyroidism • Describe osteoporosis 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 378,380,381,385,387) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 453) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 779) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54, Page 881,890) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 1003,1006) 	<ol style="list-style-type: none"> 1. https://www.orhobullets.com/basic-science/9031/rickets 2. https://youtu.be/Srm2GH1dusg 3. https://www.webmd.com/osteoporosis/what-is-osteomalacia 	C2 C1 C1	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE SDL Evaluation
(OFF CAMPUS) Hypothalamic–pituitary axis & GH	<ul style="list-style-type: none"> • Recall the physiological anatomy and parts of pituitary gland • Enumerate various cell types in pituitary gland along with their secretion and function • Explain connections of anterior and posterior pituitary gland with hypothalamus • Enlist various hormones secreted from anterior & posterior pituitary gland • Describe metabolic functions of 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 17, Page 307,313,324) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 407,411) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 241) 	<ul style="list-style-type: none"> • https://www.mdpi.com/2072-6694/15/15/3820 • https://youtu.be/fqz4W0wfz4Q https://resources.wfsahq.org/atotw/the-hypothalamic-	1. C1 2. C1 3. C2 4. C1 5. C1 6. C2 7. C2 8. C2	SDL	MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE

	<p>growth hormone</p> <ul style="list-style-type: none"> • Elaborate the role of growth hormone in soft tissue and bone growth • Discuss role of somatomedins in relation with growth hormone • Explain regulation of secretion 	<p>(Chapter 23,Page 775)</p> <ul style="list-style-type: none"> • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 51,Page 837) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 76, Page 929) 	<p>pituitary-axis-part-1-anatomy-physiology/</p>			SDL Evaluation
Introduction to endocrinology & Signal transduction	<ul style="list-style-type: none"> • Classify hormones according to solubility and chemical nature • Describe the nature& synthesis of hormones • Differentiate different classes of hormones • Describe the secretion, transport, feedback control& clearance of hormones • Differentiate different classes of hormones 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 16, Page 301,304) • Physiology by Linda S. Costanzo 6th Edition.Endocrine Physiology (chapter 09, page 395) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 07,Page 235,250) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 50,Page 817-831) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 75, Page 915-928) 	<ul style="list-style-type: none"> • https://youtu.be/QLcxQT1fb_c • https://www.khanacademy.org/science/ap-biology/cell-communication-and-cell-cycle/cell-communication/a/introduction-to-cell-signaling <p>https://youtu.be/GHwMJnxaiys</p>	C2 C1 C2 C1 C2	SDL	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS T based Assessment) OSPE SDL Evaluation</p>
Insulin and glucagon:	<ul style="list-style-type: none"> • Describe physiological anatomy of pancreas • Describe chemistry, synthesis and transport of insulin • Describe the factors which affect secretion of insulin 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 24, Page 429,445) • Physiology by Linda S. Costanzo 6th Edition.Endocrine 	<p>1. https://youtu.be/1c6a0BNsyek</p> <p>2. https://www.britannica.com/science/i</p>	C1 C1 C1 C2 C1 C2	SDL	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Aseessment,MS</p>

	<ul style="list-style-type: none"> • Discuss mechanism of action of insulin • Describe the physiological actions of insulin • Explain mechanism of insulin secretion • Describe mechanism of action of glucagon • Discuss regulation of secretion of glucagon • Explain the functions of glucagon 	<p>Physiology (chapter 09, page 440,446)</p> <ul style="list-style-type: none"> • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition. (Chapter 22,Page 743) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 56,Page 902) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 79, Page 973,982) 	<p>nsulin</p> <p>3.</p> <p>https://www.medicalnewstoday.com/articles/316427#overview</p>	<p>C1 C2 C2</p>		<p>T based Assessment) OSPE SDL Evaluation</p>
<p>Aldosterone and cortisol</p>	<ul style="list-style-type: none"> • Describe physiological anatomy of adrenal gland • Enumerate its various hormones • Describe synthesis, transport & metabolism of adrenocortical hormones • Describe mechanism, physiological actions of aldosterone • Explain the phenomenon of aldosterone escape • Describe regulation of aldosterone secretion • Enlist abnormalities of aldosterone secretion • Describe mechanism, physiological actions of cortisol <p>Discuss anti stress and anti-inflammatory actions of cortisol</p> <ul style="list-style-type: none"> • Describe regulation of cortisol secretion • Discuss functions of adrenal androgens • Describe the chemistry, secretion 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 20, Page 351-364) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 427) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 765) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 53,Page 866) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 78,Page 955) 	<p>1. https://youtube/2-Z3Q6BZuBY</p> <p>1. https://journals.physiology.org/doi/abs/10.1152/ajplegacy.1964.207.1.109</p> <p>2. https://www.britannica.com/science/aldosterone</p>	<p>C1 C1 C1 C1 C2 C1 C2 C2 C1 C2 C1 C2</p>	<p>SDL</p>	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE SDL Evaluation</p>

	<p>regulation of secretion of ACTH</p> <ul style="list-style-type: none"> • Discuss the actions of ACTH 					
Thyroid hormone:	<ul style="list-style-type: none"> • Recall physiological anatomy of thyroid gland • Briefly explain secretions of thyroid gland • Compare the features of triiodothyronine with thyroxine • Describe the steps of synthesis of thyroid hormone • Discuss in detail half-life, release, and transport of thyroid hormones • Explain regulation of secretion of thyroid hormone 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 337) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 419) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 770) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 855) • Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 941) 	<ol style="list-style-type: none"> 1. https://youtu.be/afVX3mlNB80 2. https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/thyroid-hormone-release 3. https://byjus.com/biology/thyroid-hormone/ 	<p>C1 C2 C2 C1 C2 C2</p>	SDL	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE SDL Evaluation</p>
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	<ul style="list-style-type: none"> • Enlist disorders of thyroid gland • Discuss in detail causes, symptoms, diagnosis and treatment of hyperthyroidism • Discuss in detail causes, symptoms, diagnosis and treatment of hypothyroidism • Compare hypothyroidism with hyperthyroidism • Differentiate between pituitary dwarfism and cretinism 	<ul style="list-style-type: none"> • Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 19, Page 344,345) • Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 425) • Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 773) • Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 52,Page 861) 	<ol style="list-style-type: none"> 1. https://www.hopkinsmedicine.org/health/conditions-and-diseases/disorders-of-the-thyroid 2. https://youtu.be/0vnpmaS157c 	<p>C1 C2 C2 C2 C2</p>	SDL	<p>MCQ SEQ VIVA VOCE MCQ (LMS based Assessment,MS T based Assessment) OSPE SDL Evaluation</p>

		<ul style="list-style-type: none"> Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 77, Page 950) 				
Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	<ul style="list-style-type: none"> Discuss normal levels and metabolism of calcium and phosphate Describe the effects of hypocalcemia & hypercalcemia Explain the absorption and excretion of calcium and phosphate Discuss in detail bone physiology Describe the steps involved the activation of Vitamin D Discuss the actions of vitamin D Describe the physiological anatomy of parathyroid glands Describe the chemistry & regulation of secretion of parathyroid hormone Explain the actions of parathyroid hormones <p>Describe functions and regulation of calcitonin</p>	<ul style="list-style-type: none"> Ganong's Review of Medical Physiology.25TH Edition.Section 03 (Chapter 21, Page 375-386) Physiology by Linda S. Costanzo 6th Edition. Endocrine Physiology (chapter 09, page 448) Human Physiology by Dee Unglaub Silver thorn. 8TH Edition.(Chapter 23,Page 777,779) Physiological Basis of Medical Practice by Best & Taylor's.13th Edition. Section 07(Chapter 54,Page 881,890) <p>Textbook of Medical Physiology by Guyton & Hall.14th Edition..Section 14. (Chapter 80, Page 991)</p>	<p>1. https://youtu.be/JYQL7JEsF_4</p> <p>2. https://teachmephiology.com/biochemistry/electrolytes/calcium-regulation</p>	<p>C2</p> <p>C1</p> <p>C2</p> <p>C2</p> <p>C1</p> <p>C2</p> <p>C1</p> <p>C1</p> <p>C2</p> <p>C1</p>	SDL	<p>MCQ</p> <p>SEQ</p> <p>VIVA VOCE</p> <p>MCQ (LMS based</p> <p>Aseessment,MS</p> <p>T based</p> <p>Assessment)</p> <p>OSPE</p> <p>SDL Evaluation</p>

