Study Guide

ANATOMY

WOMEN MEDICAL COLLEGE

Abbottabad

ABBOTTABAD

Created by:
Dept. Medical Education & Research (DME&R)

Contents

STUDYGUIDE
Class Name: 1st Year MBBS
Department Name: Anatomy

Description:
Anatomy department is one of the most important department and a major pillar of the basic Medical / Dental sciences. The subject Anatomy enhances the knowledge, skills and abilities of undergraduate students to correlate and compare the normal anatomical structures with the pathological disease state. Thus, it familiarizes the students with the Anatomy of the human body serving as a platform for future clinical practice. Anatomy is considered as the backbone of all preclinical and clinical subjects encompassing General Anatomy, Gross Anatomy, Microscopic Anatomy (Histology), Developmental Anatomy (Embryology) and Neuro-anatomy. All the branches are taught in close integration with other basic and clinical subjects. Teaching modalities such as lectures, large group interactive sessions, small group discussions, practicals, and demonstrations are effectively incorporated.

Overview:

Program	1st Year, Bachelor of Medicine, Bachelor of Surgery
Course Name	Anatomy

Contact Hours total	250 hours/ year
Infra structure requirements	Lecture Hall Museum Histology Lab

Faculty Responsible for Course Conduction:

Sr. No	Faculty	Designation
1	Professor Dr Ashfaq Ahmed	Professor
2	Dr Sadaf Shaheen	Associate Professor
3	Dr Ashiq Hussain	Associate Professor
4	Dr Adeela Ejaz	Senior Lecturer
5	Dr Momina Sohail	Lecturer
6	Dr Momina Badar	Lecturer

Details of Supporting Staff:

Sr. No	Staff	Designation
1	Nadeem	Computer Operator
2	Mr Muhammad Ilyas	Technician
3	Miss Faiza Farhan	Lab Assistant
4	Miss Saira Ilyas	Museum Coordinator
5	Mr. Rafi	Office Attendant
6	Mr. Zaman	Dissection Hall Attendant
7	Mr. Qazi Shahzaib	Office Attendant

S.No	Class	Topic	Module	Learning Outcomes	Teaching Hours	Mode of Teaching	Assessment Tools
Foundation Module:			**THEME–I: Orientation**				
1	**1st year MBBS**	Anatomy and its sub branches	**Foundation I**	Define anatomy and its branches Describe purpose of study of anatomy and its branches	1	LGF	MCQ
THEME–II: CELL							
2		Cell structure and its Organelles		Describe the cell as a living unit of body Describe the structure of cell and its organelles.	2	LGF	MCQ/ OSPE
				Describe the structure of cytoplasmic organelles of the cell & correlate it with their functions.			
3		Nuclear structure & components		Describe the structure of the nucleus, nucleolus & chromosome and their functions in cell integrity.	1	LGF	MCQ
4		Cell division Mitosis		Explain the process of cell division. Explain the process of cell division. Describe mitotic cell division with its stages.	1	LGF	MCQ

5		Meiosis		Explain the process of Meiosis Describe karyotyping. Explain the non-disjunction of chromosomes. Correlate the process of non-disjunction with chromosomal abnormalities	2	SGF	OSPE
		THEME–III: GROWTH & DEVELOPMENT OF HUMAN BODY					
6		Introduction to Embryology		Describe the developmental stages. Describe the embryologic terminology. Explain significance of embryology.	2	SGF	MCQ/OSPE
7		Spermato-Genesis		Describe the process of spermatogenesis. Differentiate between spermiogenesis and spermatogenesis. Describe the morphological changes during maturation of gametes.	2	LGF	MCQ
8		Oogenesis		Describe oogenesis and its correlation with meiosis.	1	LGF	MCQ

				Compare the male and female gametes.			
9		Transport Of Gametes		Explain the transport of gametes. Describe the transport of sperms. Describe the oocyte transport. Explain the maturation of sperms.	1	LGF	MCQ
10		Female reproductive cycle		Describe the ovarian cycle. Discuss the process of follicular development Explain the process of ovulation. Correlate ovulation with the phases of menstrual cycle.	2	SGF	MCQ/ OSPE
11		Fertilization – Events		Define fertilization. Describe the process of fertilization. Explain assisted reproductive technologies like In-vitro fertilization (IVF), assisted IVF and intra cytoplasmic sperm injection (ICSI).	2	SGF	MCQ/ OSPE
12		Fertilization –		Discuss the clinical	2	LGF	MCQ

		Clinical Correlates Cleavage & Blastocyst Formation		correlation of the fertilization. Describe the process of cleavage of zygote. Discuss the formation of blastocyst. Summarize the events of first week of development.			
13		Implantation & Its Abnormalities		Describe the process of implantation. Enumerate the sites of implantation. Explain the clinical correlations of the implantation process.	1	LGF	MCQ
14		Amniotic cavity		Describe the formation of amniotic cavity Describe the development of embryonic disc Describe the development of umbilical vesicle. Explain the development of Chorionic sac.	3	LGF	MCQ
15		Events Of 2nd Week of Development		Summarize the events of second week of development. Explain the clinical correlates of the	2	LGF	MCQ

				second week of development.			
16		Formation of Notochord		Explain the process of formation of Notocord	1	LGF	MCQ
17		Events of 3rd Week of Development		Describe the process of gastulation. Explain the process of Neurulation. Explain the development of somites. Describe the development of intra-embryonic coelom.	2	LGF	MCQ
18		Derivatives of germ layers		Describe briefly derivatives of germ layers: Ectoderm, Mesoderm and Endoderm	1	LGF	MCQ
19		Further development of Trophoblast and Neurelation		Describe the process of development of Trophoblast and neurulation	2	LGF	MCQ
20		Fetal membranes		Describe the formation of fetal membranes	2	LGF	MCQ
21		4th week: Folding of embryo		Describe the process and types of folding of embryo	1	LGF	MCQ

22		Highlights of 4-8 weeks		Enlist the events occurring in 4-8 weeks of development	2	LGF	MCQ
THEME–IV: HUMAN BODY TISSUES, BONES & JOINTS							
23		Organization of human body and Anatomical terms		Describe the levels of organization of human body Describe the anatomical terms for planes, position and movements	4	SGF	MCQ /OSPE
24		Classification of Bones		Describe the structure and function of bone Classify bones on the basis of length and shape. Identify the markings on bone	2	SGF	MCQ /OSPE
25		Cartilage		Describe cartilage Classify the types of cartilage Describe the types of cartilages	2	SGF	MCQ/ OSPE
26		Introduction to Joints		Classify joints on the basis of structure. Describe the mechanism of movements of joint	2	SGF	MCQ/ OSPE
27		Muscles		Describe various muscle types along with structure.	2	SGF	MCQ /OSPE
28		Skin / Integumentary system Skin (dermis & epidermis) Skin creases, Nails, Hairs, Glands (Sebaceous & sweat)		Discuss the anatomical structures of Skin / Integumentary system	2	LGF	MCQ
29		Lymphatic system		Describe the lymphatic system. Explain the functions of lymphatic system Describe the organization of lymphatic system Explain the mechanisms for the movement of lymph in the body.	2	LGF	MCQ

30		Nervous system Divisions (central & peripheral and somatic & autonomic)		Define the organization of nervous system Describe the divisions of nervous system Describe the formation of spinal nerve and concept of dermatome and myotome Describe the formation of nerve plexus.	2	LGF	MCQ
31		Autonomic Nervous system Sympathetic. parasympathetic nervous system		Describe the organization of autonomic nervous system Differentiate between sympathetic and parasympathetic nervous system on the basis of structure.	2	LGF	MCQ
32		Membranes: Mucous membranes, Serous membranes, Fascia, ligaments and raphe		Describe the structure of membranes of human body Describe the anatomy and significance of fascia, ligaments and raphe.	2	LGF	MCQ
33		Radiological anatomy		Identify various anatomical landmarks on radiography. Describe commonly used radiographs. Describe various view used for obtaining radiographs.	2	SGF	MCQ/ OSPE
34		Basic Body tissue Definition of tissue Epithelial tissue Connective tissue Muscular tissue Nervous tissue. Epithelial tissues Classification of epithelium General		Define tissue Describe the basic tissues in human body. Classify epithelium describe the general features of epithelium	1	LGF	MCQ/ OSPE

		characteristics and Functions of epithelium.		Explain the specialized functions of different types of epithelial cells Describe the structure of main types of cell junctions	2	SGF	MCQ/ OSPE
35		Glandular Epithelium		Enlist glandular epithelia Classify them on the basis of morphology, nature of secretion and mode of secretion Differentiate between exocrine & endocrine glands on the basis of structure and function.	2	SGF	MCQ/ OSPE
36		Epithelial Cell Surface Specialization Structure & Function of Basement Membrane		Describe the surface specialization of epithelia Correlate their structure, with their location and function.	2	SGF	MCQ/ OSPE
				Describe the structure of basement membrane & correlate it with its function.	1	LGF	MCQ/ OSPE
37		Connective tissue		Define connective tissue. Classify connective tissues. Explain the different types of Connective tissues	4	SGF	MCQ/ OSPE
Blood Module:				THEME I: Pallor and Swelling			
38		Introduction to hematopoietic system	Blood Module	Describe various components of hematopoietic system including their locations and their functions Describe surface anatomy and applied anatomy of	2	LGF	MCQ/ OSPE

				main organs of hematopoietic system Define and classify lymphoid organs and lymphoid tissues			
THEME II: Fever (Infection and Immunology)							
39		Gross anatomy of hematopoietic system		Locate, identify and describe the main gross external features of spleen, lymph node, thymus and tonsils Describe neurovascular supply of the mentioned structures	2	LGF	MCQ
				Outline the surface anatomy of main lymph nodes, spleen, thymus and tonsils Enlist the causes of splenic injuries	2	SGF	MCQ/ OSPE
40		Histology of lymphoid tissues		Describe the overview of lymphatic tissue including MALT Identify and describe the histological features and functions of Lymph node Identify and describe the histological features and functions of Thymus Identify the locations of tonsils and describe the histological features and functions of Tonsils Describe the histological features and	3	SGF	MCQ/ OSPE

				functions of spleen.			
41		Embryology/ Developmental Anatomy of lymphoid tissue		Describe the development of lymphoid organs including lymph nodes, tonsils, thymus and spleen	3	LGF	MCQ
Musculoskeletal Module:				**THEME –I ORIENTATION AND SHOULDER PAIN**			
42		Introduction to locomotion and upper limb,	Musculo skeletal Module	Define osseous tissue • Classify the skeletal system (axial and • appendicular) • Name and locate different bones of • axial and appendicular skeleton • Classify bones • Describe general features of bones • Describe Nerve/blood supply of bone • Describe bone marrow and its types • Describe ossification and its types • Describe surface markings of bones • Define fracture, osteoporosis, rickets, osteomalacia • Introduction to muscular system • Classify the muscles according to the • directions of fibers • Classify the skeletal muscles according to their action. • Types of skeletal muscle fibers(Type1 ,2,3) • Describe the nomenclature of skeletal muscles • Describe the principle of innervations • and nerve supply of muscles • Define	3	LGF	MCQ

				paralysis, hyperplasia, hypertrophy, myasthenia gravis. Identify the extent of the upper limb. Identify various regions of upper limb. Describe the division of the regions into compartments. State the contents of compartments of arm, forearm & hand Describe the joints of upper limb. Describe the clinical anatomy of upper limb			
43		Osteology of clavicle and scapula		Recognize the bone Identify the site of bone State the bony land marks of clavicle: like borders, surfaces & land mark used for bone determination Describe & demonstrate the attachments of muscles. Describe the common fractures of the bone. Identify and describe the salient features of the bones scapula and clavicle Describe the surface anatomy clavicle Describe the radiological anatomy clavicle. Describe the applied anatomy clavicle.	4	SGF	MCQ/ OSPE

