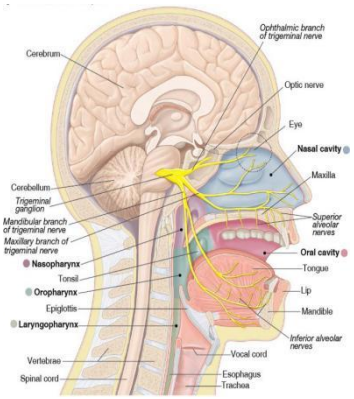
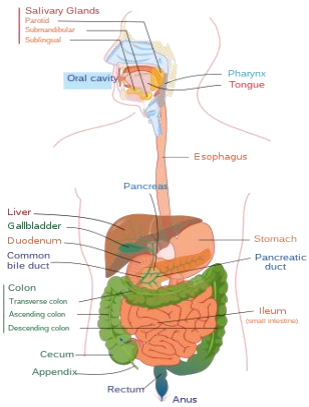
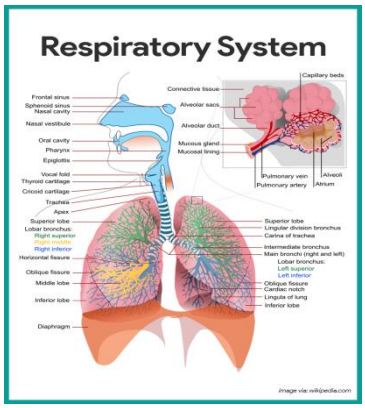
RIHS MEDICAL & DENTAL COLLEGE







CRANIOFACIAL MODULE (II) 10203
GIT & RESPIRATION MODULE 10204

Session 2025-26

FIRST YEAR BDS

STUDYGUIDE

BLOCK 2

PLANNED & DESIGNED BY:
DME , RIHS

Module 10203: CRANIOFACIAL MODULE II
Module 10204: GIT & RESPIRATION MODULE
Session 2023-24

Pre-requisite: Block 1

Teaching faculty & Curriculum committee members

	Disciplines	Name of Faculty
1.	**Principal**	**Prof. Dr. Saad Asad**
2.	**Anatomy**	**Dr. Maimoona Khan**
3.	**Physiology**	**Dr. Atiya**
4.	**Biochemistry**	**Dr. Maria Sarfaraz**
5.	**Oral Biology**	**Dr. Nabeela Abbasi**
6.	**Junior Prosthetics**	**Dr. Amna Amjad**
7.	**Junior Operatives**	**Dr. Hina Tariq**
8.	**Behavioral Sciences**	**Ms. Nargis Munir**
11.	**DME**	**Dr. Madiha Akhwand**
Block duration		**12 Weeks**
Module Coordinator		**Dr. Maimoona Khan** **Dr. Atiya**

Module Rationale:	This 12-week module in the RIHS curriculum focuses on the normal structures and functions of the gastrointestinal tract, cardiovascular and respiratory systems, and dental aspects. Centered on the head and neck region, it explores the correlation between developmental features and microscopic aspects of various systems. The module integrates structural, biochemical, and functional concepts, covering physiology, biochemistry, and oral biology to provide a comprehensive understanding of medical sciences in applied contexts.
Module Outcomes	◆ Detail the development of the pharyngeal apparatus and face, including the structure, function, neurovascular supply, and lymphatic drainage of musculoskeletal elements in the scalp, face, eye, ear, and cervical regions. ◆ Compare and contrast the microscopic anatomy of the lymphoid system and circulatory system. ◆ Analyze clinical problems associated with the craniofacial region. ◆ Explain the fundamental principles of cardiac physiology, heart function as a pump, and the interpretation of a normal echocardiogram. ◆ Discuss the functions of circulatory system components under physiological and pathological conditions, emphasizing blood pressure and blood flow regulation. ◆ Identify the basic processes in urine formation and discuss the kidneys' role in long-term blood pressure regulation. ◆ Examine the structure, classification, properties, and biomedical significance of carbohydrates, proteins, and lipids. ◆ Describe the causes and types of disorders related to carbohydrates, proteins, and lipids. ◆ Understand the structure, function, and development of oral mineralized tissues and their involvement in demineralization-remineralization processes. ◆ Comprehend the structure, development, and function of salivary glands, including the composition and clinical considerations of saliva. ◆ Demonstrate knowledge of the morphology of the crown and root of maxillary and mandibular premolars, including variations and anomalies associated with them. ◆ Describe the development of the tongue and palate, elucidating the structure and function of musculoskeletal elements, neurovascular supply, and lymphatic drainage of the nose and paranasal sinuses, oral cavity, palate, pharynx, and larynx within the head and neck region. ◆ Discuss and demonstrate knowledge of cranial nerves, including testing procedures, and comprehend the clinical effects of their injury. ◆ Understand the microscopic anatomy of the gastrointestinal and respiratory systems. ◆ Discuss the mechanisms governing movements and functions of the gastrointestinal tract. ◆ Discuss the pathophysiology of common gastrointestinal abnormalities. ◆ Describe the mechanisms involved in inspiration, expiration, and the transport of oxygen and carbon dioxide. ◆ Discuss the composition, function, and secretion of saliva, gastric juice, intestinal juice, and bile. ◆ Appreciate the processes of digestion and absorption of carbohydrates, proteins, and lipids, including associated hormones and disorders. ◆ Discuss the requirements, functions, and roles of macro minerals and trace elements, highlighting their clinical aspects. ◆ Understand the structure, development, and biomechanics of the temporomandibular joint. ◆ Describe the characteristics of normal occlusion position and categorize