Biochemistry Self Directed Learning (SDL)

Topic	At The End Of SDL Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	Learning Resources
Classification & Mechanism of action of Endocrine Hormones	<ul style="list-style-type: none"> Classify Endocrine Hormones 	C1	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 482-484 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 265-266 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6761896/ https://www.youtube.com/watch?v=KSclrk_Ako
	<ul style="list-style-type: none"> Discuss the Mechanism of action of various Endocrine Hormones 	C2			
Formation & Mechanism of action of Thyroid Hormone	<ul style="list-style-type: none"> Elaborate the nature, formation, mechanism of action and related diseases of Thyroxin 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 492-493 and 498 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 29, pages 452-454 https://www.nature.com/articles/boneres201311 https://www.youtube.com/watch?v=cDGmsR2ZILE
Synthesis & Mechanism of Action of Adrenocortical Hormones	<ul style="list-style-type: none"> Describe synthesis, mechanism of action and functions of Aldosterone, Cortisol and Adrenal androgens Discuss related clinical disorders 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter 41, pages 485-488, 491- 492, and 495-496, 498-499 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 18, pages 262-266 https://www.ncbi.nlm.nih.gov/books/NBK470339/ https://www.youtube.com/watch?v=JII5N2N4d-k https://www.sciencedirect.com/topics/medicine-and-dentistry/adrenal-medulla https://www.youtube.com/watch?v=afzWLmd72Rk
	<ul style="list-style-type: none"> Describe mechanism of action and role of Adrenal Medullary Hormones Discuss related diseases 	C2			
Synthesis & Mechanism of Action of Insulin & Glucagon	<ul style="list-style-type: none"> Explain formation, mechanism of action and role of Insulin and Glucagon Discuss related diseases 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> Harper's Illustrated Biochemistry 32nd edition, chapter pages 493-494 Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapter 23, pages 341-354 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6515536/ https://www.youtube.com/watch?v=1c6a0BNsyek https://www.youtube.com/watch?v=-3J6QRMerQE

<p>Glucose Tolerance Test Curves Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State Online Clinical Evaluation</p>	<ul style="list-style-type: none"> • Normal & abnormal curves of glucose tolerance test and factors effecting it. Interpretation of GTT curves for Diabetes Mellitus • Hypoglycemia, Hyperglycemia & Diabetic ketoacidosis 	C2	SDL	MCQs SAQs Viva	<ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32nd edition, chapter pages 719-720, 136-138 & 469-470 2. Lippincott Illustrated Reviews, Biochemistry, 8th Edition, chapters 23 & 25, pages 350-354 & 375-387 <p>https://www.ncbi.nlm.nih.gov/books/NBK532915/ https://www.youtube.com/watch?v=SRZIYdQWO3g https://www.ncbi.nlm.nih.gov/books/NBK279052/ https://www.youtube.com/watch?v=jCf7W1U4JKE https://www.ncbi.nlm.nih.gov/books/NBK534841/</p>
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Histology Practicals Skill Laboratory (SKL)

Topic	Learning Objectives At the end of practical students should be able to	Learning Domain	Teaching Strategy	Assessment Tool
Histology of pituitary gland	• Identify the histological slide of the pituitary gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pituitary gland	C2		
	• Enlist two points of identification	C1		
Histology of adrenal gland	• Identify the histological slide of the adrenal gland	P	Skill Lab	OSPE VIVA
	• Illustrate the histological structure of the adrenal gland	C2		
	• Enlist two points of identification	C1		
Histology of thyroid and parathyroid gland	• Identify the histological slide of the thyroid and parathyroid gland	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the thyroid and parathyroid gland	C2		
	• Enlist two points of identification	C1		
Histology of pancreas	• Identify the histological slide of the pancreas	P	Skill lab	OSPE VIVA
	• Illustrate the histological structure of the pancreas	C2		
	• Enlist two points of identification	C1		

Physiology Practicals Skill Laboratory (SKL)

Topic	At The End Of Lecture Students Should Be Able To	References	Learning Resources	Learning Domains	Learning Strategy
Examination of pupillary reaction	<ul style="list-style-type: none"> • Principle • Procedure • Precautions • Clinical correlation OF Pupillary Reactions 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment
Checking for color vision	<ul style="list-style-type: none"> • Apparatus identification • Principle • Procedure • Precautions • Clinical correlation for color vision 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3/C1	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment
Revision of practical	<ul style="list-style-type: none"> • Revision 	Practical Notebook of Physiology First year MBBS by Dr Saqib Sohail	A3/P3	Practicals /skill lab	Viva Voce Ospe Video Assisted Assessment

Biochemistry Practicals Skill Laboratory (SKL)

Topic	At The End Of Practical Students Should Be Able To	C/P/A	Teaching Strategy	Assessment Tool
Estimation of Blood Glucose	<ul style="list-style-type: none"> • Perform estimation of glucose by spectrophotometer 	P	Skill lab	OSPE
GTT	<ul style="list-style-type: none"> • Explain the procedure of practical, normal & abnormal curves of glucose and factors effecting it Interpret the result of GTT 	P	Skill lab	OSPE

SECTION - III

Basic and Clinical Sciences (Vertical Integration)

Content

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

Case Based Learning Objectives (CBL)

Subjects	Topics	At the end of the session the student should be able to	Learning Domains
Anatomy	<ul style="list-style-type: none"> Multi Nodular Goitre with Hypothyroidism 	Apply basic knowledge of subject to study clinical case.	C3
	<ul style="list-style-type: none"> Torticollis 	Apply basic knowledge of subject to study clinical case.	C3
Physiology	<ul style="list-style-type: none"> Adrenocortical Hormone 	Apply basic knowledge of subject to study clinical case	C3
Biochemistry	<ul style="list-style-type: none"> Thyrotoxicosis 	Apply basic knowledge of subject to study clinical case.	C3
	<ul style="list-style-type: none"> Addison's Disease 	Apply basic knowledge of subject to study clinical case	C3

Vertical Integration LGIS Pathology

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Pituitary disorders	<ul style="list-style-type: none"> Discuss pathogenesis of pituitary adenomas 	C2	LGIS	MCQ's
	<ul style="list-style-type: none"> Causes of hypopituitarism and posterior pituitary syndromes 	C2		
Calcium metabolism disorders	<ul style="list-style-type: none"> Describe pathogenesis of Tetany 	C2	LGIS	MCQ's
	<ul style="list-style-type: none"> Causes of Hypoparathyroidism and Hyperparathyroidism (primary and secondary) 	C2		
	<ul style="list-style-type: none"> Describe the pathogenesis of Rickets and Osteomalacia 	C2		
	<ul style="list-style-type: none"> Describe the pathological features of Osteoporosis and osteopetrosis 	C2		
Adrenocortical disorders	<ul style="list-style-type: none"> Define and discuss pathogenesis of 	C2	LGIS	MCQ's
	<ul style="list-style-type: none"> Addison's disease and Conn's syndrome 	C2		
	<ul style="list-style-type: none"> Describe the pathogenesis of Cushing syndrome 	C2		
	<ul style="list-style-type: none"> Explain dexamethasone suppression test and its role in diagnosis 	C2		
	<ul style="list-style-type: none"> Define diabetes 	C1		

Diabetes mellitus	• Classify diabetes	C2	LGIS	MCQ's
	• Discuss pathogenesis of type I and type II diabetes mellitus	C2		
Diagnosis of thyroid	• Define hypothyroidism and hyperthyroidism	C1	LGIS	MCQ's
	• Extract lab diagnosis of hypothyroidism and hyperthyroidism	C2		
	• Describe clinical features of hyper and hypothyroidism	C2		