				Recognize the bone. Identify the site of bone. State the bony landmarks of scapula: like borders, surfaces & land mark used for bone determination. Demonstrate the attachment of muscles on scapula Describe the common fractures of the bone. Identify and describe the salient features of the bones scapula. Identify the attachments to scapula Describe the surface anatomy scapula Describe the radiological anatomy scapula. Describe the applied anatomy scapula.	2	SGF	MCQ/ OSPE
44		Osteology of humerus		Recognize the bone. Identify the site of bone. State the bony landmarks of humerus: like borders, surfaces & land mark used for bone determination. Demonstrate the attachment of muscles & ligaments. Describe the common fractures of the bone. Identify and describe the salient features of the humerus Identify the attachments to humerus Describe the surface anatomy humerus Describe the radiological	3	SGF	MCQ/ OSPE

				anatomy humerus Describe the applied anatomy humerus			
45		Muscles of the pectoral girdle and Muscles of the shoulder region		Recognize the role of muscles of pectoral region in stabilizing the pectoral girdle. List the muscle of pectoral girdle. Describe & Demonstrate the attachments of muscle of pectoral girdle, nerve supply and actions. Describe the structural organization of the clavi-pectoral fascia. Identify the triangle of auscultation. Describe the nerves and blood vessels of this region.	4	SGF	MCQ/ OSPE
				Recognize the extent of shoulder region. Describe the muscle of shoulder region. List the muscles of shoulder region. State the detailed structures of each muscle with respect to Origin, Insertion, Nerve supply and Action of muscles with any characteristic features.	2	SGF	MCQ/ OSPE
46		The shoulder joint & its movements		Classify the type of shoulder joint. Describe the structure of shoulder joint. Page 9 of 45 Name the muscles acting on the joint/rotator cuff muscles. Explain the range of mobility. Describe the	2	LGF	MCQ/ OSPE

				movements of shoulder joint. Explain the clinical anatomy of the joint			
47		Brachial plexus		Mention the formation of brachial plexus (roots, trunk, division, and cords). Describe the relation of brachial plexus also in connection to clavicle (Supra, retro, infra clavicular parts). State the branches arising the different cords. Draw the brachial plexus. Describe the clinical correlates of the brachial plexus. Erbduchane palsy Klumpke's palsy Saturday night palsy	2	LGF	MCQ/ OSPE
48		Nerves of upper limb		Describe the course and branches of nerves of upper limbs. Axillary nerve Musculocutaneous nerve Radial Nerve Ulnar Nerve Median Nerve Explain the injuries associated with these nerves. Identify the causes and motor and sensory loss associated with nerve injuries of upper limb. Apply knowledge of gross anatomy to identify the deformities associated with these nerves.	2	LGF	MCQ/ OSPE
49		Axilla		Describe the position, shape of axilla. Describe the boundaries and content of axilla Describe the	2	LGF	MCQ/ OSPE

				boundaries and muscle forming the boundaries of axilla. Describe the formation, course and relations of axillary vessels. Describe arrangement and groups axillary lymph nod			
50		Arm		Describe the compartments of arm and how they are formed. Identify and explain the muscles and their actions found in the arm. Describe the nerve supply of arm. Describe the course of the nerves Identify the branches of the nerves Relate & integrate with the clinical correlations Describe cutaneous supply of arm.	2	SGF	MCQ/ OSPE
51		Brachial vessels		Describe the extension, relation and branches of the Brachial artery. Describe the course of the Basilic and cephalic veins Describe and explain the formation and purpose of the scapular anastomosis.	2	LGF	MCQ/ OSPE
52		Elbow joint		Identify the type of the joint. State and Identify the muscles acting on the elbow joint. Describe the neurovascular supply of the joint. Describe the carrying angle and applied aspect of the joint. Describe the anastomosis and collateral	2	LGF	MCQ/ OSPE

				circulation. Describe formation of anastomosis around elbow joint.			
53		Osteology of ulna		Recognize the bone. Determine the side of bone. Identify the features of bone. Identify the muscles attached to bone. Describe the common fractures of the bone. Describe and Identify the salient features of the ulna Identify the attachments to ulna Describe the surface anatomy ulna and the radiological anatomy ulna. Describe the applied anatomy ulna	3	SGF	MCQ/ OSPE
54		Superficial veins, lymphatic's and lymph nodes of upper limb Cubital fossa		Describe the normal anatomy of veins of upper limb. Differentiate between superficial and deep veins. Describe the features of individual superficial veins of upper limb. Correlate the applied anatomy with the gross anatomy of superficial Veins of upper limb. Describe the structure of a lymph node. Identify the groups of lymph nodes. Describe groups and area of drainage of each group of lymph nodes. Describe the commencement, course and termination of	2	LGF	MCQ/ OSPE

				superficial lymphatic vessels. Describe the clinical conditions related to lymphatic channels of upper Describe the boundaries, the contents and the relationship among structures of Cubital fossa. Demonstrate the surface anatomy of the Cubital fossa. Explain the clinical importance of the Cubital fossa.			
55		Anterior compartment of forearm and Posterior compartment of forearm		List the muscles of forearm. State the nerve supply of these muscles. Explain actions of the muscles of anterior compartment of forearm. Describe attachment and functions of flexor retinaculum Identify/Describe muscles of the anterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action)	2	SGF	MCQ/ OSPE
				Explain the organization of muscles of posterior compartment of forearm Identify/Describe muscles of the posterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action) State the nerve supply of these muscles. Explain	2	SGF	MCQ/ OSPE

				the actions of the muscles of posterior compartment of forearm. Describe the structural organization of the Extensor Retinaculum.			
56		Blood vessels & nerves of the forearm		Describe the different vessels & nerves in forearm. Describe the location, destination, course & relations of radial and ulnar arteries & their branches in forearm.	3	SGF	MCQ/ OSPE
				Describe the deep veins of forearm and their tributaries. Describe the location, destination, course & relations of ulnar, radial and median nerves & their branch.	3	LGF	MCQ/ OSPE
57		Radio-ulnar joint and Surface anatomy of upper limb		Recognize the details of Radio-ulnar joint. Describe and explain the movements occurring on Radio-ulnar joint. Name the muscles acting in pronation and supination. Describe the nerve supply and blood supply of Radio-ulnar joint. Describe clinical problems related to Radio-ulnar joints.	2	SGF	MCQ/ OSPE
				Demonstrate the surface markings for various arteries of upper limb	2	SGF	MCQ/ OSPE
58		Somitogenesis		Define the process of gastulation. Describe the development of mesoderm. Describe the	2	LGF	MCQ/ OSPE

				process of somitogenesis. Describe the formation of cartilage			
59		Development of bone , cartilage and joints		Describe histogenesis of Bone. Describe the Intramembranous Ossification. Describe the Endochondral Ossification. Describe the Ossification of limb bones.	2	LGF	MCQ/ OSPE
				Describe the development of joints. Describe developmental events of fibrous joints. Describe developmental events of cartilaginous joint Describe developmental events of synovial joint	2	LGF	MCQ/ OSPE
				Describe the development of cartilage. Describe important congenital correlates	2	LGF	MCQ/ OSPE
60		Development of upper limb and Development of muscles		Describe the early stages of upper limb development Describe the development of upper limb buds Describe the final stages of upper limb development Describe and explain the anomalies of the upper limb Describe the development of skeletal muscle. Describe the development of	2	LGF	MCQ/ OSPE

				Myotomes and derivatives of epaxial divisions of myotomes and derivatives of hypaxial divisions of myotomes			
61		Bone histology		Define and identify compact and spongy bone Describe and identify bone matrix (organic and inorganic component) Describe and identify cells of boney tissue i.e. (osteoprogenitor, Osteoblasts, Osteoclasts, and Osteocytes) Describe and identify periosteum and endosteum Describe and identify the microscopic structure of bone i.e. (primary bone, secondary bone and haversian system) Describe Functions of various bone cells Describe important Functions and its role in calcium metabolism	2	SGF	MCQ/ OSPE
62		Classification & histology of cartilage		Describe the General properties of cartilage. Describe the Different types of cartilage. Describe the Hyaline, Elastic and Fibrocartilage Explain the growth of cartilage Identify types of cartilages on microscopy, including distinctive features of each. Describe the structural basis. Classify and	2	SGF	MCQ/ OSPE

				distinguish three types of cartilages Describe the microscopic structure of hyaline cartilage. Describe the microscopic structure of Elastic cartilage. Describe the microscopic structure of fibrous cartilage. Describe important functional correlates of three types of cartilages			
63		Classification & histology of bone		Recognize bone and its functions and ncomposition. Differentiate between woven bone and lamellar bone. Differentiate between compact bone and spongy bone. Describe the applied aspect of bone Identify three types of bone on microscopy, including distinctive features of each. Describe the structural basis of classification.	2	SGF	MCQ/ OSPE
64		Histology of muscles		Identify three types of muscles on microscopy, including distinctive features of each muscle fiber. Describe the structural basis of muscle striations. Recognize the structural elements that produces muscle contraction and brings the movement of a body part. Recognize the function and organization of the connective tissue	2	SGF	MCQ/ OSPE

				in muscle. Classify and distinguish three types of muscles Describe the microscopic structure of skeletal muscle Describe important functional correlates of skeletal, smooth Describe the microscopic structure of smooth muscle Identify/Describe the microscopic structure of cardiac muscle fiber Describe important functional correlates of cardiac muscle fiber			
THEME –II Weak grip and painful hand							
65		Osteology of radius & hand		Recognize the bones of forearm & hand Determine side of bones. Identify the features of bones. Identify the muscles attached to bones. Describe the ossification of bones Explain the clinical significance of bones. Describe the common fractures of the bone. Describe and Identify the salient features of the radius Identify the attachments to radius Describe the surface anatomy radius and the radiological anatomy radius Describe the applied anatomy radius	4	SGF	MCQ/ OSPE

				Describe and Identify the salient features bones of hand Identify the attachments to bones of hand Describe the surface anatomy main bones of hand and the radiological anatomy of main bones • Describe the applied anatomy main bones of hand including carpal tunnel and fractures	2	SGF	MCQ/ OSPE
66		Muscles of hand		Recall the structure and functions of palmar aponeurosis. Describe the attachments, nerve supply & actions of muscles of hand. Describe the thenar Muscles. Correlate the movements of thumb with hand anatomy. Identify the anatomical snuffbox. Relate applied with gross anatomy of few structures of hand Enumerate, describe and identify the small muscles of the hand	3	SGF	MCQ/ OSPE
				Describe Surface anatomy of important muscles of hand Identify structures on transverse MRI hand taken at various levels Describe relevant clinical anatomy of important muscles Identify/Describe joints of the hand and fingers (intercarpal joints,	3	LGF	MCQ/ OSPE

				carpometacarpal and intermetacarpal joints, carpometacarpal joint of the thumb, and metacarpophalangeal joints Describe surface , radiological and clinical anatomy of important joints			
67		Vessels & nerves of the hand		Identify different vessels in hand. Describe the location, destination course relations of radial and ulnar arteries in hand. State the branches of radial and ulnar arteries in hand. Describe the formation of superficial and deep palmar arch, veins of hand and their tributaries. Describe the nervous supply of the hand.	2	LGF	MCQ/ OSPE
68		Wrist joint and Spaces of the palm		Recognize the details of wrist joints. Describe and explain the movements occurring on wrist joints. Name the muscles acting in pronation and supination. Describe the nerve supply and blood supply of wrist joints. Describe wrist joint, nerve supply and blood supply. Describe clinical problems related to Wrist joints.	2	LGF	MCQ/ OSPE
THEME –III Pain lower limb/limping							