	malocclusions using Angle's classification. ◆ Understand the structure, physiology, and function of the oral mucosa in protecting underlying structures by providing an effective permeability barrier.
Teaching & Learning Methodologies	**Interactive Lecture (IL):** The goal of interactive lecture is to engage the students' attention, through ways to interact with the content, the instructor, and their classmates. Accordingly, interactive lectures include segments of knowledge transfer combined with segments where students interact. One of the things that make the lecture interactive is the ability of the instructor to select the content of the lecture segments based on the students' needs. This demands a prior search for the baseline knowledge of the students at the start of the lecture. If students have difficulty answering a question, or an activity fails to develop the concept in most student groups, it's time to find a new and better way to deal with the material. LGIS clearly gives a better concept of the content and keeps students' attention captured throughout, as compared to yester years' didactic lectures. **Small Group Discussion (SGD):** 'The purpose and technique of small group teaching is that it is learner-centered, with all students joining in free discussion on a particular topic. A typical 'small group' is around eight to 12 learners facilitated by a teacher. The steps of SGD are Forming, Storming, Norming & Performing. The teacher acts only as a facilitator. Students are allowed to use their books or other search material during the discussion. SGD is a good method to clear the concepts and develop communication and conflict solving skills in the students. **Departmental teaching labs:** This is performance-based teaching & learning methodology where students learn handling and uses of laboratory equipment and models, safety rules and various clinical skills. **Dissection/ Model Demonstration:** Where necessary teaching of gross Anatomy is aided by cadaver dissection / model demonstration. **Problem based/ Task based/ Case based learning (PBL/TBL/CBL):** Students are presented with real life problems/tasks/cases. They are motivated through a standard process to seek answers to the given problem,task or case. This is a highly effective method to capture and maintain students' interest in patients' problems and their solution. **Self-directed learning (SDL):** is the basic requirement for the successful implementation of the PBL curriculum. Students need ample time to research for their learning needs. **Assignments and Presentations:** Both of methodologies are meant to make the students self-directed learners and good communicators by seeking knowledge from multiple sources and presenting it. **Multidisciplinary Seminars (MDS):** in which groups of students are encouraged to independently present topics of general interest before a larger audience. This encourages students to read beyond their textbooks and learn to support their knowledge with research. **Skill Lab Sessions:** students in groups will learn various behavioral and practical skills essential for a competent doctor. This will involve working with simulation aids, procedure demonstrations, role plays etc. **Web- based learning/Hybrid/Blended learning:** Refers to the type of learning that uses the Internet as an instructional delivery tool to carry out various learning activities. It can take the form of (1) a pure online learning in which the curriculum and learning are implemented online without face-to-face meeting between the instructor and the students, or (2) a hybrid in which the instructor meets the students half of the time online and half of the time in the classroom, depending on the needs and requirement of the curriculum. Discussion forums are being conducted via email, videoconferencing, and live lectures. **Flipped classroom:** A flipped classroom is an educational strategy

	where students are introduced to new content before class, freeing up in-class time for interactive, higher-order thinking activities, rather than traditional lectures or passive instruction.
Assessment methodology:	**1. Multiple Choice Questions (MCQs) : Single best type** **2. Short Essay Qestions (SEQs)** **3. Structured Viva** **4. Objective Structured Practical/Clinical Examination (OSPE /OSCE)**

CRANIOFACIAL II MODULE

S.N	Learning Objectives At the end of learning session, students will beable to:	MIT	AT	Cognitive Domain
	ANATOMY			
1.	**General Anatomy Circulatory system** • Describe the general featuresof Artery, vein & capillaries • Classify Artery, vein & capillaries with examples • Discuss types of anastomosiswith examples. • Interpret collateralcirculation • Identify and locate endarteries • Distinguish types of portal circulation with location and examples	IL	MCQs SEQs	C1, C2
2.	**Histology Circulatory system** • Describe the microscopic features of Artery, vein andcapillaries. • Differentiate between muscular and elastic artery • Compare the microscopicfeatures of artery and vein	IL x 2	MCQs SEQs	C1,C2
3.	• Identify the microscopic features of artery and veinon a given slide. • Draw and label the histological structure of artery, vein and capillaries	Practical Demonstration	OSPE	P
4.	**Histology: Lymphoid system** • Describe the characteristic features of lymphoid organs:lymph node, palatine tonsil, thymus and spleen • Compare and contrast the microscopic features of lymph node, palatine tonsil,	IL	MCQs SEQs	C1, C2

	thymus and spleen			
5.	• Identify the microscopic features of lymph node on agiven slide • Draw and label the microscopic features oflymph node • Identify the microscopic features of spleen on a givenslide • Draw and label the microscopic features ofspleen • Identify the microscopicfeatures of thymus on a given slide. • Draw and label the microscopic features of eachThymus • Identify the microscopic features of palatine tonsil ona given slide. • Draw and label the microscopic features of palatine tonsil	Practical Demonstration	OSPE SEQs	P
6.	**Embryology (Head and Neck)** **Pharyngeal Apparatus** • Discuss the origin of Mesenchyme in the head region • Describe the number, composition and shape ofPharyngeal arches • Tabulate the derivatives of Pharyngeal arches and their innervation • Outline the number & derivatives of pharyngealpouches • Discuss the fate of pharyngeal clefts andmembrane • Discuss the Clinical significance of pharyngealregion	IL	MCQs SEQs OSPE	C1, C2, C3
7.	**Development of Face** • Tabulate the structures derived from the facial prominences that contributein the development of face • Describe the craniofacial abnormalities that result from abnormal developmentof pharyngeal arches: Branchial sinus and fistulas,Ectopic thymus and parathyroid glands,Holoprosencephaly, Facial syndromes	IL Assignment	MCQs SEQs OSPE	C1, C2, C3