Medicine

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Hypothyroidism and hyperthyroidism	• Discuss discuss pathophysiology, clinical manifestations of hypothyroidism and hyperthyroidism	C2	LGIS	MCQ
	• Workup and management	C2		
Hypocalcemia and hypercalcemia	• Discuss pathophysiology, clinical manifestations of hypocalcemia and hypercalcemia	C2	LGIS	MCQ
	• Workup and management	C2		
Diabetes mellitus	• Discuss pathophysiology, clinical manifestations of type I and type II diabetes mellitus	C2	LGIS	MCQ
	• Discuss Workup and management	C2		
Syndrome of inappropriate ADH secretion (SIADH).	• Define and discuss pathophysiology	C2	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		
Cushing syndrome	• Define and discuss pathophysiology	C1	LGIS	MCQs
	• Discuss the causes	C2		
	• Describe clinical features	C2		
	• Describe the management	C2		

Surgery

Topic	At the end of this LGIS students of should be able to:	Learning Domain	Teaching Strategy	Assessment Tool
Thyroid	• Enlist swellings in front of neck	C1	LGIS	MCQ
	• How to differentiate swellings in neck	C2		
	• Explain What is Hyperthyroidism	C2		
	• What is Hypothyroidism	C2		
	• Appreciate MNG	C2		
	• Appreciate Solitary Nodule	C2		
	• Appreciate Toxic Nodule	C2		
	• Outline the investigations for Thyroid pathologies	C2		
Adrenal Tumours	• Enlist hormones secreted by Adrenal Gland	C2	LGIS	MCQ
	• Describe Clinical Manifestations of different adrenal disease	C2		
	• Outline the management plan	C2		
Diabetic foot	• Describe Diabetic Foot	C2	LGIS	MCQ
	• Classify Diabetic foot	C1		
	• Describe Pathophysiology of Diabetic foot	C2		
	• Outline Management of Diabetic foot	C2		

Gynaecology & Obstetrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine disorders in pregnancy (diabetes mellitus, thyroid disorders)	Diabetes Mellitus:	C2	LGIS	MCQs
	• Know why pregnancy is a diabetogenic state			
	• Define gestational diabetes mellitus (GDM)	C1		
	• Correlate clinical features with pathophysiology of GDM	C2		
	• Outline brief management plan for these conditions	C2		
	• Know the methods for screening of diabetes in pregnancy	C2		

	<ul style="list-style-type: none"> • Thyroid disorders: 	C1		
	<ul style="list-style-type: none"> • Know pathophysiology of common thyroid disorders during pregnancy 	C2		
	<ul style="list-style-type: none"> • Understand clinical presentation of thyroid disorders in pregnancy 	C2		
	<ul style="list-style-type: none"> • Comprehend effects of thyroid disorders on mother and fetus 	C2		
Primary amenorrhoea/ delayed puberty	<ul style="list-style-type: none"> • Define primary amenorrhea, secondary amenorrhea and oligomenorrhoea. 	C1	LGIS	MCQs
	<ul style="list-style-type: none"> • Enumerate the causes of amenorrhea: <ul style="list-style-type: none"> ➤ Hypothalamic ➤ Pituitary ➤ Ovarian ➤ Endometrial ➤ Structural 	C1		
	<ul style="list-style-type: none"> • Understand physical and hormonal changes at puberty / secondary sexual characteristics 	C2		
	<ul style="list-style-type: none"> • Know basic pathophysiology of disorders of puberty <ul style="list-style-type: none"> ➤ Precocious puberty ➤ Delayed puberty 	C2		
	<ul style="list-style-type: none"> • Identify clinical features of precocious puberty 	C1		

Padiatrics

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Endocrine Problems	<ul style="list-style-type: none"> • Differentiate between the clinical features of hypothyroidism 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> • Interpret the investigations required for diagnosis of hypothyroidism 	C2	LGIS	MCQs

Radiology & Artificial Intelligence

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Basics of Radiology	<ul style="list-style-type: none"> Categorize different tissues from most to least opaque on x-ray including: bone, soft tissue, air, metal, and fat 	C2	LGIS	MCQs
	<ul style="list-style-type: none"> Distinguish between the different types of contrast used in imaging exams and the potential diagnostic benefits of each 	C2	LGIS	MCQs

Behavioural Sciences

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool
Psychosocial Assessment	<ul style="list-style-type: none"> To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases. 	C2	LGIS	MCQs
Psychosocial Assessment	<ul style="list-style-type: none"> To be able to do a detailed interview keeping in mind the psychological and social aspects in predisposing, precipitating and maintaining diseases. 	C2	LGIS	MCQs

Biomedical Ethics & Professionalism

Topic	At The End Of Lecture Students Should Be Able To	Learning Domain	Teaching Strategy	Assessment Tool	
History of Medical Ethics	<p>Discussion on Health Research ethics focusing;</p> <ul style="list-style-type: none"> •Historical perspective of Tuskegee studies, Willow brook Experiment •Codes of medical ethics: traditional foundations and contemporary practice •Nuremburg code, Belmont report, Declaration of Helsinki and importance of historical background of ethics in current research trends • General ethical principles including explanation of 04 basic principles of Beneficence, non-maleficence, respect and justice. <ul style="list-style-type: none"> - Interpretation research ethics for; - Informed consent and confidentiality in research HR 	<p>At the end of the session students should be able to;</p> <ul style="list-style-type: none"> • Explain the meaning of the term “ethics”. C1 • Describe the historical perspective of global development of medical ethics. C1 • Describe the codes of medical ethics and their implications. C1 • Recognize ethical issues relevant to the case situation and apply the ethical codes as appropriate. C2 • Discuss the development of indigenous ethical codes in the South-East Asian Region. C2. <ul style="list-style-type: none"> • Demonstrate sensitivity to cultural diversity in medical care. C3 	<p>LGIS 1hr contact session in 2-4 parallel classes, Conducted by Senior faculty.</p>	<p>1 MCQs of level C1 to C3 will cover this session teachings in relevant block examination in pool of total 04 MCQs. Result / marks obtained will contribute towards Internal assessment (IA) in 1st Prof. MBBS exam.</p>	<p>Guidelines and Teachers Handbook for Introducing Bioethics to Medical and Dental Students http://nbcPakistan.org.pk/assets/may-16-bioethics-facilitator-book---may-16%2C-2017.pdf The Nuremberg Code: http://www.hhs.gov/ohrp/archives/nurcode.html 10 WMA Declaration of Helsinki: http://www.wma.net/en/30publications/10policies/b3/ CIOMS Guidelines: http://www.cioms.ch/publications/layout_guide2002.pdf . Nuffield Council on Bioethics Guidelines: http://www.sirc.org/news/nuffield.shtml</p>

Integrated Undergraduate Research Curriculum (IUGRC)

Topics	At the end of the session the student should be able to:	Learning Domains	Teaching Strategy	Assessment Tool
Practice session 6	<ul style="list-style-type: none"> • Finalization of poster presentation • Submission at SJRMC/any other medical journal 	C3	Activity	MCQs