69		Introduction to lower limb and Hip bone		Recognize different parts of lower limb. Describe regions of lower limb. List the bones of lower limb. Describe the vessels and nerves of lower limb. Identify different land marks in different regions of lower limb. Describe the surface anatomy of hip bone.	2	SGF	MCQ/ OSPE
				Identify the different parts of the bone. Describe side determination. Describe muscle attachments. Describe ligamentous attachments. Describe the different bones articulating with the hip bone Identify the different parts of the bone. Describe the common fractures of the bone. Identify and describe the salient features of the bones of hip bone Identify the attachments of hip bone	2	SGF	MCQ/ OSPE
				Describe the radiological anatomy of hip bone Describe the applied anatomy of hip bone.	1	LGF	MCQ/ OSPE
70		The hip joint and movements		Describe the characteristics features of synovial joint Describe the Articular surfaces of hip joint Identify the capsule of hip joint Describe the synovial membrane, cavity & fluid of hip joint.	2	LGF	MCQ/ OSPE

				Enumerate the ligaments of hip joint & describe their attachments Describe the movements possible at hip joint Describe the clinical correlates of the hip joint Describe surface and radiological anatomy (X-rays and MRI) and clinical of hip joints			
71		Gluteal region		Describe Surface anatomy of important muscles Identify structures on transverse MRI of gluteal region taken at various levels Describe clinical anatomy of important muscles	2	SGF	MCQ/ OSPE
				Describe the boundaries of gluteal region Describe bones and ligaments of gluteal region Describe the different structures entering and leaving gluteal region Describe muscles of the gluteal region.	2	SGF	MCQ/ OSPE
				Describe Vessels of the gluteal region.	1	LGF	MCQ/ OSPE
				Describe nerves of the gluteal region. Describe about certain clinical correlates regarding gluteal region	2	SGF	MCQ/ OSPE
72		Femur		Identify different parts of the femur Determine the side of the bone Identify the surfaces and borders of the bone Describe the common fractures of the bone.	2	SGF	MCQ/ OSPE

				Describe the attachments of the different muscles and ligaments on the bone. Describe the arterial supply of the bone Relate to the general idea about fractures of femur and other clinical conditions Identify and describe the salient features of the bones of hip bone Describe the surface anatomy of femur Describe the radiological anatomy of femur Describe the applied anatomy of femur			
73		Nerves of lower limb and their injuries		Identify the names of nerves and their main branches innervating lower limb Identify the nerves closely related to a bone or other structure of lower limb Recognize the main nerves commonly vulnerable to injury Identify the main area and loss of function if particular nerve is injured Define and understand terms neuritis, anesthesia, par aesthesia, paralysis, neuralgia, sciatica	3	LGF	MCQ/ OSPE
74		Superficial vessels and lymphatic's of lower limb Deep fascia of thigh, iliotibialtract and superficial vessels		Enumerate and describe the superficial arteries of lower limb Name and Describe superficial veins of lower limb • List and Describe the superficial lymphatic vessels	2	LGF	MCQ/ OSPE

				and lymph nodes of lower limb. Describe the arrangement of deep fascia in thigh Describe how the iliotibial tract participates in walking and running Describe the location of saphenous opening and its relations Describe the great saphenous vein. • Describe clinical correlates of saphenous vein			
75		Muscles of the anterior fascial compartment of thigh		Describe the muscles of anterior compartment of thigh. Describe the nerve supply of anterior Compartment. • Describe the action of these muscles	1	SGF	MCQ/ OSPE
76		Nerves and vessels of anterior compartment of thigh		Describe the nerve supply of the anterior compartment of thigh. Describe the blood supply and the venous drainage of anterior compartment of thigh • Describe the action of these muscles	2	LGF	MCQ/ OSPE
77		The medial compartment of thigh and Posterior compartment of thigh		Describe the muscles of medial compartment of the thigh. Describe the nerve supply of these muscles. Describe the actions of the muscles of medial compartment of thigh • Describe the vessels of medial compartment of the thigh. Describe the	2	SGF	MCQ/ OSPE

				muscles of posterior compartment of thigh Describe the arterial supply of posterior compartment of thigh Discuss the trochanteric and cruciate anastomosis at the back of thigh Describe the venous drainage of this region Describe the nerve supply of posterior compartment of thigh and • Relate to the clinical conditions effecting the region			
78		Popliteal fossa and Femoral triangle and its contents		Describe the boundaries of popliteal fossa. Describe the contents of the popliteal fossa. • Describe some clinical correlates regarding popliteal fossa. Describe the boundaries of femoral triangle List the contents of femoral triangle Describe the femoral sheath & canal Describe the clinical correlates of the Femoral triangle. • Describe the location, boundaries and contents of adductor canal.	2	LGF	MCQ/ OSPE
79		Tibia bone, Fibula & bones of foot		Describe the division of tibia bone in 3 parts Identify the surfaces and borders of tibia Describe the attachments of muscles on the tibia bone Describe the ossification of	3	SGF	MCQ/ OSPE

				tibia and its primary and secondary ossification centers Describe the common fractures of the bone. Identify and describe the salient features of the bone of leg Identify the attachments to the bone of the leg Describe the surface anatomy of leg Describe the radiological anatomy of leg • Describe the applied anatomy of leg. Determine the side of bone. Describe the bony features along with its different attachments on the fibula. Name and describe the tarsal bones and their arrangement. Name and describe the metatarsal bones and phalangeal bones. Describe the common fractures of the bone. Describe the muscles of the sole of the foot (origin, insertion, nerve supply, blood supply, and action) Describe the muscles of the dorsum of the foot (origin, insertion, nerve supply, blood supply, and action) Describe Surface anatomy of important muscles Identify structures on transverse MRI of foot taken at various levels			

				Describe clinical anatomy of important muscles			
80		Anterior and lateral compartment of leg		identify the boundaries of the compartments of leg State the muscles of anterior and lateral compartment of leg Describe the vessels of anterior and lateral compartment of leg Describe the nerves of lateral and anterior compartment of leg • Describe action of these muscles	2	SGF	MCQ/ OSPE
81		Posterior compartment of leg		Explain the muscles of posterior Compartment of leg. Describe nerve supply of these muscles. Explain the actions of the muscles of • posterior compartment of leg	1	SGF	MCQ/ OSPE
82		Knee joint		Describe the type of knee joint Describe the articular surfaces of this joint Describe the articular capsule Describe the synovial membrane and the synovial cavity. Enumerate the ligaments of knee joint Describe the bursa around the knee joint Describe the blood and nerve supply of the knee joint Describe the mechanism of locking and unlocking of knee joint. Describe surface and radiological anatomy (Xrays	2	LGF	MCQ/ OSPE

				and MRI) and clinical • of knee joints			
83		Surface anatomy of lower limb		Demonstrate the surface anatomy of arteries of lower limb. Demonstrate the surface anatomy of superficial & deep veins lower limb. Demonstrate the surface anatomy of nerves of lower limb	2	SGF	MCQ/ OSPE
84		Development of lower limb		Describe the early stages of lower limb development Describe the development of lower limb buds Describe the final stages of lower limb development Describe and explain the anomalies of the lower limb	1	LGF	MCQ/ OSPE
THEME –IV Bony arches and fracture of foot							
85		Muscles and neurovascular supply of the foot		Describe the dorsal muscles of foot. Describe the origin and insertion of planter muscles of foot. Describe their nerve supply and actions. Describe vascular and nervous supply of sole and dorsum of foot Describe their course through foot Describe relationships Identify and describe the salient features of the bone of foot Identify the attachments to the bone of the foot Describe the surface anatomy of foot Describe the radiological anatomy of foot Describe the	2	SGF	MCQ/ OSPE

				applied anatomy of foot.			
86		Arches of foot		Describe the arches of foot Describe the factors responsible for their maintenance of the arches of the foot Recognize the injury when it occurs and be able to evaluate plantar fasciitis. Describe about counseling regarding the rehabilitation for plantar fasciitis	1	LGF	MCQ/ OSPE
THEME –V Backache							
87		Typical spinal nerve		Define a spinal nerve. Recognize the spinal nerve as a part of PNS. Enumerate the spinal nerves in different regions Identify their location and site of emergence. Identify various components of a typical spinal nerve. Recall the fate of rami. Associate the rami communicans with typical spinal nerve Recall the distribution of gray rami	1	LGF	MCQ/ OSPE
88		Vertebral column		Describe the muscles of back (origin, insertion, nerve supply, blood supply, and action) Describe Surface anatomy of important muscles Identify structures on CT/MRI of vertebral column taken at various levels Describe clinical anatomy of important muscles	1	SGF	MCQ/ OSPE

89		Lumbo sacral plexus, cutaneous nerves		Describe the formation of lumbar Plexus. List the branches of lumber plexus with their root values. Describe relation of the nerves with Psoas major muscle. List the structures supplied by lumbar plexus. Describe the formation of sacral plexus. Describe the composition and relations of sacral plexus. List the branches of this plexus	2	LGF	MCQ/ OSPE
Cardio Vascular System Module:				**THEM 1: 1- Chest Pain**			
90		Surface anatomy		Describe the surface marking of the heart Describe the surface marking of the heart valves Illustrate the surface marking of the aorta on models / x-rays Describe the surface marking of the superior vena cava Describe the surface marking of the inferior vena cava Describe the gross structure of the heart	2	SGF	OSPE
91		Coronary circulation		Describe the coronary arteries Enlist the branches of each main artery Describe the anastomosis of coronaries Identify the area of the heart supplied by a coronary artery and its branches Describe the venous drainage of the heart	2	SGF	MCQ/ OSPE

				Describe the lymphatic drainage of the heart			
92		Pericardium		Define pericardium Describe different reflections of pericardium Identify entry & exit of vessels of heart via pericardium Define the following clinical condition; pericarditis, pericardial effusion & cardiac Tamponade	2	LGF	MCQ
93		Histology of heart muscles		Explain the characteristics of cardiac muscle cell Explain the Structure of Intercalated disc Define the junctional specializations making up the intercalated disk Describe identification of different microscopic views of Cardiac muscle and its ultra-structures Differentiate histologically between cardiac and skeletal	2	SGF	OSPE

				muscle and smooth muscles Enumerate histological layers of heart wall			
THEM 2- Breathlessness and ankle swelling							
94		Fetal circulation & Cardiac developmental anomalies		Describe the physiological changes in circulation after birth Enlist the developmental anomalies of heart. Describe the congenital anomalies of the heart: ASD, VSD, PDA, Tetralogy of Fallot, transposition of the great vessels, Hemangioma and Telangiectasia	3	LGF	MCQ
THEM 3- Blood Pressure							
95		Histology of blood vessels		Describe the histological composition of vessel Describe the microscopic structure of artery and vein Differentiate histologically between artery and vein under light microscope Describe the histological composition of lymphatic channels	3	SGF	MCQ/ OSPE
96		Development of arteries and veins		Describe the development of arterial system Describe the development of venous system Describe the congenital	2	LGF	MCQ

				abnormalities in the vessels - Coarctation of Aorta			
THEM 4- Palpitations							
97		Conduction system of the heart		Describe the different components of conduction system: SA Node, AV Node, Bundle of His, Purkinjie Fibers & Bundle branches. Describe the sympathetic innervations of heart Describe the parasympathetic innervations of the heart	2	LGF	MCQ
Respiratory System Module:				**Theme-1: Chest wall injuries**			
98		Gross anatomy of thorax		Describe main features of thoracic wall. Describe the location and shape of the sternum Describe the parts of the sternum. Describe the articulations and muscle attachments.	1	SGF	MCQ/ OSPE
				Describe the gross features of the thoracic vertebrae a. Vertebral body b. Intervertebral disc c. Laminae d. Pedicles e. Intervertebral foramina f. Processes g. Ligaments. Differentiate between typical and atypical ribs. Describe different joints of thorax.	2	SGF	MCQ/ OSPE