8.	**Goss Anatomy:Scalp** • Identify the different layersof scalp and explain the composition of each layer. • Identify the neurovascularsupply of scalp. • Identify the lymph drainage of scalp • Understand the causes and contributing factors leading to the frequent occurrence of lacerations, infections, and profuse bleeding in the scalp region.	SGD	MCQs SEQs OSPE	C1, C2, C3
9.	**Face** • Identify the muscles of facial expression, their location, attachments and their function • Discuss the neurovascular supply of face. • Identify the Blood supply of the face. • Outline the lymph drainage ofthe face. • Identify the danger area of face and explain its clinicalsignificance • Explain the conditions that cause facial muscle paralysis. • What is trigeminal neuralgiaand its significance	SGD Assignment	MCQs SEQs OSPE	C1, C2
10.	**Eye** • Identify the contents of orbit. • Identify the contents of eyeball. • Describe the coats of the eyeball and features of eachlayer. • Describe the anatomical features of the eyelids and explain their movements. • Identify the structures thatconstitute the lacrimal apparatus. • Locate extraocular muscles,nerve supply and their role in the movement of eyeball. • Explain the clinical significance of EOM (extraocular muscles) • Interpret cardinal sign ofHorner's Syndrome	SGD	MCQs SEQs OSPE	C1,C2, C3
11.	**Neck Fascia** • Name the muscles and nerves in superficial fascia of Neck			

	• Identify the layers and attachment of deep cervical fascia. • Describe the contents enclosed by each layer ofdeep cervical fascia. • Know the significance of the facial spaces. • Understand how dentalinfections can lead to Ludwig's angina	SGD	MCQs SEQs OSPE	C1, C2, C3
12.	**Triangles of neck** • Identify the location ofanterior and posterior triangles of Neck. • Demonstrate the boundaries & contents of anterior triangle and its sub triangles. • Outline the boundaries & content of posterior triangleand its sub triangles • Draw & label the compositetriangles of neck. • Clinical significance oftriangles of Neck. • Describe the attachments of supra hyoid and infra hyoidmuscles along with nerve supply and actions.	SGD	MCQs SEQs OSPE	C1,C2,C3
13.	**Lymphatic drainage of head &neck** • Discuss the lymphatic drainage of head & neck • Describe clinical condition related to lymphatic drainage	SGD	MCQs SEQs	C1,C2,C3
14.	**Vessels of neck (CCA, ECA,vertebral artery, IJV, EJV)** • Describe the origin and CCAin terms of bifurcation & relation. • Identify the branches of external carotid artery andstructures which these branches supply. • Understand the origin andcourse of vertebral artery. • Give the branches andcourse of Internal andexternal jugular vein	SGD Assignment	MCQs SEQs OSPE	C1,C2, C3
15.	**Cervical plexus** • Draw & Label the cervicalplexus • Identify the branches of cervical plexus and their distribution. • Identify the clinical significance of the phrenic nerve.	SGD Assignment	MCQs SEQs OSPE	C1,C2, C3
16.	**Cervical Sympathetic chain andcervical ganglions.**			

	• Identify the location of cervical part of sympathetic trunk. • Identify the branches and distribution of superior, middle and inferior cervical ganglion. • Understand clinical aspectsof Horner's Syndrome	SGD Assignment	MCQs SEQs OSPE	C1,C2, C3
17.	**Root of neck (scalene muscles,subclavian artery)** • Identify the structures in theroot of neck • Discuss the attachments andnerve supply of scalene muscles • Describe the parts, course &branches of subclavian artery	SGD	MCQs SEQS OSPE	C1,C2
18	**Ear (External, Middle & Internal)** • Describe the main featuresof the external ear, middleear and internal ear. • Identify the boundaries andstructures forming the wallsof the middle ear. • Describe the bones formingthe auditory ossicles and their relationship to the tympanic membrane. • Discuss the muscles of theauditory ossicles • Discuss the main anatomicalfeatures of the middle ear and its communication with other cavities. • Describe the relationship ofmastoid antrum with other structures in the skull. • Give the clinical significanceof mastoid antrum. • Describe the anatomical features of the bony and themembranous labyrinth • Discuss the role of internalear in head position and hearing. • Describe the nerve supply and blood supply of the internal, middle and externalear.	SGD	MCQs SEQs OSPE	C1, C2, C3
PHYSIOLOGY				