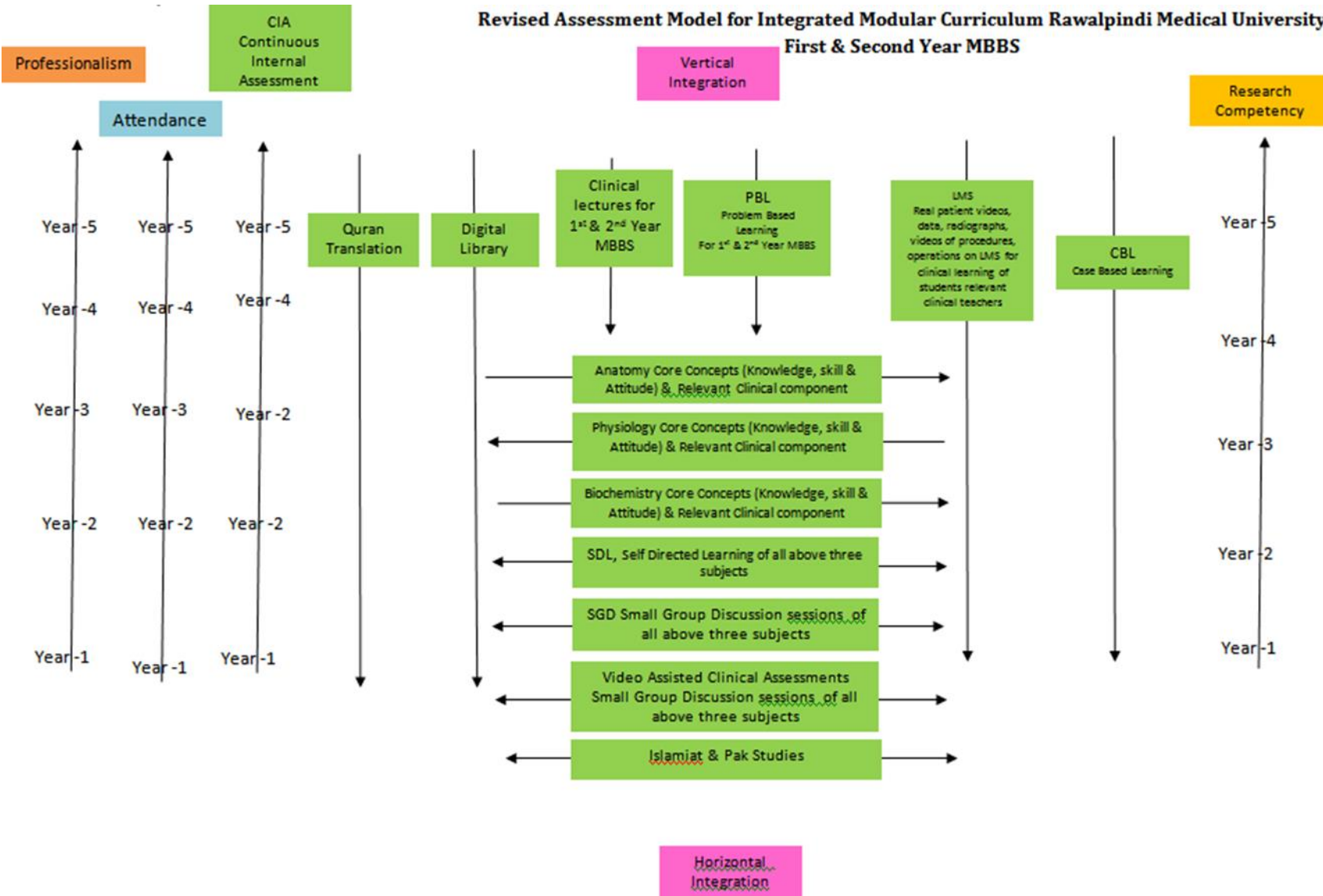
SECTION - IV

Assessment Policies

Contents

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

Revised Assessment Model for Integrated Modular Curriculum Rawalpindi Medical University First & Second Year MBBS



Gauge for Continuous Internal Assessment (CIA)

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

*50% and above is Passing Marks.

Gauge for attendance percentage

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

90% is eligibility criteria for appearing in professional examination.

Assessment plan

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

Types of Assessment:

The assessment is formative and summative.

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

Modular Assessment

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

Block Assessment

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

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

Table 4-Assessment Frequency & Time in Endocrinology Module

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

Learning Resources

Subject	Resources
Anatomy	<p>A. Gross Anatomy</p> <ol style="list-style-type: none"> 1. Gray's Anatomy by Prof. Susan Standring 42th edition, Elsevier. 2. Clinical Anatomy for Medical Students by Richard S. Snell 10th edition. 3. Clinically Oriented Anatomy by Keith Moore 9th edition. 4. Cunningham's Manual of Practical Anatomy by G.J. Romanes, 16th edition, Vol-I, II and III <p>B. Histology</p> <ol style="list-style-type: none"> 1. B. Young J. W. Health Wheather's Functional Histology 6th edition. 2. Medical Histology by Prof. Laiq Hussain 7th edition. <p>C. Embryology</p> <ol style="list-style-type: none"> 1. Keith L. Moore. The Developing Human 11th edition. 2. Langman's Medical Embryology 14th edition. <p>D. Website</p> <ol style="list-style-type: none"> 1. https://my.clevelandclinic.org/health/articles/9117-male-reproductive-system 2. https://teachmeanatomy.info/pelvis/female-reproductive-tract/ 3. https://www.kenhub.com/en/start/pelvis-and-perineum <p>E. Youtube</p> <ol style="list-style-type: none"> 1. https://www.youtube.com/watch?v=G0ZuCiCu3E 2. https://www.youtube.com/watch?v=50iuBgTQCrQ <p>F. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/pii/S0015028220304350 2. https://link.springer.com/article/10.1007/s11356-021-16581-9 3. https://link.springer.com/chapter/10.1007/978-3-030-30766-0_25 4. https://onlinelibrary.wiley.com/doi/abs/10.1111/and.13712
Physiology	<p>A. Textbooks</p> <ol style="list-style-type: none"> 1. Textbook of Medical Physiology by Guyton and Hall 14th edition. 2. Ganong 'S Review of Medical Physiology 26th edition. <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Human Physiology by Lauralee Sherwood 10th edition. 2. Berne & Levy Physiology 7th edition. 3. Best & Taylor Physiological Basis of Medical Practice 13th edition. 4. Guyton & Hall Physiological Review 3rd edition. <p>C. Website</p> <ol style="list-style-type: none"> 1. https://teachmephysiology.com/reproductive-system/ (Reproductive physiology)

	<ol style="list-style-type: none"> 2. https://courses.lumenlearning.com/wm-biology2/chapter/the-ovarian-cycle-the-menstrual-cycle-and-menopause/ 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.ibbiotech.com/en/info/sperm-capacitation/ <p>D. Youtube</p> <ol style="list-style-type: none"> 1. https://youtu.be/2_owp8kNMus (Female Reproductive system) 2. https://youtu.be/V9a2AQSJIMc (Dr Najeeb Lectures) https://youtu.be/rYVGjbmAtg (Dr Najeeb lectures) <p>E. HEC Digital Library</p> <ol style="list-style-type: none"> 1. https://www.sciencedirect.com/science/article/abs/pii/S1532045621000296 2. https://www.sciencedirect.com/science/article/abs/pii/S001502822200485X <p>F. Physiology Journals</p> <ol style="list-style-type: none"> 1. https://rupress.org/jgp/article/5/4/441/30794/THE-RATE-OF-DECLINE-OF-MILK-SECRETION-WITH-THE 2. https://www.annualreviews.org/doi/abs/10.1146/annurev.ph.36.030174.001515?journalCode=physiol 3. https://zerotofinals.com/obgyn/reproductivesystem/physiologyinpregnancy/ https://www.msmanuals.com/home/women-s-health-issues/normal-pregnancy/stages-of-development-of-the-fetus
Biochemistry	<p>Textbooks</p> <ol style="list-style-type: none"> 1. Harper's Illustrated Biochemistry 32th edition. 2. Lipponcott biochemistry 8th edition <p>B. Reference Books</p> <ol style="list-style-type: none"> 1. Lehninger Principle of Biochemistry 8th edition. 2. Biochemistry by Devlin 7th edition. <p>C. Website</p> <ul style="list-style-type: none"> • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-function • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/gonad-functionn • https://www.sciencedirect.com/topics/biochemistry-genetics-and-molecular-biology/purine-synthesis • https://www.sciencedirect.com/topics/medicine-and-dentistry/purine-metabolism-disorder • https://www.cliffsnotes.com/study-guides/biology/biochemistry-ii/purines-and- • https://www.healio.com/hematology-oncology/learn-genomics/genomics-primer/regulation-of-gene-expression-in-eukaryote <p>D. Youtube</p> <ul style="list-style-type: none"> • https://www.youtube.com/watch?v=A5u_TY1A0t8 • https://www.youtube.com/watch?v=A5u_TY1A0t8