				Discuss Intercostal muscles. Discuss the contents of intercostal spaces. Describe the origin of intercostal arteries.	1	LGF	MCQ/ OSPE
				Describe the origin, course and distribution of intercostal nerves. Discuss branches and course of internal thoracic artery	2	LGF	MCQ/ OSPE
99		Abnormalities of thoracic wall & Diaphragm		Describe thoracic wall abnormalities and its clinical correlation. Describe the origin and insertion of the diaphragm. Describe the openings of the diaphragm. Describe the nerve supply of diaphragm and its clinical significance.	2	LGF	MCQ/ OSPE
100		Mediastinum		Describe the contents of the superior mediastinum. Describe the contents of the Anterior & Posterior Mediastinum. Describe the relations of different contents in mediastinum.	2	SGF	MCQ
				Identify various anatomical landmarks on chest X-Rays, CT and MRI	1	SGF	MCQ/ OSPE
101		Development of Diaphragm		Describe development of diaphragm. Describe diaphragmatic hernias and clinical significance.	1	LGF	MCQ/ OSPE

102		Development of Ribs		Describe the development of ribs from costal elements of primitive vertebrae	1	LGF	MCQ/ OSPE
Theme-2: Cough and Hemoptysis							
103		Introduction, Trachea, bronchi and lungs		Describe the major components of the (upper and lower) respiratory system and describe their functions. Describe trachea and bronchi with relations plus subdivisions. Describe the neurovascular supply of trachea and bronchi. Describe the surfaces anatomy of trachea and bronchi.	1	LGF	MCQ/ OSPE
				Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and compare between right and left lungs. Describe innervations, blood supply and lymphatic drainage of the lungs.	2	SGF	MCQ/ OSPE
				Describe Broncho-pulmonary segments and their clinical importance.	1	LGF	MCQ/ OSPE
104		Development of Respiratory system		Describe development of trachea, bronchial tree, pleura, lungs. Recognize the cephalo-caudal and transverse folding of embryonic disc. Describe the extent of intra embryonic coelom after folding and its divisions into three serous cavities. State the derivatives of visceral and	2	LGF	MCQ/ OSPE

				parietal layers of mesoderm. State the pericardio-peritoneal canals and their final fate. Discuss the formation of Lung Bud			
105		Respiratory epithelium and connective tissues		Classify the types of epithelia lining the various parts of respiratory system. Differentiate between the histological differences among various parts of respiratory system. Describe the structure of trachea and its layer. Discuss the microscopic picture of respiratory bronchiole, alveolar ducts, alveolar sacs and alveoli. Describe the different types of cells found in alveoli.	2	LGF	MCQ/ OSPE
Theme-3: Breathlessness							
106		Mechanics of respiration		Describe briefly mechanics of respiration	1	LGF	MCQ/ OSPE
107		Pleura		Describe the gross features of pleura. Describe the pleural cavity and the pleural reflections. Describe the surface anatomy related to pleural reflections.	1	LGF	MCQ/ OSPE
108		Embryology of pleural cavity		Describe the development of pleural cavity	1	LGF	MCQ/ OSPE
109		Histology lungs		Discuss surfactant, alveolar septum, alveolar pores and alveolar macrophages	2	SGF	MCQ/ OSPE

Learning Resources:

Sr. No	Text/ Reference Books	Edition
1	Human Anatomy B.D Chaurasia	6th
2	Grey's Anatomy	4th
3	Medical Histology	5th
4	Langman's Medical embryology	14th
5	Snell's Clinical Anatomy	10th & 11th
6	Atlas of human anatomy	7th
7	Atlas of histology	9th
8	Snell's Clinical Neuroanatomy	8th

Additional Learning Resources:

Hands on	Museum / Histology Lab
Skills Lab	Histology Lab
Videos	Multimedia
Internet Resources	B & B, Dr Najeebs Lectures, Anatomy Zone, Kenhub

Assessment Methods:

- MCQs: Multiple Choice questions; Single best Type
- OSPE/OSCE: Objective Structured Practical

Multiple Choice Questions:

1. Single best type MCQs having five options with one correct answer and four distract or are part of assessment.
2. Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
3. Students mark their responses on specified computer-based designed sheet.

Objective Structured Practical:

1. OSPE stations are used for formative as well as summative assessment.
2. Time allocated for each station is five minutes as per Examination rules of Khyber Medical University, Peshawar.
3. All students are rotated through the same stations.
4. Stations used are unobserved, observed, interactive and rest stations.
5. On unobserved stations, models, lab reports, radiographs, flow charts, case

scenarios may be used to assess cognitive domain.

6. On observed station, examiners don't interact with candidate and just observe the performance of skills/procedures.
7. On interactive station, examiner asks questions related to the task within the allocated time.
8. On rest station, students are not given any task. They just wait to move to the next station.

Internal Assessment Criteria:

1. Internal Assessment of each block according to the policy of Khyber Medical University is given below.

Total Marks	Paper A = 14
	Paper B = 13
	Paper C = 13

2. This Internal Assessment will comprise of following components

   a) Attendance
   b) Block Examination Results
   c) Histology journal

Examination Rules & Regulations:

1. Exam Cell conducts the End of Module and Block Assessments according to the blue print provided by the Khyber Medical University, marks of which will be included in internal assessment.
2. The minimum passing marks in each subject shall be 50% in theory and practical. A student who fails in theory or practical examination of a subject shall be considered to have failed in the subject.
3. No student is eligible for university examination without attending at least 75% of lecturers, demonstrations, tutorials, and practical in that academic session.

Feedback on Examination:

1. Students' feedback on assessment strategies will be taken in a preformed proforma for feed back at the end of the session.
2. Department of Medical Education & Quality Enhancement Cell in collaboration with Exam Cell of WDC is responsible to conduct this exercise.

Model Questions:

One Best Question:

1. **Which of the following is an example of condylar type of joint?**
   a. Wrist Joint
   b. Atlanto Occipital Joint
   c. Temporomandibular Joint
   d. Hip Joint
   e. Elbow Joint

2. **A victim of an automobile accident is unable to abduct her left arm. This indicates damage to which of the following parts of the brachial plexus:**

a. Middle trunk & posterior cord
b. Middle trunk & lateral cord
c. Lower trunk & lateral cord
d. Upper trunk & posterior cord
e. Lower trunk & medial cord

3. **Infarction of cardiac muscle located near the posterior interventricular sulcus would most likely indicate a blockage of which of the following vessels?**
   a) circumflex artery
   b) Left anterior descending artery
   c) Left coronary artery
   d) Marginal artery
   e) Right coronary artery

Suggestions for Next Academic Year: 2024

Prepared By:
Dr Sadaf Shaheen
Associate Professor
Anatomy Department

STUDY GUIDE
2nd Year MBBS
Anatomy

Description:

Anatomy department is one of the most important department and a major pillar of the basic Medical / Dental sciences. The subject Anatomy enhances the knowledge, skills and abilities of undergraduate students to correlate and compare the normal anatomical structures with the pathological disease state. Thus, it familiarizes the students with the Anatomy of the human body serving as a platform for future clinical practice. Anatomy is considered as the backbone of all preclinical and clinical subjects encompassing General Anatomy, Gross Anatomy, Microscopic Anatomy (Histology), Developmental Anatomy (Embryology) and Neuro-anatomy. All the branches are taught in close integration with other basic and clinical subjects. Teaching modalities such as lectures, large group interactive sessions, small group discussions, practicals, and demonstrations are effectively incorporated.

Program	Bachelor Of Medicine Bachelor of Surgery
Course Name	**Anatomy**
Contact Hours	**550 hours Lecture Including Practicals**
Infrastructure Requirements	**Lecture Hall** **Museum** **Histology Lab (Equipped with multimedia system)** **Dissection Hall**

Faculty Responsible for Course Conduction:

Sr. No	Faculty	Designation
1	**Prof. Dr Muhammad Ashfaq**	**HOD, Anatomy**
2	**Dr. Atif Hussain**	**Associate Professor**
3	**Dr. Sadaf Shaheen**	**Associate Professor**
4	**Dr. Ashiq Hussain**	**Associate Professor**
5	**Dr. Adeela Ijaz**	**Senior Lecturer**
6	**Dr. Momina Sohail**	**Lecturer**
7	**Dr. Hina Asif**	**Lecturer**
8	**Dr. Bushra Iftikhar**	**Lecturer**

Details Of Supporting Staff:

Sr. No	Staff	Designation
1	**Nadeem**	**Computer Operator**
2	**Mr. Muhammad Ilyas**	**Technician**
3	**Miss Faiza Farhan**	**Lab Assistant**
4	**Miss Saira Ilyas**	**Museum Coordinator**
5	**Mr. Rafi**	**Office Attendant**
6	**Mr. Zaman**	**Dissection Hall Attendant**
7	**Qazi Shahzaib**	**Office Attendant**

S.No	Class	Topic	Module	Learning Outcomes	Teaching Hours	Mode of Teaching	Assessment Tools
Foundation Module:			**THEME–I: Orientation**				
1	**1st year MBBS**	Anatomy and its sub branches	**Foundation I**	Define anatomy and its branches Describe purpose of study of anatomy and its branches	1	LGF	MCQ
THEME–II: CELL							
2		Cell structure and its Organelles		Describe the cell as a living unit of body Describe the structure of cell and its organelles. Describe the structure of cytoplasmic organelles of the cell & correlate it with their functions.	2	LGF	MCQ/ OSPE
3		Nuclear structure & components		Describe the structure of the nucleus, nucleolus & chromosome and their functions in cell integrity.	1	LGF	MCQ
4		Cell division Mitosis		Explain the process of cell division. Explain the process of cell division. Describe mitotic cell division with its stages.	1	LGF	MCQ

5		Meiosis		Explain the process of Meiosis Describe karyotyping. Explain the non-disjunction of chromosomes. Correlate the process of non-disjunction with chromosomal abnormalities	2	SGF	OSPE
		THEME–III: GROWTH & DEVELOPMENT OF HUMAN BODY					
6		Introduction to Embryology		Describe the developmental stages. Describe the embryologic terminology. Explain significance of embryology.	2	SGF	MCQ/OSPE
7		Spermato-Genesis		Describe the process of spermatogenesis. Differentiate between spermiogenesis and spermatogenesis. Describe the morphological changes during maturation of gametes.	2	LGF	MCQ
8		Oogenesis		Describe oogenesis and its correlation with meiosis. Compare the male and female gametes.	1	LGF	MCQ

9		Transport Of Gametes		Explain the transport of gametes. Describe the transport of sperms. Describe the oocyte transport. Explain the maturation of sperms.	1	LGF	MCQ
10		Female reproductive cycle		Describe the ovarian cycle. Discuss the process of follicular development Explain the process of ovulation. Correlate ovulation with the phases of menstrual cycle.	2	SGF	MCQ/ OSPE
11		Fertilization –Events		Define fertilization. Describe the process of fertilization. Explain assisted reproductive technologies like In-vitro fertilization (IVF), assisted IVF and intra cytoplasmic sperm injection (ICSI).	2	SGF	MCQ/ OSPE
12		Fertilization – Clinical Correlates Cleavage & Blastocyst Formation		Discuss the clinical correlation of the fertilization. Describe the process of cleavage of zygote. Discuss the	2	LGF	MCQ

				formation of blastocyst. Summarize the events of first week of development.			
13		Implantation & Its Abnormalities		Describe the process of implantation. Enumerate the sites of implantation. Explain the clinical correlations of the implantation process.	1	LGF	MCQ
14		Amniotic cavity		Describe the formation of amniotic cavity Describe the development of embryonic disc Describe the development of umbilical vesicle. Explain the development of Chorionic sac.	3	LGF	MCQ
15		Events Of 2nd Week of Development		Summarize the events of second week of development. Explain the clinical correlates of the second week of development.	2	LGF	MCQ
16		Formation of Notochord		Explain the process of formation of Notocord	1	LGF	MCQ