19.	**Cardiovascular Physiology - Properties ofcardiac muscle** • Describe physiologic anatomy of cardiac muscle. • Explain the properties of cardiac muscle. • Explain the ionic and voltage changes in action potential in the cardiac muscle fibers. • Discuss the physiologic basis of refractory period in cardiac muscle. • Discuss the excitation contraction coupling in cardiac muscle. • Compare the functional differences incardiac and skeletal muscle	IL	MCQs SEQs	C1, C2
20.	**Heart as a Pump** • Explain the events of cardiac cycle. • Draw and label cardiac cycle. • Correlate the mechanical events of cardiac cycle with electrical events and heartsounds	SGD	MCQs SEQs	C1, C2
21.	• Explain the regulation of heart pumping. • Describe the effect of autonomic stimulation, temperature and ions on heartpumping	SGD	MCQs SEQs	C1, C2
22.	• Describe the propagation of cardiac impulse. • Discuss the significance of AV nodaldelay	IL	MCQs SEQs	C1, C2
23.	**Electrocardiogram (ECG)** • Draw and label normal Electrocardiogram (ECG). • Describe the physiologic basis of different segments, intervals and waves in a normal ECG and explain their significance	IL	MCQs SEQs	C1,C2

24.	**Circulation** • Comprehend the organization ofcirculatory system. • Explain the interrelationships of pressure, flow and resistance.	IL	MCQs SEQs	C1,C2
25.	• Describe the importance of vessel diameter in determining the arteriolar resistance. • Describe the compliance of the vessels. • Explain the functions of veins	IL	MCQs SEQs	C1
26.	• Describe the mechanisms of acute control of local blood flow in various tissues. • Describe the mechanisms of long-term blood flow regulation. • Describe the humoral control ofcirculation. • Describe the vasomotor center	IL	MCQs SEQs	C1, C2
27.	**Regulation of blood pressure** • Enlist the reflex mechanisms involved in rapid control of arterial blood pressure. • Describe the role of baroreceptors in rapid control of blood pressure. • Describe the role of kidneys in long term control of arterial blood pressure.	IL SGD	MCQs SEQs	C1, C2
28.	**Cardiac output & Venous return** • Define cardiac output. • Explain the determinants of cardiac output. • Describe the factors affecting cardiacoutput	IL	MCQs SEQs	C1
29.	• Define venous return and explain the factor affecting venous return.	IL	MCQs SEQs	C1

30.	**Cardiovascular disorders** • Define shock • Classify it on the basis of pathophysiology • Enlist the causes of different types of shock. • Explain the compensatory mechanisms operative in reversible and progressive stages of shock. • Describe the physiological basis of treatment of shock	IL	MCQs SEQs	C1, C2
31.	• Name the ischemic heart diseases. • Discuss the pathophysiology of ischemicheart diseases	IL	MCQs SEQs	C1, C2
32.	**Renal Physiology** • Discuss the physiologic anatomy of nephron. • Name the basic processes involved in urine formation. • Discuss the role of kidneys in long termregulation of blood pressure	IL	MCQs SEQs	C1
33.	**ECG** • Record and interpret ECG in a normal subject • Understand the unipolar, bipolar limb leads and chestleads • Describe ECG waves, intervals and segments	Practical Demonstration	OSPE Viva	P
34.	**Measurement of Blood pressure** • Record the blood pressure of a subject by palpatory andauscultatory method • Understand the physiological basis of Korotkoff's sound • Examination of blood pressure of a given subject atrest and after exercise	Practical Demonstration	OSPE Viva	P
35.	**Examination of radial pulse** • Examine the radial pulse of a subject • Comment on the rate, rhythm and volume of pulse	Practical Demonstration	OSPE Viva	P
	BIOCHEMISTRY			

36.	**CARBOHYDRATES** • Classify carbohydrate and describe biomedical importanceproperties of monosaccharides • Define and classify carbohydrate • Classify carbohydrates. Discuss the chemical properties of monosaccharides • Biomedical importance of carbohydrates • Oxidation : Sugar alcohol formation • Action of phenyl hydrazine: osazone formation • Glycoside formation • Amino sugar formation • Isomerism • Mutarotation	IL SGD	MCQs SEQs	C1
37.	Disaccharides and oligosaccharides • Define, classify and describe the structure of disaccharide and oligosaccharides	IL	MCQs SEQs	C1
38.	Polysaccharide • Describe the structure and functions of homopolysaccharides • Outline the structure and function of heteropolysaccharides glycosaminoglycans(GAGs) • Discuss the causes and types of mucoplysaccharideosis • Structure and significance of : • Starch • Glycogen • Cellulose • Inulin • Dextrance • Chitin • Structure, functions and biomedical importance	IL	MCQs SEQs	C1, C2

39.	**LIPIDS** • Define and classify lipids with examples and theirbiomedical importance	IL	MCQs SEQs	C1
40.	• Discuss the structure of different types of lipids	SGD	MCQs SEQs	C1
41.	Classification of Fatty acids • Difference between nutritionally essential and nonessential fatty acids - CIS/Trans Fatty acid - Saturated and unsaturated Fatty acids - Significance of omega3 and 6 fatty acids — SGD x 2	IL	MCQs SEQs	C1
42.	Compound lipids • Define Compound lipids and discuss their different types with example	SGD	MCQs SEQs	C1
43.	Phospholipids; Define, classify and discuss different types of • phospholipids • Glycerophospholipids • Sphingophospholipids • Disorders linked with phospholipids	IL	MCQs SEQs	C1
44.	Lipids storage diseases • Enumerate and explain different types of lipidsstorage diseases • Niemann-Pick disease • Fabry disease • Gaucher disease	IL	MCQs SEQs	C2
45.	• Tay-Sach disease • Importance of lipid peroxidation			