- <https://www.youtube.com/watch?v=VXWyWzbigrg>
- <https://www.youtube.com/watch?v=e2KFVvI8Akk>
- <https://www.youtube.com/watch?v=n7Uec8Jtr4E>
- <https://www.youtube.com/watch?v=J9jhg90A7Lw>

E. HEC Digital Library

- <https://www.ncbi.nlm.nih.gov/books/NBK29/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3243375/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4215161/>
- <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC378357/>
- <https://www.nature.com/scitable/topicpage/regulation-of-transcription-and-gene-expression-in-1086/>

F. Biochemistry Journals

- <https://academic.oup.com/bmb/article/11/2/126/256755>
- <https://www.sciencedirect.com/topics/medicine-and-dentistry/gonadal-hormone>

SECTION - V

Time Table

Integrated Clinically Oriented Modular Curriculum for Second Year MBBS

Endocrinology Module Time Table

Second Year MBBS

Session 2021-2022

Batch- 49

Endocrinology Module Team

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

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

Discipline wise Details of Modular Contents

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

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

Category A*	Category B**	Category C***			
		Demonstrations / SGD	CBL	SKL/Practical's	Self-Directed Learning (SDL)
<ul style="list-style-type: none"> Special Embryology 	<ul style="list-style-type: none"> Special Histology 	<ul style="list-style-type: none"> Bones of neck Hyoid Bone & Cervical vertebrae Fascias of Neck Superficial structures of neck Lateral-cervical region (Muscles & triangles) Lateral-cervical-region (Neurovascular organization) Anterior-cervical region (Muscles) Anterior-cervical region (Vessels of neck & cervical plexus) Submandibular region Soft palate Deep structures of neck Root of neck Thyroid & Parathyroid gland Larynx Pharynx Pancreas 	<ul style="list-style-type: none"> Multi Nodular Goitre with Hypothyroidism Torticollis 	<ul style="list-style-type: none"> pituitary gland Thyroid & parathyroid gland Adrenal gland pancreas 	<ul style="list-style-type: none"> Bones of neck SCM region & superficial & deep fascia lateral cervical region Anterior Triangle of neck & its subdivisions Thyroid and para thyroid gland <li style="background-color: yellow;">Online SDL Evaluation SDL Anatomy soft palate, larynx

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrator

Teaching Staff / Human Resources of Department of Anatomy

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

Contact Hours (Faculty)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$6*2=12$
2.	Small Group Discussions (SGD)	$15*2+2*1=32$
3.	Practical / Skill Lab	$20*1.5=30$

Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	$1 * 6 = 06$ hours
2.	Small Group Discussions (SGD)	$2*15 = 32$ hours
3.	Practical / Skill Lab	$1.5 * 4 = 06$ hours
4.	Self-Directed Learning (SDL)	$2 * 4 = 08$ hours

Physiology

Category A	Category B	Category C
Thyroid hormone: Production, storage and release (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Hypothalamic–pituitary axis& GH (By Dr. Kamil)	CBL: Adrenocortical Hormone
Physiology of accommodation and clinical abnormalities (By Prof. Dr. Samia Sarwar / Dr. Uzma)	Abnormalities of growth hormone secretion (By Dr. Kamil)	PBL:
Physiological role of thyroid hormone (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Insulin and glucagon:	Practical: 1. Examination of pupillary reaction 2. Checking for color vision 3. Revision of practica
	Structure and metabolic functions (By Dr. Fareed)	
Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) (By Prof. Dr.Samia Sarwar / Dr. Iqra)	Hormones of posterior pituitary gland (oxytocin and ADH) (By Dr. Kamil)	SGD: 1. Signal transduction & Growth hormone. 2. Thyroid Hormones 3. Insulin and Glucose Metabolism 4. Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism 5. Insulin and Glucagon:Structure and metabolic functions (Second week) 6. Adrenal gland and its hormones (Fourth week)
	Regulation of blood Glucose & Diabetes mellitus (By Dr.Fareed)	
` Introduction to endocrinology & Signal transduction -I (By Dr. Shmyla)	Aldosterone and cortisol (By Dr.Sheena)	SDL: (ON CAMPUS) 1. Regulation of blood Glucose & Diabetes mellitus 2. Abnormalities of adrenocortical hormone 3. Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)
	Abnormalities of adrenocortical hormone (By Dr.Sheena)	
Introduction to endocrinology & Signal transduction- II (By Dr. Shmyla)	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin) (By Dr.Fahad)	(OFF CAMPUS) 1. Hypothalamic–pituitary axis & GH 2. Introduction to endocrinology & Signal transduction 3. Insulin and glucagon 4. Aldosterone and cortisol 5. Thyroid hormone 6. Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism) 7. Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin

Category A*: By Professors

Category B:** By Associate & Assistant Professors

Category C*:** By Senior Demonstrators & Demonstrators

Teaching Staff / Human Resources of Department of Physiology

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

Contact Hours (Faculty) & Contact Hours (Students)

Sr .#	Hours Calculation for Various Type of Teaching Strategies	Total Hours
1.	Large Group Interactive Session (LGIS)	1. 14 * 1= 14 hours
2.	Small Group Discussions (SGD) Case based learning (CBL)	1.5 * 4 = 6 hours + 2 hrs = 8 hours
3.	Problem based learning (PBL)	--
4.	Practical / Skill Lab	1.5 * 3 = 4.5 hours
5.	Self- Directed Learning	3x1=3hours (on campus) + 7x1=7hours (off campus) = 10hours

Biochemistry

Category A*	Category B**	Category C***			
LGIS	LGIS	PBL	CBL	Practical's	SGD
<ul style="list-style-type: none"> Insulin & Glucagon 	<ul style="list-style-type: none"> Classification & mechanism of action of hormones, Calcium metabolism (Revisit) Thyroid Hormones Adrenocortical Hormones Blood Glucose Regulation 		<ul style="list-style-type: none"> Thyrotoxicosis Addison's Disease 	<ul style="list-style-type: none"> Blood Glucose Estimation Glucose Tolerance Test Glucose Tolerance Test Revision Practical Revision/Completion of practical notebooks 	<ul style="list-style-type: none"> Classification & mechanism of action of Endocrine Hormones Adrenocortical Hormones

Category A*: By HOD and Assistant Professor

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

Category C*:** (By All Demonstrators)

Teaching Staff / Human Resource of Department of Biochemistry

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

Contact Hours (Faculty) & Contact Hours (Students)

Sr. #	Hours Calculation for Various Type of Teaching Strategies	Total Hours (Faculty)	Total Hours (student)
1.	Large Group Interactive Session (LECTURES)	$2 * 8 = 16\text{hours}$	08
2.	Small Group Discussions (SGD)	$1.5 * 5 = 7.5 * 4 = 30\text{ hrs}$	6
3.	Problem Based Learning (PBL)	Zero	zero
4.	Practical / Skill Lab	$1.5 * 5 = 7.5 * 4 = 30\text{ hrs}$	6
5.	Self-Directed Learning (SDL)	-----	07

Endocrinology Module (First Week) (18-09-2023 To 23-09-2023)