17		Events of 3rd Week of Development		Describe the process of gastulation. Explain the process of Neurulation. Explain the development of somites. Describe the development of intra-embryonic coelom.	2	LGF	MCQ
18		Derivatives of germ layers		Describe briefly derivatives of germ layers: Ectoderm, Mesoderm and Endoderm	1	LGF	MCQ
19		Further development of Trophoblast and Neurelation		Describe the process of development of Trophoblast and neurulation	2	LGF	MCQ
20		Fetal membranes		Describe the formation of fetal membranes	2	LGF	MCQ
21		4th week: Folding of embryo		Describe the process and types of folding of embryo	1	LGF	MCQ
22		Highlights of 4-8 weeks		Enlist the events occurring in 4-8 weeks of development	2	LGF	MCQ
THEME–IV: HUMAN BODY TISSUES, BONES & JOINTS							
23		Organization of human body and Anatomical terms		Describe the levels of organization of human body Describe the anatomical terms for planes, position and movements	4	SGF	MCQ /OSPE

24		Classification of Bones		Describe the structure and function of bone Classify bones on the basis of length and shape. Identify the markings on bone	2	SGF	MCQ /OSPE
25		Cartilage		Describe cartilage Classify the types of cartilage Describe the types of cartilages	2	SGF	MCQ/ OSPE
26		Introduction to Joints		Classify joints on the basis of structure. Describe the mechanism of movements of joint	2	SGF	MCQ/ OSPE
27		Muscles		Describe various muscle types along with structure.	2	SGF	MCQ /OSPE
28		Skin / Integumentary system Skin (dermis & epidermis) Skin creases, Nails, Hairs, Glands (Sebaceous & sweat)		Discuss the anatomical structures of Skin / Integumentary system	2	LGF	MCQ
29		Lymphatic system		Describe the lymphatic system. Explain the functions of lymphatic system Describe the organization of lymphatic system Explain the mechanisms for the movement of lymph in the body.	2	LGF	MCQ
30		Nervous system Divisions (central & peripheral and somatic & autonomic)		Define the organization of nervous system Describe the divisions of nervous system Describe the formation of spinal nerve and concept of dermatome and myotome Describe the formation of nerve plexus.	2	LGF	MCQ

31		Autonomic Nervous system Sympathetic. parasympathetic nervous system		Describe the organization of autonomic nervous system Differentiate between sympathetic and parasympathetic nervous system on the basis of structure.	2	LGF	MCQ
32		Membranes: Mucous membranes, Serous membranes, Fascia, ligaments and raphe		Describe the structure of membranes of human body Describe the anatomy and significance of fascia, ligaments and raphe.	2	LGF	MCQ
33		Radiological anatomy		Identify various anatomical landmarks on radiography. Describe commonly used radiographs. Describe various view used for obtaining radiographs.	2	SGF	MCQ/ OSPE
34		Basic Body tissue Definition of tissue Epithelial tissue Connective tissue Muscular tissue Nervous tissue. Epithelial tissues Classification of epithelium General characteristics and Functions of epithelium.		Define tissue Describe the basic tissues in human body. Classify epithelium describe the general features of epithelium	1	LGF	MCQ/ OSPE
				Explain the specialized functions of different types of epithelial cells Describe the structure of main types of cell junctions	2	SGF	MCQ/ OSPE
35		Glandular Epithelium		Enlist glandular epithelia Classify them on the basis of morphology, nature of secretion and mode of secretion Differentiate between exocrine &	2	SGF	MCQ/ OSPE

				endocrine glands on the basis of structure and function.			
36		Epithelial Cell Surface Specialization Structure & Function of Basement Membrane		Describe the surface specialization of epithelia Correlate their structure, with their location and function.	2	SGF	MCQ/ OSPE
				Describe the structure of basement membrane & correlate it with its function.	1	LGF	MCQ/ OSPE
37		Connective tissue		Define connective tissue. Classify connective tissues. Explain the different types of Connective tissues	4	SGF	MCQ/ OSPE
Blood Module:				THEME I: Pallor and Swelling			
38		Introduction to hematopoietic system	Blood Module	Describe various components of hematopoietic system including their locations and their functions Describe surface anatomy and applied anatomy of main organs of hematopoietic system Define and classify lymphoid organs and lymphoid tissues	2	LGF	MCQ/ OSPE
				THEME II: Fever (Infection and Immunology)			
39		Gross anatomy of hematopoietic system		Locate, identify and describe the main gross external features of spleen, lymph node, thymus and tonsils Describe neurovascular supply of the	2	LGF	MCQ

				mentioned structures			
				Outline the surface anatomy of main lymph nodes, spleen, thymus and tonsils Enlist the causes of splenic injuries	2	SGF	MCQ/ OSPE
40		Histology of lymphoid tissues		Describe the overview of lymphatic tissue including MALT Identify and describe the histological features and functions of Lymph node Identify and describe the histological features and functions of Thymus Identify the locations of tonsils and describe the histological features and functions of Tonsils Describe the histological features and functions of spleen.	3	SGF	MCQ/ OSPE
41		Embryology/ Developmental Anatomy of lymphoid tissue		Describe the development of lymphoid organs including lymph nodes, tonsils, thymus and spleen	3	LGF	MCQ
Musculoskeletal Module:				**THEME –I ORIENTATION AND SHOULDER PAIN**			
42		Introduction to locomotion and upper limb,	Musculo skeletal Module	Define osseous tissue • Classify the skeletal system (axial and • appendicular) • Name and locate different bones of • axial and	3	LGF	MCQ

				appendicular skeleton • Classify bones • Describe general features of bones • Describe Nerve/blood supply of bone • Describe bone marrow and its types • Describe ossification and its types • Describe surface markings of bones • Define fracture, osteoporosis, rickets, osteomalacia • Introduction to muscular system • Classify the muscles according to the • directions of fibers • Classify the skeletal muscles according to their action. • Types of skeletal muscle fibers(Type1 ,2,3) • Describe the nomenclature of skeletal muscles • Describe the principle of innervations • and nerve supply of muscles • Define paralysis, hyperplasia, hypertrophy, myasthenia gravis. Identify the extent of the upper limb. Identify various regions of upper limb. Describe the division of the regions into compartments. State the contents of compartments of arm, forearm & hand Describe the joints of upper limb. Describe the clinical anatomy of upper limb			

43		Osteology of clavicle and scapula		Recognize the bone Identify the site of bone State the bony land marks of clavicle: like borders, surfaces & land mark used for bone determination Describe & demonstrate the attachments of muscles. Describe the common fractures of the bone. Identify and describe the salient features of the bones scapula and clavicle Describe the surface anatomy clavicle Describe the radiological anatomy clavicle. Describe the applied anatomy clavicle.	4	SGF	MCQ/ OSPE
				Recognize the bone. Identify the site of bone. State the bony landmarks of scapula: like borders, surfaces & land mark used for bone determination. Demonstrate the attachment of muscles on scapula Describe the common fractures of the bone. Identify and describe the salient features of the bones scapula. Identify the attachments to scapula Describe the surface anatomy scapula Describe the radiological anatomy scapula. Describe the applied anatomy scapula.	2	SGF	MCQ/ OSPE
44		Osteology of humerus		Recognize the bone. Identify the site of bone. State the bony landmarks of humerus: like	3	SGF	MCQ/ OSPE

				borders, surfaces & land mark used for bone determination. Demonstrate the attachment of muscles & ligaments. Describe the common fractures of the bone. Identify and describe the salient features of the humerus Identify the attachments to humerus Describe the surface anatomy humerus Describe the radiological anatomy humerus Describe the applied anatomy humerus			
45		Muscles of the pectoral girdle and Muscles of the shoulder region		Recognize the role of muscles of pectoral region in stabilizing the pectoral girdle. List the muscle of pectoral girdle. Describe & Demonstrate the attachments of muscle of pectoral girdle, nerve supply and actions. Describe the structural organization of the clavi-pectoral fascia. Identify the triangle of auscultation. Describe the nerves and blood vessels of this region.	4	SGF	MCQ/ OSPE
				Recognize the extent of shoulder region. Describe the muscle of shoulder region. List the muscles of shoulder region. State the detailed structures of each muscle with respect to Origin, Insertion, Nerve supply and Action of muscles with any	2	SGF	MCQ/ OSPE

				characteristic features.			
46		The shoulder joint & its movements		Classify the type of shoulder joint. Describe the structure of shoulder joint. Page 9 of 45 Name the muscles acting on the joint/rotator cuff muscles. Explain the range of mobility. Describe the movements of shoulder joint. Explain the clinical anatomy of the joint	2	LGF	MCQ/ OSPE
47		Brachial plexus		Mention the formation of brachial plexus (roots, trunk, division, and cords). Describe the relation of brachial plexus also in connection to clavicle (Supra, retro, infra clavicular parts). State the branches arising the different cords. Draw the brachial plexus. Describe the clinical correlates of the brachial plexus. Erbduchane palsy Klumpke's palsy Saturday night palsy	2	LGF	MCQ/ OSPE
48		Nerves of upper limb		Describe the course and branches of nerves of upper limbs. Axillary nerve Musculocutaneous nerve Radial Nerve Ulnar Nerve Median Nerve Explain the injuries associated with these nerves. Identify the causes and motor and sensory loss associated with nerve injuries of upper limb. Apply	2	LGF	MCQ/ OSPE

				knowledge of gross anatomy to identify the deformities associated with these nerves.			
49		Axilla		Describe the position, shape of axilla. Describe the boundaries and content of axilla Describe the boundaries and muscle forming the boundaries of axilla. Describe the formation, course and relations of axillary vessels. Describe arrangement and groups axillary lymph nod	2	LGF	MCQ/ OSPE
50		Arm		Describe the compartments of arm and how they are formed. Identify and explain the muscles and their actions found in the arm. Describe the nerve supply of arm. Describe the course of the nerves Identify the branches of the nerves Relate & integrate with the clinical correlations Describe cutaneous supply of arm.	2	SGF	MCQ/ OSPE
51		Brachial vessels		Describe the extension, relation and branches of the Brachial artery. Describe the course of the Basilic and cephalic veins Describe and explain the formation and purpose of the scapular anastomosis.	2	LGF	MCQ/ OSPE
52		Elbow joint		Identify the type of the joint. State and Identify the muscles acting on the elbow joint. Describe the	2	LGF	MCQ/ OSPE

				neurovascular supply of the joint. Describe the carrying angle and applied aspect of the joint. Describe the anastomosis and collateral circulation. Describe formation of anastomosis around elbow joint.			
53		Osteology of ulna		Recognize the bone. Determine the side of bone. Identify the features of bone. Identify the muscles attached to bone. Describe the common fractures of the bone. Describe and Identify the salient features of the ulna Identify the attachments to ulna Describe the surface anatomy ulna and the radiological anatomy ulna. Describe the applied anatomy ulna	3	SGF	MCQ/ OSPE
54		Superficial veins, lymphatics and lymph nodes of upper limb Cubital fossa		Describe the normal anatomy of veins of upper limb. Differentiate between superficial and deep veins. Describe the features of individual superficial veins of upper limb. Correlate the applied anatomy with the gross anatomy of superficial Veins of upper limb. Describe the structure of a lymph node. Identify the groups of lymph nodes. Describe groups and area of drainage of each group of lymph nodes. Describe the	2	LGF	MCQ/ OSPE