46.	• Define and classify proteins(K) • Explain the structure of proteins (K) • Primary, secondary, tertiary and quaternarystructure of proteins • Classification of protein on the basis of physiochemical properties,function and nutrition	IL	MCQs SEQs	C1
47.	• Structure and functions of amino acid occurring incommon proteins • Peptide linkages or peptide bonds • Properties of amino acids • Isomerism in amino acids	SGD	MCQs SEQs	C1
48.	• Classify different types of amino acids andidentify their structure	IL	MCQs SEQs	C1
49.	Molisch's test • Principal • Material required • Methodology • Observation/resultResults interpretation	Practical Demonstration	OSPE	C3
50.	Benedict test • Principal • Material required • Methodology • Observation/resultResults interpretation	Practical Demonstration	OSPE	C 3
51.	Barfoed test • Principal • Material required • Methodology • Observation/resultResults interpretation	Practical Demonstration	OSPE	C 3
52.	Fehling's test • Principal • Material required • Methodology • Observation/result • Results interpretation	Practical Demonstration	OSPE	C 3

53.	Iodine test • Principal • Material required • Methodology • Observation/result • Results interpretation	Practical Demonstration	OSPE	C 3
54.	Selvinoff test • Principal • Material required • Methodology • Observation/result • Results interpretation	Practical Demonstration	OSPE	C 3
55.	Hydrolysis of starch • Principal • Material required • Methodology • Observation/result • Results interpretation	Practical Demonstration	OSPE	C 3
56.	Phenylhydrazine: Osazone formation • Principal • Material required • Methodology • Observation/results • Results interpretation	Practical Demonstration	OSPE	C 3
	ORAL BIOLOGY			
57.	**Enamel** • Discuss physical characteristics and structure of enamel.	IL	MCQs SEQs Viva	C1
58.	Explain amelogenesis and explain its differentstages.	IL SGD	MCQs SEQs Viva	C1 C2
59.	• Enumerate and discuss enamel proteins. • Discuss mineral pathway and mineralization.	SGD	MCQs SEQs Viva	C1

60.	Identify Structural and organizational featuresof enamel	IL SGD	MCQs SEQs Viva	C1 C2
61.	• Explain defects of amelogenesis. • Discuss clinical implications of acid etchingand fluoridation.	SGD	MCQs SEQs Viva	C2 C3
62.	**Temporomandibular Joint** • Differentiate between fibrous, cartilaginous and synovial joint. • Development of Joint	SGD	MCQs SEQs Viva	C1 C2
63.	• Explain cartilage and bones of TMJ	IL	MCQs SEQs Viva	C1 C2
64.	Describe capsule, ligament, disc and synovialmembrane of the joint.	IL	MCQs SEQs Viva	C1 C2
65.	• Muscles of Mastication • Muscle contraction and Motor unit	SGD	MCQs SEQs Viva	C2 C3
66.	• Explain biomechanics of TMJ. • Describe blood supply and innervation of TMJ	IL SGD	MCQs SEQs Viva	C2 C3
67.	**Morphology of Maxillary 1st Premolars** • Describe the buccal and lingual aspect of maxillary first premolar.	IL SGD	MCQs SEQs Viva	C1 C2
68.	Describe the occlusal aspect of permanentmaxillary first premolars.	IL	MCQs SEQs Viva	C1 C2
69.	**Enamel** Explain amelogenesis and identify its different stages	Practical Demonstration	OSPE Viva	C1
70.	Identify Structural and organizational features of enamel: Enamel spindles, tufts and lamellae	Practical Demonstration	OSPE Viva	C1
71.	Identify Structural and organizational features of enamel: Hunter Schreger bands	Practical Demonstration	OSPE Viva	C1

72.	Identify Structural and organizational features of enamel: Brown striae of Retzius	Practical Demonstration	OSPE Viva	C1
73.	**Morphology of Maxillary First Premolars** Identify buccal, lingual and occlusal aspect of maxillary first premolar on tooth model	Practical Demonstration	OSPE Viva	C1
74.	Draw the different aspects of permanent maxillaryfirst premolars	Practical Demonstration	-	C1

MODULE IV: GIT & RESPIRATION

ANATOMY				
S.N	**LEARNING OBJECTIVES**	**MIT**	**AT**	**Cognitive Domain**
1.	**Histology of Respiratory system** • Differentiate between respiratory & olfactory epithelium • Discuss the microscopic features of Larynx. • Explain the microscopic features of Trachea	IL	MCQs SEQs	C1,C2,C3
2.	• Identify the microscopic features of Larynx on a given slide • Draw & label the microscopic featuresof Larynx • Identify the microscopic features of Trachea on a given slide. • Draw & label the microscopic features of trachea.	Practical Demonstration	OSPE	P
3.	**Nose & paranasal sinuses** • Describe the main features of externalnose, its nerve supply and blood supply. • Identify the bones forming walls of thenasal cavity. • Discuss the anatomical features on the lateral wall of nose. • Discuss the main features and functionof the mucous membrane of the nasal cavity.	SGD	MCQs SEQs OSPE	C1 C2 C3