Date / Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)	
18-09-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		Paper Discussion by Departments	SGD/DISECTION	
		Introduction to endocrinology & Signal transduction-I Dr.Shmyla (Even)	Hypothalamic–pituitary axis& GH Dr.Kamil (Odd)	Development of pituitary& pineal gland Asst Prof Dr. Maria Tasleem (Even)	Histology of pituitary& pineal gland Prof. Dr Ifra Saeed (Odd)			Bones of neck Hyoid bone& Cervical Vertebrae
19-09-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		
		Hypothalamic–pituitary axis& GH Dr Kamil (Even)	Introduction to endocrinology & Signal transduction-I Dr. Shmyla (Odd)	Histology of pituitary & pineal gland Asst Prof Dr. Maria Tasleem (Even)	Development of pituitary& pineal gland Prof. Dr Ifra Saeed (Odd)	Classification & Mechanism of action of Endocrine Hormone, Dr. Isma (Even)	Thyroid Hormone Dr. Almas (Odd)	SGD/DISECTION
20-09-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		RESEARCH ACTIVITY				
		Introduction to endocrinology & Signal transduction-II Dr. Shmyla (Even)	Abnormalities of growth hormone secretion Dr. Kamil (Odd)	Poster Presentaion Supervised by Dr. Sdira Hamid		Dr. Imran (Even)		Dr. Abdul Qadoos
21-09-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		RADIOLOGY		PBL SESSION-I		SGD/DISECTION
		Abnormalities of growth hormone secretion Dr. Kamil (Even)	Abnormalities of growth hormone secretion Dr. Shmyla (Odd)	Basics of Radiology		SECOND YEAR TEAM Supervised by Dr. Sdira Hamid		
22-09-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM	
	BEHAVIOURAL SCIENCES LGIS		PHYSIOLOGY (LGIS)		SGD/DISECTION			
	Professionalism in healthcare Dr. Zarnain Umar (even) Dr. Sadia Yasir (odd)		Insulin and Glucagon:Structure and metabolic functions Dr. Fareed (Even)	Hormones of posterior pituitary gland (Oxytocin and ADH) Dr. Kamil (Odd)	Lateral cervical region (Neurovasscular Organization)			
23-09-2023 Saturday	Practical & CBL/SGD Topic mentioned at the end	PEADS		ANATOMY		Physical Activity		SGD/DISECTION
		Growth problems due to Endocrine causes Dr. Hina Sattar		Development of thyroid and parathyroid gland Dr. Prof. Ifra Saeed (Even)	Histology of thyroid and para thyroid gland Asst Prof Dr. Maria Tasleem (Odd)			

Break

Break

Topics For Practical With Venue						Topics For Small Group Discussion & CBLs With Venue				
<ul style="list-style-type: none"> Pituitary gland (Anatomy, Histology Practical) Blood glucose estimation (Biochemistry practical) Examination of pupillary reaction (Physiology practical) 						<ul style="list-style-type: none"> Anatomy CBL: Torticollis Physiology SGD: Signal transduction & Growth hormone. Biochemistry SGD: Classification of Endocrines Hormone & Adrenocortical Hormone 				
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion				
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue	
Monday	C	B	E	A	D	A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04	
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3	
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01	
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03	
Saturday	A	E	C	D	B					
VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers	
Batches	Roll No	Venue							Biochemistry	Physiology
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen		1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen		2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil		3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)		4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)		5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL)		Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)						Odd Roll Numbers
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman		Even Roll Number	New Lecture Hall Complex Lecture Theater # 04			
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY										
<ul style="list-style-type: none"> Classification of Hormones Mechanism of Action of Hormones 										

Endocrinology Module (Second Week) (25-09-2023 To 30-09-2023)

Date /Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm-12:20pm	12:20pm – 2:00pm	Home Assignments(2HRS)			
25-09-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		Break	SGD/DISSECTION	SDL Anatomy lateral cervical region
		Hormones of posterior pituitary gland (Oxytocin and ADH)	Insulin and Glucagon: Structure and metabolic functions	Histology of thyroid parathyroid gland	Development of thyroid & parathyroid gland	Thyroid Hormone	Classification & Mechanism of action of Endocrine Hormone,		Anterior cervical region (Vessels of Neck)	
26-09-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOCHEMISTRY (LGIS)		PBL SESSION II			SGD/DISSECTION	SDL Anatomy Anterior Triangle of neck & its subdivisions
		Regulation of blood Glucose & Diabetes mellitus	Aldosterone and Cortisol	Insulin & Glucagon - I	Parathyroid Hormone & Calcitonin	Second year PBL team Supervised by Dr. Sdira Hamid			Neves of Neck	
27-09-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		RESEARCH CLUB ACTIVITY					SGD/DISSECTION	SDL Physiology Insulin and Glucagon
		Aldosterone and Cortisol	Regulation of blood Glucose & Diabetes mellitus	Poster Presentation Supervised by Dr. Sdira Hamid		Dr. Abdul Qadoos (Even)			Submandibular region	
28-09-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOMEDICAL ETHICS		SGD/DISSECTION		SGD/DISSECTION	SDL Physiology Aldosterone and Cortisol	
		Thyroid hormone: Production, storage and release	Abnormalities of adrenocortical hormone	History of Medical Ethics Supervised by Dr. Sdira Hamid		Root of neck (arteries, veins & nerves)		Deep structures of neck, prevertebral muscles		
29-09-2023 Friday	National Holiday (12th Rabi ul Awal)							SGD/DISSECTION	SDL Biochemistry Synthesis & Mechanism of Action of Adrenocortical Hormones	
	Saturday 30-09-2023	Practical & CBL/SGD Topic mentioned at the end	PATHOLOGY		PHYSIOLOGY (LGIS)		SGD/DISSECTION			CBL/DISECTION
Hypothyroidism and hyperthyroidism			Abnormalities of Adrenocortical hormone	Thyroid hormone: Production, storage and release	Soft palate		Thyroid & Parathyroid glands	SDL Biochemistry Type I & II Diabetes Mellitus Glucose Tolerance Test Curves		
		Dr. Nida Fatima (even)	Dr. Faiza Zafar (Odd (odd))	Dr. Sheena (Even)	Prof. Dr.Samia Sarwar/ Dr. Iqra (Odd)					

Topics For Practical With Venue						Topics For Small Group Discussion & CBLs With Venue			
<ul style="list-style-type: none"> Thyroid & Parathyroid gland (Anatomy, Histology) Practical G.T.T (Biochemistry practical) Checking for color vision (Physiology practical) (Physiology practical) 						<ul style="list-style-type: none"> Anatomy CBL: Multi Nodular Goitre with Hypothyroidism Physiology SGD: Thyroid Hormones Biochemistry CBL: Addison's Disease 			
Schedule For Practical / Small Group Discussion						Venue For Second Year Batches For Anatomy Dissection / Small Group Discussion			
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue
Monday	C	B	E	A	D	A	01-90	Dr. Maryam Sohail	New Lecture Hall Complex Lecture Theater # 04
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03
Saturday	A	E	C	D	B				
VENUE FOR SECOND YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers
Batches	Roll No	Venue					Biochemistry	Physiology	
Batch-A1	(01-35)	New Lecture Hall complex no.01		Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin
Batch-A2	(36-70)	New Lecture Hall complex no.04		Dr. Shazia Nosheen	2.	Batch –B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen
Batch-B1	(71-105)	Demo Room (Basement)		Dr. Kamil	3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman
Batch-B2	(106-140)	Demo Room (Basement)		Dr. Iqra Ayub (PGT Physiology)	4.	Batch –D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub
Batch-C1	(141-175)	Demo Room (Basement)		Dr. Nayab (PGT Physiology)	5.	Batch -E	281- onwards	Dr. Almas Ijaz	Dr. Kamil Tahir
Batch-C2	(176-210)	Demo Room (Basement)		Dr. Maryam (PGT Physiology)					
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)		Dr. Ali Raza (PBL)	Venues for Large Group Interactive Session (LGIS) and SDL				
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)		Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)					Odd Roll Numbers
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)		Dr. Muhammad Usman	Even Roll Number	New Lecture Hall Complex Lecture Theater # 04			
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology		Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)					
TOPIC DETAILS OF SDL BIOCHEMISTRY									
<ul style="list-style-type: none"> Type I & II Diabetes Mellitus Glucose Tolerance Test Curves 									

Endocrinology Module (Third Week) (02-10-2023 To 07-10-2023)