				commencement, course and termination of superficial lymphatic vessels. Describe the clinical conditions related to lymphatic channels of upper Describe the boundaries, the contents and the relationship among structures of Cubital fossa. Demonstrate the surface anatomy of the Cubital fossa. Explain the clinical importance of the Cubital fossa.			
55		Anterior compartment of forearm and Posterior compartment of forearm		List the muscles of forearm. State the nerve supply of these muscles. Explain actions of the muscles of anterior compartment of forearm. Describe attachment and functions of flexor retinaculum Identify/Describe muscles of the anterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action)	2	SGF	MCQ/ OSPE
				Explain the organization of muscles of posterior compartment of forearm Identify/Describe muscles of the posterior compartment of the arm (origin, insertion, nerve supply, blood supply, and action) State the nerve supply of these muscles. Explain	2	SGF	MCQ/ OSPE

				the actions of the muscles of posterior compartment of forearm. Describe the structural organization of the Extensor Retinaculum.			
56		Blood vessels & nerves of the forearm		Describe the different vessels & nerves in forearm. Describe the location, destination, course & relations of radial and ulnar arteries & their branches in forearm.	3	SGF	MCQ/ OSPE
				Describe the deep veins of forearm and their tributaries. Describe the location, destination, course & relations of ulnar, radial and median nerves & their branch.	3	LGF	MCQ/ OSPE
57		Radio-ulnar joint and Surface anatomy of upper limb		Recognize the details of Radio-ulnar joint. Describe and explain the movements occurring on Radio-ulnar joint. Name the muscles acting in pronation and supination. Describe the nerve supply and blood supply of Radio-ulnar joint. Describe clinical problems related to Radio-ulnar joints.	2	SGF	MCQ/ OSPE
				Demonstrate the surface markings for various arteries of upper limb	2	SGF	MCQ/ OSPE
58		Somitogenesis		Define the process of gastulation. Describe the development of mesoderm. Describe the process of somitogenesis. Describe the formation of cartilage	2	LGF	MCQ/ OSPE

59		Development of bone , cartilage and joints		Describe histogenesis of Bone. Describe the Intramembranous Ossification. Describe the Endochondral Ossification. Describe the Ossification of limb bones.	2	LGF	MCQ/ OSPE
				Describe the development of joints. Describe developmental events of fibrous joints. Describe developmental events of cartilaginous joint Describe developmental events of synovial joint	2	LGF	MCQ/ OSPE
				Describe the development of cartilage. Describe important congenital correlates	2	LGF	MCQ/ OSPE
60		Development of upper limb and Development of muscles		Describe the early stages of upper limb development Describe the development of upper limb buds Describe the final stages of upper limb development Describe and explain the anomalies of the upper limb Describe the development of skeletal muscle. Describe the development of Myotomes and derivatives of epaxial divisions of myotomes and derivatives of	2	LGF	MCQ/ OSPE

				hypaxial divisions of myotomes			
61		Bone histology		Define and identify compact and spongy bone Describe and identify bone matrix (organic and inorganic component) Describe and identify cells of boney tissue i.e. (osteoprogenitor, Osteoblasts, Osteoclasts, and Osteocytes) Describe and identify periosteum and endosteum Describe and identify the microscopic structure of bone i.e. (primary bone, secondary bone and haversian system) Describe Functions of various bone cells Describe important Functions and its role in calcium metabolism	2	SGF	MCQ/ OSPE
62		Classification & histology of cartilage		Describe the General properties of cartilage. Describe the Different types of cartilage. Describe the Hyaline, Elastic and Fibrocartilage Explain the growth of cartilage Identify types of cartilages on microscopy, including distinctive features of each. Describe the structural basis. Classify and distinguish three types of cartilages Describe the microscopic structure of hyaline	2	SGF	MCQ/ OSPE

				cartilage. Describe the microscopic structure of Elastic cartilage. Describe the microscopic structure of fibrous cartilage. Describe important functional correlates of three types of cartilages			
63		Classification & histology of bone		Recognize bone and its functions and ncomposition. Differentiate between woven bone and lamellar bone. Differentiate between compact bone and spongy bone. Describe the applied aspect of bone Identify three types of bone on microscopy, including distinctive features of each. Describe the structural basis of classification.	2	SGF	MCQ/ OSPE
64		Histology of muscles		Identify three types of muscles on microscopy, including distinctive features of each muscle fiber. Describe the structural basis of muscle striations. Recognize the structural elements that produces muscle contraction and brings the movement of a body part. Recognize the function and organization of the connective tissue in muscle. Classify and distinguish three types of muscles Describe the microscopic	2	SGF	MCQ/ OSPE

				structure of skeletal muscle Describe important functional correlates of skeletal, smooth Describe the microscopic structure of smooth muscle Identify/Describe the microscopic structure of cardiac muscle fiber Describe important functional correlates of cardiac muscle fiber			
THEME –II Weak grip and painful hand							
65		Osteology of radius & hand		Recognize the bones of forearm & hand Determine side of bones. Identify the features of bones. Identify the muscles attached to bones. Describe the ossification of bones Explain the clinical significance of bones. Describe the common fractures of the bone. Describe and Identify the salient features of the radius Identify the attachments to radius Describe the surface anatomy radius and the radiological anatomy radius Describe the applied anatomy radius	4	SGF	MCQ/ OSPE
				Describe and Identify the salient features bones of hand Identify the attachments to bones of hand Describe the surface anatomy main bones of hand and the radiological anatomy of main bones • Describe the	2	SGF	MCQ/ OSPE

				applied anatomy main bones of hand including carpal tunnel and fractures			
66		Muscles of hand		Recall the structure and functions of palmar aponeurosis. Describe the attachments, nerve supply & actions of muscles of hand. Describe the thenar Muscles. Correlate the movements of thumb with hand anatomy. Identify the anatomical snuffbox. Relate applied with gross anatomy of few structures of hand Enumerate, describe and identify the small muscles of the hand	3	SGF	MCQ/ OSPE
				Describe Surface anatomy of important muscles of hand Identify structures on transverse MRI hand taken at various levels Describe relevant clinical anatomy of important muscles Identify/Describe joints of the hand and fingers (intercarpal joints, carpometacarpal and intermetacarpal joints, carpometacarpal joint of the thumb, and metacarpophalangeal joints Describe surface , radiological and clinical anatomy of important joints	3	LGF	MCQ/ OSPE

67		Vessels & nerves of the hand		Identify different vessels in hand. Describe the location, destination course relations of radial and ulnar arteries in hand. State the branches of radial and ulnar arteries in hand. Describe the formation of superficial and deep palmar arch, veins of hand and their tributaries. Describe the nervous supply of the hand.	2	LGF	MCQ/ OSPE
68		Wrist joint and Spaces of the palm		Recognize the details of wrist joints. Describe and explain the movements occurring on wrist joints. Name the muscles acting in pronation and supination. Describe the nerve supply and blood supply of wrist joints. Describe wrist joint, nerve supply and blood supply. Describe clinical problems related to Wrist joints.	2	LGF	MCQ/ OSPE
THEME –III Pain lower limb/limping							
69		Introduction to lower limb and Hip bone		Recognize different parts of lower limb. Describe regions of lower limb. List the bones of lower limb. Describe the vessels and nerves of lower limb. Identify different land marks in different regions of lower limb. Describe the surface anatomy of hip bone.	2	SGF	MCQ/ OSPE

				Identify the different parts of the bone. Describe side determination. Describe muscle attachments. Describe ligamentous attachments. Describe the different bones articulating with the hip bone Identify the different parts of the bone. Describe the common fractures of the bone. Identify and describe the salient features of the bones of hip bone Identify the attachments of hip bone	2	SGF	MCQ/ OSPE
				Describe the radiological anatomy of hip bone Describe the applied anatomy of hip bone.	1	LGF	MCQ/ OSPE
70		The hip joint and movements		Describe the characteristics features of synovial joint Describe the Articular surfaces of hip joint Identify the capsule of hip joint Describe the synovial membrane, cavity & fluid of hip joint. Enumerate the ligaments of hip joint & describe their attachments Describe the movements possible at hip joint Describe the clinical correlates of the hip joint Describe surface and radiological anatomy (X-rays and MRI) and clinical of hip joints	2	LGF	MCQ/ OSPE

71		Gluteal region		Describe Surface anatomy of important muscles Identify structures on transverse MRI of gluteal region taken at various levels Describe clinical anatomy of important muscles	2	SGF	MCQ/ OSPE
				Describe the boundaries of gluteal region Describe bones and ligaments of gluteal region Describe the different structures entering and leaving gluteal region Describe muscles of the gluteal region.	2	SGF	MCQ/ OSPE
				Describe Vessels of the gluteal region.	1	LGF	MCQ/ OSPE
				Describe nerves of the gluteal region. Describe about certain clinical correlates regarding gluteal region	2	SGF	MCQ/ OSPE
72		Femur		Identify different parts of the femur Determine the side of the bone Identify the surfaces and borders of the bone Describe the common fractures of the bone. Describe the attachments of the different muscles and ligaments on the bone. Describe the arterial supply of the bone Relate to the general idea about fractures of femur and other clinical conditions Identify and describe the salient features of the bones of hip bone Describe the surface anatomy of femur Describe the radiological	2	SGF	MCQ/ OSPE

				anatomy of femur Describe the applied anatomy of femur			
73		Nerves of lower limb and their injuries		Identify the names of nerves and their main branches innervating lower limb Identify the nerves closely related to a bone or other structure of lower limb Recognize the main nerves commonly vulnerable to injury Identify the main area and loss of function if particular nerve is injured Define and understand terms neuritis, anesthesia, par aesthesia, paralysis, neuralgia, sciatica	3	LGF	MCQ/ OSPE
74		Superficial vessels and lymphatic's of lower limb Deep fascia of thigh, iliotibialtract and superficial vessels		Enumerate and describe the superficial arteries of lower limb Name and Describe superficial veins of lower limb • List and Describe the superficial lymphatic vessels and lymph nodes of lower limb. Describe the arrangement of deep fascia in thigh Describe how the iliotibial tract participates in walking and running Describe the location of saphenous opening and its relations Describe the great saphenous vein. • Describe clinical correlates of saphenous vein	2	LGF	MCQ/ OSPE
75		Muscles of the anterior fascial compartment		Describe the muscles of anterior compartment of thigh. Describe the	1	SGF	MCQ/ OSPE

		of thigh		nerve supply of anterior Compartment. • Describe the action of these muscles			
76		Nerves and vessels of anterior compartment of thigh		Describe the nerve supply of the anterior compartment of thigh. Describe the blood supply and the venous drainage of anterior compartment of thigh • Describe the action of these muscles	2	LGF	MCQ/ OSPE
77		The medial compartment of thigh and Posterior compartment of thigh		Describe the muscles of medial compartment of the thigh. Describe the nerve supply of these muscles. Describe the actions of the muscles of medial compartment of thigh • Describe the vessels of medial compartment of the thigh. Describe the muscles of posterior compartment of thigh Describe the arterial supply of posterior compartment of thigh Discuss the trochanteric and cruciate anastomosis at the back of thigh Describe the venous drainage of this region Describe the nerve supply of posterior compartment of thigh and • Relate to the clinical conditions effecting the region	2	SGF	MCQ/ OSPE
78		Popliteal fossa and Femoral triangle and its contents		Describe the boundaries of popliteal fossa. Describe the	2	LGF	MCQ/ OSPE