	• Describe the blood supply, nerve supply and lymph drainage of lateral &septal walls. • Locate the paranasal sinuses on the skull. • Describe the boundaries and relationsof the paranasal sinuses. • Identify the openings and communications of paranasal sinuseswith the nasal cavity. • Understand sinusitis and examinationof the paranasal sinuses.			
4.	**Larynx** • Identify the cartilages of the larynx and describe anatomical features on them • Identify membranes and ligaments of the larynx and how they are attached tothe larynx. • Describe the features and movementsof the vocal folds and their role in speech. • Identify the muscles of the larynx,their attachment and nerve supply. • Describe the sensory nerve supply ofthe larynx. • Describe the blood supply and lymph drainage of the larynx.	SGD	MCQs SEQs OSPE	C1,C2,C3
5.	**Histology of GIT** • Describe the microscopic features oforal cavity (Lip & cheek). • Discuss the microscopic features of Tongue • Explain the microscopic features of Oesophagus • Compare & contrast the microscopic features of lip, tongue and qesophagus	IL	MCQ's SEQs	C1,C2,C3
6.	• Identify the microscopic features of lipon a given slide • Draw and label the light microscopic features of lip • Identify the microscopic features of tongue on a given slide • Draw and label the microscopic features of tongue • Identify the microscopic features of	Practical demonstration	OSPE	P

	Oesophagus on a given slide • Draw and label the microscopicfeatures of Oesophagus			
7.	**Development of Tongue** • Correlate each lingual swelling with itsarch of origin and its innervation • Explain the role of occipital somites inthe development of tongue • Give the sensory and motor innervation of tongue • Discuss the clinical condition of Tongue Tie (ankyloglossia), bifidtongue	IL	MCQs SEQs OSPE	C1 C2 C3
8.	**Development of Palate** • Explain the origin & composition of intermaxillary segment • Discuss the development of secondary palate • Differentiate between anterior & posterior cleft deformities • Give reason for the development of following facial clefts: Median & lateral cleft lip, Oblique facial cleft, isolated cleft palate, Van der Woude syndrome	IL	MCQs SEQs OSPE	C1 C2 C3
9.	**Palate (hard & soft)** • Describe the main anatomical featuresof the Hard and Soft palate. • Identify the muscles of the soft palate • Explain their role in movements of thesoft palate • Describe the sensory and motor nerve supply of the palate. • Describe the blood supply and lymph drainage of the palate	SGD	MCQs SEQs OSPE	C1 C2 C3
10.	**Oral cavity** • Divide the oral cavity into the lips, vestibule, and oral cavity proper.			

	• Discuss the main anatomical featuresof each part of the mouth • Locate the boundaries of the vestibuleand the mouth cavity proper. • Describe the sensory innervation of the mouth	SGD	MCQs SEQs OSPE	C1,C2,C3
11.	**Tongue** • Describe the anatomical features on the mucous membrane of the tongue • What is the location and function ofthe papillae of tongue • Identify the muscles of the tongue andgive their action, nerve supply, origin and insertion. • Correlate the neurovascular supply ofthe tongue with its development	SGD	MCQs SEQs OSPE	C1,C2,C3
12.	**Lymphatic ring** • Describe how Waldeyer's lymphatic ring is formed and its clinicalimportance	SGD	MCQs SEQs OSPE	C2,C3
13.	**Palatine tonsil** • Locate the palatine tonsil and give its anatomical features. • Describe the blood supply and lymph drainage of the tonsil.	SGD	MCQs SEQs OSPE	C1,C2,C3
14.	**Pharynx** • Limit the three parts of pharynx: nasal,oral and laryngeal. • Discuss the important anatomical features in these parts. • Identify the muscles of pharynx • Interpret the role of muscles of pharynx in swallowing. • Describe the nerve supply, blood supply and lymph drainage of the larynx. • Discuss the clinical features of Tonsillitis, quinsy, and adenoids.	SGD	MCQs SEQs OSPE	C1,C2,C3
15.	**Extra cranial course of all cranial nerves** • Enumerate which nerves are motor, sensory or mixed. • Locate through which openings, grooves, fissures and foramina	TBL	MCQs	C1,C2,C3

	each cranial nerve passes through. • Identify the structures which are supplied by the cranial nerves. • Trace the extra cranial course and branches of each cranial nerve	Tutorial	SEQs OSPE	
16.	**Cranial nerve testing of 3,4,6,7,9 10,11 & 12** Suggest method of testing of each cranialnerve	TBL Tutorial	MCQs SEQs OSPE	C1,C2,C3
17.	**Surface Anatomy** **Vessels of neck** Mark the location of each of the followingstructure. • Facial artery • CCA • ECA • IJV • EJV	SGD	MCQs SEQs OSPE	C1,C2,C3
	PHYSIOLOGY			
18.	**General functions of GIT** • Describe the physiological anatomyand functions of GIT • Discuss the electrical activity of smooth muscles of GIT • Describe enteric nervous system • Discuss regulation of GIT functions	IL IL , SGD IL IL	MCQs SEQs	C1 C2 C1 C2
19.	**Gastrointestinal Motility** • Compare types of movements in GIT • Elaborate Mastication reflex • Trace the reflex arc forswallowing reflex	IL	MCQs SEQs	C1, C2
20.	• Discuss the functions of stomach • Describe gastric emptying • Understand various factors involved in the regulation ofstomach emptying	IL	MCQs SEQs	C1, C2
21.	• Describe the functions andmovements of small and large intestine • Understand the physiological basis of migratory motor complex			