Date / Day	8:00am-9:30am	9:30am – 10:20am	10:20am-11:10am	11:10am-12:00pm	12:00pm-12:20pm	12:00pm – 2:00pm	Home Assignments(2HRS)			
02-10-2023 Monday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		GYN&E & OBS		Break	SGD/DISECTION	SDL Physiology Thyroid Hormones
		Physiological role of thyroid hormone	Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Development of adrenal gland and pancreas	Histology of adrenal gland & pancreas	Endocrine disorders in pregnancy (diabetes mellitus, thyroid disorders)			Larynx & trachea	
03-10-2023 Tuesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		BIOCHEMISTRY LGIS		FAMILY MEDICINE		Break	SGD/DISECTION	SDL Biochemistry Hypoglycemia Diabetic Ketoacidosis & Hyperosmolar Hyperglycemic State
		Calcium homeostasis (Vitamin D, parathyroid hormone and calcitonin)	Physiological role of thyroid hormone	Parathyroid Hormone & Calcitonin	Insulin & Glucagon - I	Approach to Patient Diabetes mellitus			Alimentary layer Pharynx, esophagus	
04-10-2023 Wednesday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY LGIS		ANATOMY LGIS		BIOCHEMISTRY LGIS		Break	SGD/DISECTION	Anatomy SDL Temporal and Infra temporal region, Pterygopalatine fossa
		Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Histology of adrenal gland and pancreas	Development of adrenal gland and pancreas	Adrenocortical Hormones - I	Insulin & Glucagon - II		Dissection	
05-10-2023 Thursday	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY (LGIS)		BIOCHEMISTRY LGIS		BIOCHEMISTRY LGIS		Break	SGD/DISECTION	SDL Anatomy Thyroid and para thyroid gland Online clinical Evaluation
		Bone pathophysiology (rickets, osteomalacia, osteoporosis, hypo and hyperparathyroidism)	Abnormalities of thyroid hormone (Goiter, hypothyroidism and hyperthyroidism)	Insulin & Glucagon - II	Adrenocortical Hormones - I	Blood Glucose Regulation	Adrenocortical Hormones - II		Pancrease	
06-10-2023 Friday	8:00 AM – 9:00 AM		9:00 AM – 10:00 AM		10:00 – 11:00AM		11:00AM – 12:00PM		Break	SDL Physiology Abnormalities of
	BIOCHEMISTRY LGIS		ISLAMIAIYAT		SGD/DISECTION		SGD/DISECTION			
	Adrenocortical Hormones - II	Blood Glucose Regulation	Revision Class		Adrenal gland (revisit)		Adrenal gland (revisit)			
	Dr. Isma (Even)	Dr. Uzma Zafar (Odd)	Mufti Naem Sherazi							
Saturday 07-10-2023	Practical & CBL/SGD Topic mentioned at the end	PHYSIOLOGY SDL No.01		SGD/DISECTION		SGD/DISECTION		Break	SGD/DISECTION	SDL Anatomy soft palate, larynx
		Regulation of blood Glucose & Diabetes mellitus		Dissection/ Spooting		Dissection/ Spooting			Dissection/ Spooting	
		Dr Fareed (Even)	Dr Maryam (Odd)							

Topics For Practical with Venue						Topics For Small Group Discussion & CBLs With Venue			
<ul style="list-style-type: none"> Endocrinology, Adrenal gland & Pancrease (Anatomy, Histology Practical) G.T.T / Revision (Biochemistry practical) CBL: Adrenocortical hormones (Practical batch) student's presentations Lab 						<ul style="list-style-type: none"> Physiology SGD: Insulin and Glucose Metabolism Biochemistry CBL: Thyrotoxicosis 			
Schedule For Practical / Small Group Discussion						Venue For First Year Batches For Anatomy Dissection / Small Group Discussion			
Day	Histology Practical	Biochemistry Practical	Physiology Practical	Physiology SGD	Biochemistry SGD	Batches	Roll No	Anatomy Teacher	Venue
Monday	C	B	E	A	D	A	01-90	Dr. Maryam	New Lecture Hall Complex Lecture Theater # 04
Tuesday	D	C	A	B	E	B	91-180	Dr. Sadia Baqir	Anatomy Lecture Hall no. 3
Wednesday	E	D	B	C	A	C	181-270	Dr. Gaiti Ara	New Lecture Hall Complex Lecture Theater # 01
Thursday	B	A	D	E	C	D	271 onwards	Dr. Sajjad Hussain	New Lecture Hall Complex Lecture Theater # 03
Saturday	A	E	C	D	B				
VENUE FOR VENUE FOR FIRST YEAR BATCHES FOR PBL & SGD TEAM-II						Sr. No	Batch	Roll no	Names of Teachers
Batches	Roll No	Venue	Name			Biochemistry	Physiology		
Batch-A1	(01-35)	New Lecture Hall complex no.01	Dr. Aneela Yasmeen	1.	Batch – A	01-70	Dr. Nayab Ramzan	Dr Aneela Yasmin	
Batch-A2	(36-70)	New Lecture Hall complex no.04	Dr. Shazia Nosheen	2.	Batch – B	71-140	Dr. Uzma Zafar	Dr. Shazia Nosheen	
Batch-B1	(71-105)	Demo Room (Basement)	Dr. Kamil	3.	Batch – C	141-210	Dr. Romesa Naeem	Dr. Nayab / Dr. Usman	
Batch-B2	(106-140)	Demo Room (Basement)	Dr. Iqra Ayub (PGT Physiology)	4.	Batch – D	211-280	Dr. Rahat Afzal	Dr. Iqra Ayub	
Batch-C1	(141-175)	Demo Room (Basement)	Dr. Nayab (PGT Physiology)	5.	Batch -E	281-onwards	Dr. Almas Ijaz	Dr. Kamil Tahir	
Batch-C2	(176-210)	Demo Room (Basement)	Dr. Maryam (PGT Physiology)						
Batch-D1	(210-245)	Lecture Hall no.03 (First Floor)	Dr. Ali Raza (PBL)	Venues for Large Group Interactive Session (LGIS) and SDL					
Batch-D2	(246-280)	Anatomy Museum (First Floor Anatomy)	Dr. Almas (PBL) Dr. Najam-us-Sehar (SGD)	Odd Roll Numbers			New Lecture Hall Complex Lecture Theater # 01		
Batch-E1	(281-315)	Lecture Hall no.04 (First Floor Anatomy)	Dr. Muhammad Usman	Even Roll Number			New Lecture Hall Complex Lecture Theater # 04		
Batch-E2	(315 onwards)	Lecture Hall no.05 Physiology	Dr. Rahat (PBL) Dr. Fareed Ullah (SGD)						
TOPIC DETAILS OF SDL BIOCHEMISTRY									
<ul style="list-style-type: none"> Synthesis of Adrenocortical hormones Mechanism of Action of Adrenocortical Hormones 									

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

Endocrinology Module (Fourth Week)
(9-10-2023 To 14-10-2023)

Date / Days	Tentative Schedule for Endocrinology Sesnes Module Assessment	Time
09-10-2023 Monday	Assessment week	08:00am - 02:00pm
10-10-2023 Tuesday		08:00am - 02:00pm
11-10-2023 Wednesday		08:15am - 09:15am
12-10-2023 Thursday		08:15am - 09:15am
13-10-2023 Friday		08:15am - 09:15am
14-10-2023 Saturday		

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

SECTION-VI

Table of Specification (TOS) For Endocrinology Module Examination

Sr. #	Discipline	No. of MCQs (%)	No. of MCQs according to cognitive domain			No. of SEQs (%)		No. of SEQs according to cognitive domain			Viva voce	Total Marks
			C1	C2	C3	No. of items	Marks	C1	C2	C3		
1.	Anatomy	25	15	5	5	5	25	1	2	2	60	110
2.	Physiology	30	18	9	3	4	20	1	2	1	25	75
3.	Biochemistry	7	4	3	-	2	15	0.5	1.5	-	-	24
4.	Bioethics & Professionalism	6	-	3	3	-	-	-	-	-	-	6
5.	Research & Artificial Intelligence and Innovation	10	-	5	5	-	-	-	-	-	-	10
6.	Family Medicine	2	-	1	1	-	-	-	-	-	-	5
7.	Pathology	4	-	2	2	-	-	-	-	-	-	4
8.	Obs & Gynae	4	-	2	2	-	-	-	-	-	-	4
9.	Radiology	3	-	2	1							
10.	The Holy Quran Translation	10										
Grand Total											238	