				contents of the popliteal fossa. • Describe some clinical correlates regarding popliteal fossa. Describe the boundaries of femoral triangle List the contents of femoral triangle Describe the femoral sheath & canal Describe the clinical correlates of the Femoral triangle. • Describe the location, boundaries and contents of adductor canal.			
79		Tibia bone, Fibula & bones of foot		Describe the division of tibia bone in 3 parts Identify the surfaces and borders of tibia Describe the attachments of muscles on the tibia bone Describe the ossification of tibia and its primary and secondary ossification centers Describe the common fractures of the bone. Identify and describe the salient features of the bone of leg Identify the attachments to the bone of the leg Describe the surface anatomy of leg Describe the radiological anatomy of leg • Describe the applied anatomy of leg. Determine the side of bone. Describe the bony features along with its different attachments on the fibula. Name and describe the tarsal	3	SGF	MCQ/ OSPE

				bones and their arrangement. Name and describe the metatarsal bones and phalangeal bones. Describe the common fractures of the bone. Describe the muscles of the sole of the foot (origin, insertion, nerve supply, blood supply, and action) Describe the muscles of the dorsum of the foot (origin, insertion, nerve supply, blood supply, and action) Describe Surface anatomy of important muscles Identify structures on transverse MRI of foot taken at various levels Describe clinical anatomy of important muscles			
80		Anterior and lateral compartment of leg		identify the boundaries of the compartments of leg State the muscles of anterior and lateral compartment of leg Describe the vessels of anterior and lateral compartment of leg Describe the nerves of lateral and anterior compartment of leg • Describe action of these muscles	2	SGF	MCQ/ OSPE
81		Posterior compartment of leg		Explain the muscles of posterior Compartment of leg. Describe nerve supply of these muscles. Explain the actions of the muscles of • posterior compartment of leg	1	SGF	MCQ/ OSPE
82		Knee joint		Describe the type of knee joint Describe the articular	2	LGF	MCQ/ OSPE

				surfaces of this joint Describe the articular capsule Describe the synovial membrane and the synovial cavity. Enumerate the ligaments of knee joint Describe the bursa around the knee joint Describe the blood and nerve supply of the knee joint Describe the mechanism of locking and unlocking of knee joint. Describe surface and radiological anatomy (Xrays and MRI) and clinical • of knee joints			
83		Surface anatomy of lower limb		Demonstrate the surface anatomy of arteries of lower limb. Demonstrate the surface anatomy of superficial & deep veins lower limb. Demonstrate the surface anatomy of nerves of lower limb	2	SGF	MCQ/ OSPE
84		Development of lower limb		Describe the early stages of lower limb development Describe the development of lower limb buds Describe the final stages of lower limb development Describe and explain the anomalies of the lower limb	1	LGF	MCQ/ OSPE
THEME –IV Bony arches and fracture of foot							
85		Muscles and neurovascular supply of the foot		Describe the dorsal muscles of foot. Describe the origin and insertion of planter muscles of foot. Describe their nerve supply and actions. Describe	2	SGF	MCQ/ OSPE

				vascular and nervous supply of sole and dorsum of foot Describe their course through foot Describe relationships Identify and describe the salient features of the bone of foot Identify the attachments to the bone of the foot Describe the surface anatomy of foot Describe the radiological anatomy of foot Describe the applied anatomy of foot.			
86		Arches of foot		Describe the arches of foot Describe the factors responsible for their maintenance of the arches of the foot Recognize the injury when it occurs and be able to evaluate plantar fasciitis. Describe about counseling regarding the rehabilitation for plantar fasciitis	1	LGF	MCQ/ OSPE
THEME –V Backache							
87		Typical spinal nerve		Define a spinal nerve. Recognize the spinal nerve as a part of PNS. Enumerate the spinal nerves in different regions Identify their location and site of emergence. Identify various components of a typical spinal nerve. Recall the fate of rami. Associate the rami communicans with typical spinal nerve Recall the distribution of gray rami	1	LGF	MCQ/ OSPE

88		Vertebral column		Describe the muscles of back (origin, insertion, nerve supply, blood supply, and action) Describe Surface anatomy of important muscles Identify structures on CT/MRI of vertebral column taken at various levels Describe clinical anatomy of important muscles	1	SGF	MCQ/ OSPE
89		Lumbo sacral plexus, cutaneous nerves		Describe the formation of lumbar Plexus. List the branches of lumber plexus with their root values. Describe relation of the nerves with Psoas major muscle. List the structures supplied by lumbar plexus. Describe the formation of sacral plexus. Describe the composition and relations of sacral plexus. List the branches of this plexus	2	LGF	MCQ/ OSPE
Cardio Vascular System Module:				**THEM 1: 1- Chest Pain**			
90		Surface anatomy		Describe the surface marking of the heart Describe the surface marking of the heart valves Illustrate the surface marking of the aorta on models / x-rays Describe the surface marking of the superior vena cava Describe the surface marking of the inferior vena cava Describe the gross structure of the heart	2	SGF	OSPE
91		Coronary circulation		Describe the coronary arteries Enlist the branches of each main artery Describe the	2	SGF	MCQ/ OSPE

				anastomosis of coronaries Identify the area of the heart supplied by a coronary artery and its branches Describe the venous drainage of the heart Describe the lymphatic drainage of the heart			
92		Pericardium		Define pericardium Describe different reflections of pericardium Identify entry & exit of vessels of heart via pericardium Define the following clinical condition; pericarditis, pericardial effusion & cardiac Tamponade	2	LGF	MCQ
93		Histology of heart muscles		Explain the characteristics of cardiac muscle cell Explain the Structure of Intercalated disc Define the junctional specializations making up the intercalated disk Describe identification of different microscopic views of Cardiac muscle	2	SGF	OSPE

				and its ultra-structures Differentiate histologically between cardiac and skeletal muscle and smooth muscles Enumerate histological layers of heart wall			
THEM 2- Breathlessness and ankle swelling							
94		Fetal circulation & Cardiac developmental anomalies		Describe the physiological changes in circulation after birth Enlist the developmental anomalies of heart. Describe the congenital anomalies of the heart: ASD, VSD, PDA, Tetralogy of Fallot, transposition of the great vessels, Hemangioma and Telangiectasia	3	LGF	MCQ
THEM 3- Blood Pressure							
95		Histology of blood vessels		Describe the histological composition of vessel Describe the microscopic structure of artery and vein Differentiate histologically between artery and vein under light microscope Describe the histological composition of lymphatic channels	3	SGF	MCQ/ OSPE

96		Development of arteries and veins		Describe the development of arterial system Describe the development of venous system Describe the congenital abnormalities in the vessels - Coarctation of Aorta	2	LGF	MCQ
THEM 4- Palpitations							
97		Conduction system of the heart		Describe the different components of conduction system: SA Node, AV Node, Bundle of His, Purkinjie Fibers & Bundle branches. Describe the sympathetic innervations of heart Describe the parasympathetic innervations of the heart	2	LGF	MCQ
Respiratory System Module:			**Theme-1: Chest wall injuries**				
98		Gross anatomy of thorax		Describe main features of thoracic wall. Describe the location and shape of the sternum Describe the parts of the sternum. Describe the articulations and muscle attachments.	1	SGF	MCQ/ OSPE
				Describe the gross features of the thoracic vertebrae a. Vertebral body b. Intervertebral disc c. Laminae d. Pedicles e. Intervertebral foramina f. Processes g. Ligaments. Differentiate between typical and atypical ribs.	2	SGF	MCQ/ OSPE

				Describe different joints of thorax.			
				Discuss Intercostal muscles. Discuss the contents of intercostal spaces. Describe the origin of intercostal arteries.	1	LGF	MCQ/ OSPE
				Describe the origin, course and distribution of intercostal nerves. Discuss branches and course of internal thoracic artery	2	LGF	MCQ/ OSPE
99		Abnormalities of thoracic wall & Diaphragm		Describe thoracic wall abnormalities and its clinical correlation. Describe the origin and insertion of the diaphragm. Describe the openings of the diaphragm. Describe the nerve supply of diaphragm and its clinical significance.	2	LGF	MCQ/ OSPE
100		Mediastinum		Describe the contents of the superior mediastinum. Describe the contents of the Anterior & Posterior Mediastinum. Describe the relations of different contents in mediastinum.	2	SGF	MCQ
				Identify various anatomical landmarks on chest X-Rays, CT and MRI	1	SGF	MCQ/ OSPE

101		Development of Diaphragm		Describe development of diaphragm. Describe diaphragmatic hernias and clinical significance.	1	LGF	MCQ/ OSPE
102		Development of Ribs		Describe the development of ribs from costal elements of primitive vertebrae	1	LGF	MCQ/ OSPE
Theme-2: Cough and Hemoptysis							
103		Introduction, Trachea, bronchi and lungs		Describe the major components of the (upper and lower) respiratory system and describe their functions. Describe trachea and bronchi with relations plus subdivisions. Describe the neurovascular supply of trachea and bronchi. Describe the surfaces anatomy of trachea and bronchi.	1	LGF	MCQ/ OSPE
				Describe the lungs with their lobes and fissures, relations with surroundings and surfaces and compare between right and left lungs. Describe innervations, blood supply and lymphatic drainage of the lungs.	2	SGF	MCQ/ OSPE
				Describe Broncho-pulmonary segments and their clinical importance.	1	LGF	MCQ/ OSPE
104		Development of Respiratory system		Describe development of trachea, bronchial tree, pleura, lungs. Recognize the cephalo-caudal and transverse folding of embryonic disc. Describe the extent of intra embryonic coelom after folding and its divisions	2	LGF	MCQ/ OSPE

				into three serous cavities. State the derivatives of visceral and parietal layers of mesoderm. State the pericardio-peritoneal canals and their final fate. Discuss the formation of Lung Bud			
105		Respiratory epithelium and connective tissues		Classify the types of epithelia lining the various parts of respiratory system. Differentiate between the histological differences among various parts of respiratory system. Describe the structure of trachea and its layer. Discuss the microscopic picture of respiratory bronchiole, alveolar ducts, alveolar sacs and alveoli. Describe the different types of cells found in alveoli.	2	LGF	MCQ/ OSPE
Theme-3: Breathlessness							
106		Mechanics of respiration		Describe briefly mechanics of respiration	1	LGF	MCQ/ OSPE
107		Pleura		Describe the gross features of pleura. Describe the pleural cavity and the pleural reflections. Describe the surface anatomy related to pleural reflections.	1	LGF	MCQ/ OSPE
108		Embryology of pleural cavity		Describe the development of pleural cavity	1	LGF	MCQ/ OSPE
109		Histology lungs		Discuss surfactant, alveolar septum, alveolar pores and alveolar macrophages	2	SGF	MCQ/ OSPE

Objectives & Learning Strategies/TOS:

Neurosciences-1A Module

Year-2 (MBBS)

Total Weeks-6

1) Numbness and tingling---1 week
2) Paraplegia----------1 week
3) Syncope----------1 week
4) Hemiplegia / Aphasia----------1 week
5) Tremors ----------1 week
6) Headache ----------1 week

Theme-1 (Numbness & Tingling)						
S. No	**Class & Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tools**
1	2nd year MBBS **Gross anatomy**	Overview of nervous system	• Describe the general features of neurons and its classification • Differentiate between central and peripheral nervous system. • Describe the general features of brain (forebrain, midbrain and hindbrain) • Describe the general features of spinal cord including its enlargements at different levels • Describe the general features	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

			of cranial and spinal nerves • Differentiate between the anatomical aspects of sympathetic and parasympathetic system			
2	2nd Year MBBS **Embryology**	Forebrain, midbrain and hindbrain	• Describe the development of primary and secondary brain vesicles • Enlist the derivatives of the brain vesicles • Describe the development of prosencephalon, mesencephalon and rhombencephalon • Discuss congenital anomalies associated with each region of brain	1hour	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
3	2nd year MBBS **Histology**	Transverse section of spinal cord (cervical level) -1	• Identify the slide of transverse section of cervical spinal cord under the microscope	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
Theme-2 (Paraplegia)						