	• Describe the functions of ileocecal valve • Discuss the defecation reflex • Trace the reflex arc for defecation reflex	IL	MCQs SEQs	C1, C2
22.	**Respiratory Physiology – General organization and functions** • Outline the organization andgeneral functions of respiratory system • Enlist the muscles involvedduring quiet and forceful respiration • Define compliance • Explain the role of elastic force of lung tissues and surface tension in affecting lung compliance	IL	MCQs SEQs	C1
23.	Explain pressure and volume changes in lungsduring pulmonary ventilation Explain the pulmonaryvolumes and capacities Differentiate between anatomical and physiologicaldead space with emphasis onsignificance of each • Explain Alveolar ventilation	IL SGD	MCQs SEQs	C1, C2
24.	• Compare pulmonary andsystemic circulations	IL SGD	MCQs SEQs	C1
25.	**Principles of gas exchange** Explain the partial pressuresof respiratory gases as they enter and leave the lungs at sea level Discuss the various modes oftransport of oxygen from atmosphere and lungs to tissues Discuss the various modes of transport of carbon dioxide from tissues to lungs and atmosphere	IL SGD	MCQs SEQs	C1, C2
26.	• Explain oxy-hemoglobin dissociation curve with the help of a diagram • Discuss Haldane effect and explain the phenomenon of chloride shift	IL	MCQs SEQs	C1, C2
27.	**Regulation of Respiration** • Explain the components ofrespiratory center and discuss the role of each in regulation of respiration atrest and during exercise	IL	MCQs	

	• Explain the role of peripheral and central chemoreceptors in control of Respiration		SEQs	C1
28.	• Define hypoxia, cyanosis and hypercapnia • Explain Hypoxia and itstypes	IL	MCQs SEQs	C1
29.	**Calculate various lung volumes andcapacities using spirometer** • Identify components of the spirometeR • Understand the functions of each component of spirometer • Record lung volumes and capacities Calculate and interpret the volumes and capacities	Practical Demonstration	OSPE Viva	P
	BIOCHEMISTRY			
30.	**Macrominerals** • Discuss the dietary sources, normal blood levels, daily requirements, functions and clinical conditions associated with - Sodium - Potassium - Calcium - Chloride - Phosphorus - Sulphur - Iron - Trace Elements • Describe the Dietary sources,normal blood levels,daily requirements,functions and clinical conditions associated with - Iron - Copper - Magnesium - Chromium - Nickel - Cobalt - Molybdenum	IL x 2 IL SGD	MCQs SEQs MCQs SEQs	C2 C2

	- Selenium			
31.	GIT Secretion I • Describe the biochemistry of saliva and gastric juice • Describe the composition,functions,daily secretion andbiomedical importance	IL	MCQs SEQs	C1
32.	GIT Secretion II • Discuss the biochemistry of pancreatic juice • Describe the composition,functions,daily secretion andbiomedical importance	IL	MCQs SEQs	C1
33.	GIT Secretion III • Discuss the biochemistry of intestinal juice • Describe the composition,function,daily secretion andbiomedical importance	SGD	MCQs SEQs	C1
34.	GIT Secretion IV • Describe the biochemistry of Bile • Describe the composition,function,daily secretion andbiomedical importance	IL	MCQs SEQs	C1
35.	Digestion and absorption of Carbohydrate • Describe the mechanism of digestion and absorption ofdietary carbohydrates • Main carbohydrates in our diet • Digestion of carbohydrates in mouth, stomach andsmall intestine • Mechanism of absorptions of dietary carbohydrate	IL	MCQs SEQs	C1
36.	Digestion and absorption of Proteins • Describe the mechanism of digestion and absorption ofdietary Proteins • Dietary source of Proteins • Proteolytic enzymes in gastric juice • Pepsin and its actions • Rennin and its action • Digestion of protein in stomach and small intestine • Absorption and transport of amino acid	IL	MCQs SEQs	C1
37.	Digestion and absorption of Lipids • Describe the mechanism of digestion and absorption ofdietary lipids			

	• Dietary source of lipids • Digestion of lipids in mouth and stomach • Emulsification: role of bile salt • Lipolytic enzymes in intestine • Absorption of lipids	IL	MCQs SEQs	C1
38.	GIT Hormones • Describe GIT hormones origin, chemical nature,secretion, functions and biomedical importance - Gastrin - Secretin - CCK - Motilin - Somatostatin - Substance P	IL	MCQs SEQs	C1
39.	Introduction to Lipid Chemistry • Prepare, observe and draw cholesterol crystals • Detection of lipids in the given sample • Identification and characterization of Cholesterol • Reaction of alcohol with cholesterol crystallization	Practical Demonstration	OSPE	C3
40.	Properties of Lipids • Demonstrate the lipid properties • Identification of lipids nature • Interpretation of results and its biomedical importance	Practical Demonstration	OSPE	C3
41.	Emulsification • Demonstrate the process of emulsification • Interpretation and biomedical importance of emulsification	Practical Demonstration	OSPE	C3
42.	Saponification • Explain the process of saponification of lipids • Prepare the different type of soaps	Practical Demonstration	OSPE|	C3
43.	Biuret Test Ninhydrin Test Heat Coagulation Test • Describe the principal, material required, methodology, observations and interpret the results	Practical Demonstration	OSPE|	C3