Annexure I

(Sample MCQ, SEQ & OSPE)

Rawalpindi Medical University Department of Anatomy
MCQs 2nd Year MBBS
Endocrinology Module

1. A patient presents with hoarseness of voice. On indirect laryngoscopy, he is unable to abduct the vocal cords. The muscle paralysed is
 - a. posterior cricoarytenoid
 - b. vocalis
 - c. cricothyroid
 - d. aryepiglotticus
 - e. thyroepiglottic
2. During dissection of the pharynx a medical student observes a structure passing through the gap between superior and middle constrictors of pharynx. This structure is
 - a. auditory tube
 - b. glossopharyngeal nerve
 - c. recurrent laryngeal nerve
 - d. levatorveli palatini
 - e. internal laryngeal nerve
3. The only muscle of the soft palatethat is supplied by the 5th cranial nerve is
 - a. musculus uvulae
 - b. platoglossus
 - c. tensor vali palati
 - d. palatopharyngeus
 - e. levatorpalati
4. Muscles are important in opening the Eustachian tube for maintenance of barometric pressure. The nasopharyngeal opening of the auditory tube contains
 - a. Salpingopharyngeus
 - b. levator vali palatini
 - c. Palato glossus
 - d. Palato pharyngeus
 - e. musculus uvulae
5. A dengue patient presented with epistaxis. The doctor found that it was an anterior bleed from
 - a. pterygoid plexus
 - b. woodruff's plexus
 - c. pharyngeal plexus
 - d. kiessel back's plexus
 - e. palatal plexus

Rawalpindi Medical University Department of Anatomy
SEQs 2nd Year MBBS
Endocrinology Module

Q.1 A surgeon is performing total thyroidectomy for a patient of Thyroid carcinoma.

- a. What is the vascular supply of thyroid and parathyroid glands? (3)
- b. How can damage to right recurrent laryngeal nerve be avoided? (1)
- c. What are the features of recurrent laryngeal nerve damage? (1)

Q.3 A patient has been diagnosed with pituitary adenoma.

- a. Describe the development of pituitary gland. (2.5)
- b. Draw the structures that are related to the pituitary gland. (1.5)
- c. Which structure can be damaged because of the tumour? (1)

Rawalpindi Medical University Department of Physiology
MCQs 2nd Year MBBS
Endocrinology Module

1. Pituitary adenoma causes lesion of :
 - a. Optic nerve
 - b. Optic chiasm
 - c. Optic tract
 - d. Optic radiation
 - e. Visual cortex
2. The sour taste is caused by:
 - a. ketones
 - b. alcohol
 - c. amides
 - d. glycols
 - e. acids
3. A young boy was diagnosed with congenital anosmia, a rare disorder in which an individual is born without the ability to smell. Odorant receptors are:
 - a. located in the olfactory bulb
 - b. located on dendrites of tufted cells
 - c. located on neurons that project directly to the olfactory cortex
 - d. located on neurons in the olfactory epithelium
 - e. located on sustentacular cells
4. Following is true regarding Presbyopia:
 - a. occurs in infants
 - b. occurs because of progressive denaturation of the lens proteins
 - c. the lens grows & becomes far more elastic
 - d. power of accommodation increases
 - e. ability of the lens to change shape increases with age
5. In the utricle, tip links in hair cells are involved in:
 - a. formation of perilymph
 - b. depolarization of the stria vascularis
 - c. movements of the basement membrane
 - d. perception of sound
 - e. regulation of distortion-activated ion channels

Rawalpindi Medical University Department of Physiology
SEQs 2nd Year MBBS
Endocrinology Module

- Q.1 Give a brief account of formation and functions of aqueous humor. What is glaucoma? (2,2,1)
- Q.3 Enlist factors affecting Anti-Diuretic Hormone secretion? What do you know about Diabetes insipidus? (3,2)
- Q.2 Name the hormones produced by adrenal gland. Enlist the physiological actions of epinephrine. (2,3)

Rawalpindi Medical University Department of Biochemistry
MCQs 2nd Year MBBS
Endocrinology Module

1. Progesterone is a precursor in the formation of which one of the following:

- a. Mineralocorticoids
- b. Insulin
- c. Angiotensin II
- d. Follicle – stimulating hormone (FSH)
- e. Luteinizing hormone

3. Parathyroid hormone leads to:

- a. Low calcium in urine
- b. Low phosphate in urine
- c. Increase calcium in urine
- d. Both calcium and phosphate are increased in urine
- e. Both calcium and phosphate are decreased in plasma

2. Adrenal steroid hormone:

- a. Is synthesized in adrenal medulla
- b. Precursor is tyrosine
- c. Synthesis is not regulated
- d. Synthesis is stimulated by ACTH
- e. Are not synthesized from pregnenolone

4. Blood glucose level is decreased by the following hormone:

- a. Glucagon
- b. Insulin
- c. Thyroxin
- d. Cortisol
- e. Growth hormone

SEQ

Q. Describe role of insulin and glucagon in blood glucose regulation. 05

Rawalpindi Medical University Department of Bioethics
MCQs 2nd Year MBBS
Endocrinology Module

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

Rawalpindi Medical University Department of Anatomy
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 1 Min 30secs

Histology sketch copy will be assessed for

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

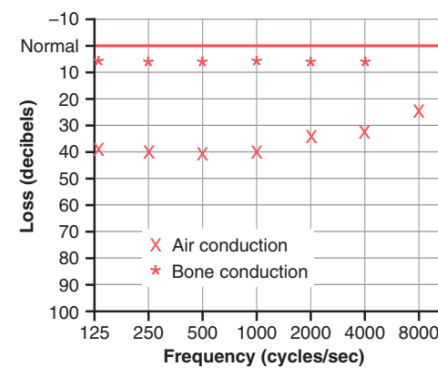
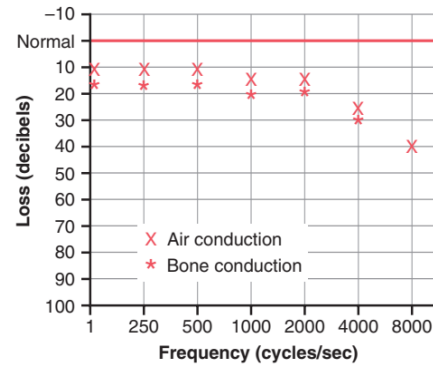
Station No. 2 Time Allowed: 1 Min 30 secs

- a. Identify **red** and give its nerve supply. (1)
- b. Identify **green** and write down its action. (1)
- c. Identify **yellow** and write down the name of the structure opening here (1)

Rawalpindi Medical University Department of Physiology
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1 Time Allowed: 3 Minutes

1. A man consulted his doctor for difficulty in hearing, his doctor decided to perform Tuning Fork test. Which tuning fork will he select ; (1)
2. Match the audio grams for given scenarios (2)

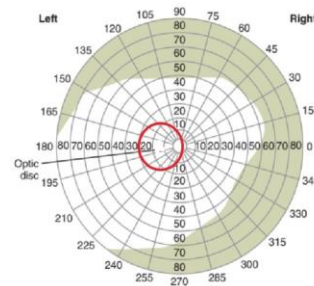


Scenario- 1: Rinnes negative in right ear

Scenario- 2: Weber Lateralized in right ear

Station No. 2 Time Allowed: 3 Minutes

1. Identify the apparatus & give its use. (0.5)
2. Give two precautions for this test. (0.5)
3. This tracing was obtained after examining a patient with visual disturbances, Interpret the graph provided. (2)



Rawalpindi Medical University Department of Biochemistry
OSPE 2nd Year MBBS
Endocrinology Module

Station No. 1

Time Allowed: 2 Mins

	Patient value	Reference range
T3	1.4 nmol/L	1.2-2.8nmol/L
T4	95 nmol/L	77-155 nmol/L
TSH	10 mU/L	0.4-4 mU/L

1. Interpret the above laboratory report. 01
2. Give any two causes. 02

Station No. 1

Time Allowed: 2 Mins

1. What are indications of Oral Glucose Tolerance Test? 03