44.	Xanthoproteic Test Millon's Test Aldehyde Test • Describe the principal, material required, methodology, observations and interpret the results	Practical Demonstration	OSPE|	C3
45.	Lead sulfide Sakaghuchi test • Describe the principal, material required, methodology, observations and interpret the results	Practical Demonstration	OSPE|	C3
46.	Half saturation of protein Full saturation of protein • Describe the principal, material required, methodology, observations and interpret the results	Practical Demonstration	OSPE|	C3
ORAL BIOLOGY				
47.	**Salivary Glands** • Discuss functions of saliva • Describe anatomy and development of salivary glands	SGD	MCQs SEQs Viva	C1, C2
48.	• Describe structure and secretory cells of salivary glands	IL	MCQs SEQs Viva	C1, C2
49.	• Describe structure and general organization of salivary glands	Practical demonstration	OSPE Viva	C1, P
50.	• Explain formation and secretion of saliva.	IL	MCQs SEQs Viva	C1, C2
51.	• Discuss Myoepithelial cells and ductal system of salivaryglands	IL	MCQs SEQs Viva	C1, C2
52.	• Identify and describe secretory acini and ductalsystem	Practical demonstration	OSPE Viva	C1, P
53.	• Discuss ductal modification of saliva. • Discuss nerve and blood supply of salivary glands	SGD	MCQs SEQs Viva	C1, C2
54.	• Describe histology of major and minor salivary glands	IL	MCQs SEQs Viva	C2
55.	• Discuss clinical aspects of xerostomia.	SGD	MCQs SEQs Viva	C2,C3
56.	**Oral Mucosa** • Define oral mucosa and its functions. • Discuss organization of oral mucosa	IL	MCQs SEQs Viva	C1,C2
57.	• Explain epithelial proliferation and maturation.	ILx2	MCQs SEQs Viva	C1 C2
58.	• Describe ultrastructure of the epithelial cells • Discuss Cellular events in maturation	SGD	MCQs SEQs	C1 C2

			Viva	
59.	• Describe epithelial maturation and identify four layers of epithelium	Practical demonstration	OSPE Viva	C1 P
60.	• Describe non-keratinocytes in the oral epithelium	IL	MCQs SEQs Viva	C1 C2
61.	• Discuss lamina propria, its cells, fibers, ground substance,nerves and blood supply.	ILx2	MCQs SEQs Viva	C2 C3
62.	• Differentiate between lining, masticatory and specializedmucosa.	SGD	MCQs SEQs Viva	C2 C3
63.	• Describe different types of papillae present on the tongue	IL	MCQs SEQs Viva	C1 C2
64.	• Discuss different types of lingual papillae and identify circumvallate papillae	Practical demonstration	OSPE Viva	C1 P
65.	• Discuss mucocutaneous, mucogingival anddentogingival junctions. • Discuss Age changes in Oral mucosa	IL	MCQs SEQs Viva	C2 C3
66.	**Occlusion** • Describe occlusion, centric occlusion, and centricrelation. • Define retrognathic, prognathic, mesognathic and malocclusion.	IL Clinics	MCQs SEQs Viva	C2 C3
67.	• Explain tongue thrust, protrusion, retrusion, intercuspation, mesial drift, mesio occlusion and distoocclusion.	IL Clinics	MCQs SEQs Viva	C2 C3
68.	**Morphology of Maxillary second premolars** • Describe the buccal and lingual aspect of maxillary and mandibular first and second pre molar.	IL SGD	MCQs SEQs Viva	C1 C2
69.	• Describe the mesial, distal and occlusal aspect ofpermanent maxillary and mandibular pre molars.	IL	MCQs SEQs Viva	C1 C2
70.	• Identify buccal, lingual, mesial, distal and occlusal aspect of maxillary second premolars on tooth model	Practical demonstration	OSPE Viva	C1, P
71.	• Draw the different aspects of permanent maxillarysecond premolars.	Practical demonstration	OSPE Viva	C1, P
72.	• Identify buccal, lingual, mesial, distal and occlusal aspect ofmandibular first and second premolars on tooth model	Practical demonstration	OSPE Viva	C1, P
73.	• Draw the different aspects of permanent	Practical	OSPE	C1,

	mandibular firstand second premolars.	demonstration	Viva	P

LEARNING RESOURCES (RECOMMENDED BOOKS)

* LATEST EDITIONS of all books

Anatomy

Text Books

1. Regional Anatomy by Snell
2. Embryology by Langman's
3. Snell's Neuro Anatomy
4. Histology by Janquira
5. General Anatomy by Laique Hussain

Reference Books:

6. Clinical Anatomy by Keith L. Moore
7. Histology by Laique Hussain
8. Histology by Difiore
9. Student Gray's
10. Embryology by Keith L. Moore

Physiology

11. Text Book of Medical Physiology by Guyton & Hall
12. Physiology by Lippincott

Biochemistry

13. Lippincott Biochemistry.
14. Harper's Biochemistry
15. Mushtaq Biochemistry

Behavioral Sciences

16. Handbook of behavioral sciences by Mawaddat H. Rana

Operative Dentistry:

17. Atlas of operative dentistry by Evans J.R
18. Art and Science of Operative Dentistry

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