4	2nd Year MBBS **Gross anatomy**	Externals features of Spinal Cord	• Describe the shape, grooves and sulci and extension of spinal cord • Enlist the segments of spinal cord • Differentiate between white and grey matter of spinal cord • Describe the meningeal covering of spinal cord • Describe the blood supply of spinal cord	1hour	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
5	2nd Year MBBS **Gross anatomy**	Grey Matter of Spinal Cord	Describe the distribution of spinal cord into horns Differentiate between anterior, lateral and posterior horns Describe the distribution of sensory and motor neuron within the grey matter Explain formation of Rexed lamina of spinal cord	1hrs	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

6	2nd Year MBBS **Gross anatomy**	White matter of spinal cord	• Enumerate the ascending tracts • Explain the origin, pathway and termination of dorsal column medial lemniscal system • Explain the origin, pathway • and termination of anterolateral spinothalamic tract. • Enumerate the descending tracts • Explain the origin, pathway and termination of pyramidal tracts • Explain the origin, pathway and termination of extrapyramidal tracts • Differentiate between pyramidal and extrapyramidal tracts	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
7	2nd Year MBBS **Embryology**	Spinal cord	Discuss the development of alar and basal plate and its derivatives	1hour	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

8	2nd Year MBBS **Histology**	Spinal cord	• Identify the light microscopic transverse section of spinal cord at cervical, thoracic, lumbar and sacral regions • Draw and label the transverse section of spinal cord at different levels	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
9.	2nd year MBBS Histology	Transverse section of thoracic segment of spinal cord-2	• Identify the slide of transverse section of thoracic segments of spinal cord under the microscope	2 Hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
Theme- 3 (Syncope)						
10	2nd year MBBS **Gross anatomy**	Medulla	• Enlist the components of brain stem • Describe the external features of brainstem • Describe the transverse section of medulla at the level of sensory decussation, motor decussation and inferior Olivary nuclei • Enumerate the cranial nerves nuclei present within the medulla	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

11	2nd year MBBS **Gross anatomy**	Pons	• Describe the transverse section of pons at the level of cranial and caudal parts • Enumerate the cranial nerves nuclei present within the pons	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
12	2nd year MBBS **Gross anatomy**	Midbrain	Describe the transverse section of pons at the level of superior colliculus and inferior colliculus Enumerate the cranial nerves nuclei present within the midbrain	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
13	2nd Year MBBS **Histology**	Transverse section of lumbar spinal cord-3	Identify the slide of transverse section of Lumbar segment of spinal cord under the microscope	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
Theme-4 (Hemiplegia)						
14	2nd Year MBBS **Gross anatomy**	Cerebrum Grey matter of cerebrum White matter of cerebrum	• Division of cerebrum into different lobes, its surfaces, sulci and gyri • Distribution of grey matter in cerebral hemispheres • Enumerate the types of white matter fibers • Differentiate between association, projection and commissural fibers	3hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

			• Detailed account of corpus callosum			
		Diencephalon	Structure and important nuclei of Thalamus and Hypothalamus			
		Blood supply of brain	Describe the formation of circle of Willis			
15	2nd Year MBBS **Histology**	Cerebral cortex	• Identify the cerebral cortex on light microscope • Enlist the different histological layers of cerebral cortex	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
Theme- 5 (Tremors)						
16	2nd Year MBBS **Gross anatomy**	Basal nuclei	• Enumerate the components of basal nuclei • Describe the structure and relation of corpus striatum, red nucleus and substantia nigra	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
17	2nd Year MBBS **Gross anatomy**	Cerebellum	• Describe the general features of cerebellum • Name the lobes of cerebellum and discuss	4hrs	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

			its anatomical and physiological classification • Enumerate the intracerebellar nuclei of cerebellum • Describe the input and output of cerebellum			
18	2nd Year MBBS **Histology**	Histology of cerebellum	• Identify the cerebellar cortex on light microscope • Enlist the different histological layers of cerebellar cortex	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
Theme-6 (Headache)						
19	2nd Year MBBS **Histology**	Cerebellar cortex	• Identify the histological layers of cerebellar cortex under the microscope	2hrs	practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

20	2nd Year MBBS **Gross anatomy**	Dural venous sinus CSF in ventricular system	• Differentiate between paired and unpaired venous sinuses • Discuss the structure and drainage of individual venous sinuses • Discuss the structure of choroidal plexus and the formation of CSF in ventricles	4 hrs	Lectures	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
21	2nd Year MBBS **Histology**	Slides of sacral segments and overview of nervous tissues	Identify the slides of different neural structures under the microscope	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

Neurosciences-1B module TOTAL WEEKS-5 List of themes

S.No	Themes	Duration in weeks
1	Facial palsy (face, 5th and 7th cranial nerves)	1
2	Neck swelling (thyroid, larynx, neck, muscles etc.)	1
3 & 4	Cleft palate (palate, tongue, pharynx) Anosmia	1
5	Diplopia / blindness (2nd, 3rd, 4th, 6th cranial nerve / eye ball / orbit)	1
6	Deafness (ear / 8th nerve)	1

Facial palsy (face, 5th and 7th cranial nerves)

Sr. No	Class and Subject	Topic	Learning objectives	Teaching Hours	Mode of Teaching	Assessment Tools

1	2nd year MBBS **Gross anatomy**	Osteology of mandible	• Describe the gross features of adult mandible. • Describe the bony features of mandible • Name the joints formed by mandible • Name the attachment of muscles and ligaments on mandible	1hr	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
2	2nd year MBBS **Gross anatomy**	Norma frontalis	Describe the bony features of frontal view of skull	1hr	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

3	2nd year MBBS **Gross anatomy**	Norma basalis	• Name the bones forming the base of skull • Name the bony features • Identify the different foramina and name the structures passing through these foramina • Describe the attachment and relation of base of skull • Describe the clinical importance	2hrs	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

4	2nd year MBBS **Gross anatomy**	Norma lateralis	• Name the boundaries of temporal fossa • Enumerate the contents of temporal fossa • Describe the relations of temporal fossa • Name the boundaries of infratemporal fossa • Enlist the contents of fossa • Describe the relations of Infratemporal fossa • Name the layers of scalp	2hrs	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

5	2nd year MBBS **Gross anatomy**	Scalp and muscles of facial expression	• Describe the muscles of scalp • Name the neurovascular supply of scalp • Describe the lymphatic drainage of scalp • Name the fascial muscles along with attachments, nerve supply and actions	5hrs	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
6	2nd year MBBS **Gross anatomy**	Muscles of mastication	• Enumerate the muscles od mastication along with their attachments, nerve supply and actions	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
7	2nd year MBBS **Gross anatomy**	Blood supply and lymphatic drainage of face	• Describe the blood supply and lymphatic drainage of face portion	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

8	2nd year MBBS **Gross anatomy**	Temporomandibular joint (TMJ)	• Name the type of TMJ • Name the ligaments related with TMJ • Describe the relations of TMJ • Name the muscles causing movements of TMJ • Name the neurovascular supply of TMJ	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
9	2nd year MBBS **Gross anatomy**	Extra cranial course of CN VII	• Describe the extra cranial course of CN VII along with its clinical importance	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
10	2nd year MBBS **Embryology**	Face development	• Discuss the five facial primordia • Describe the inter-maxillary segment • Describe the embryological defects of face	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

11	2nd year MBBS **Histology**	Parotid glands	• Identify the variety of gland according to nature of its acinus • Discuss the capsular structure and its extensions in the gland • Differentiate between the stroma and parenchyma of parotid gland • Describe the ductal system of the gland and its lining epithelium • Differentiate between the intercalated and striated ducts in intralobular parts of gland • Describe the detailed structure of serous acinus • Discuss the location of stensen's duct and its structure	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

			• Discuss clinical conditions related with parotid gland			
12	2nd year MBBS **Histology**	Submandibular and Sublingual Salivary Gland	Identify the slide of submandibular and sublingual salivary glands under the microscope	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

13	2nd Year MBBS **Gross Anatomy**	Typical cervical vertebra	• Describe the bony features of typical cervical vertebrae • Name the joints formed by typical vertebrae • Describe the attachments	1hr	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
14	2nd Year MBBS **Gross Anatomy**	Atypical cervical vertebra	• Describe the bony features of atypical cervical vertebrae • Name the joints formed by atypical vertebrae • Describe the attachments	1hr	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
15	2nd Year MBBS **Gross Anatomy**	Hyoid bone	• Describe the bony features of hyoid bone • Describe the attachments of muscles and ligaments with hyoid bone	1hr	SGF	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
16	2nd Year MBBS **Gross Anatomy**	Pterygopalatine fossa	• Name the boundaries of pterygopalatine fossa • Enumerate the contents of pterygopalatine fossa • Describe the relations of pterygopalatine fossa	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

17	2nd Year MBBS **Gross Anatomy**	Deep fascia of neck	• Enumerate the layers of deep cervical fascia • Draw and labelled diagram of transverse section of neck showing deep cervical fascia • Describe the layers of deep cervical fascia along with its clinical importance	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
18	2nd Year MBBS **Gross Anatomy**	Larynx	• Name the paired and unpaired cartilages of larynx • Enumerate the ligaments and membrane of larynx • Describe the sensory and blood supply of larynx • Enumerate the intrinsic and extrinsic muscle of larynx along with its actions and nerve supply • Describe the pyriform fossa	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

19	2nd Year MBBS **Gross Anatomy**	Ant. triangle of neck	• Enlist the subdivisions of anterior triangle of neck • Describe the boundaries and contents of submental triangle • Describe the boundaries and contents of carotid triangle Describe the boundaries and contents of digastric triangle Describe the boundaries and contents of muscular triangle	1hrs	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
20	2nd Year MBBS **Gross Anatomy**	Post triangle of neck	• Enlist the subdivisions of posterior triangle of neck • Describe the boundaries and contents of occipital triangle • Describe the boundaries and contents of supraclavicular triangle	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
21	2nd Year MBBS **Gross Anatomy**	Arteries of neck	• Describe the course, Distribution and branches of main arteries of neck	2hrs	Lectures	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

22	2nd Year MBBS **Gross Anatomy**	veins of neck	• Describe the course, Draining and tributaries of main veins of neck	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
23	2nd Year MBBS **Gross Anatomy**	cervical plexus and nerves of neck	• Describe the cervical plexus along with its branches and distribution	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

24	2nd Year MBBS **Embryology**	Pharyngeal apparatus	•	2hrs	Lectures	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

25	2nd Year MBBS **Histology**	Thyroid gland	• Discuss the structural unit of thyroid gland • Identify the lining epithelium of follicular cells • Discuss the formation and storage of colloid in the lumen of follicular cells • Describe the location and structure of parafollicular cells • Discuss the interfollicular connective tissue	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE
26	2nd Year MBBS **Histology**	Thyroid gland	• Identify the slide of thyroid gland under the microscope	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type OSPE/OSCE

Sr. No	Class and Subject	Topic	Learning objectives	Teaching Hours	Mode of teaching	Assessment Tools
27	2nd Year MBBS **Gross Anatomy**	Nose and paranasal sinuses	Describe the external features of nose Describe the relations of nose with other structures Describe the nasal septum Describe the lateral wall of nose Name the neurovascular supply of nose Describe the olfactory nerve Describe the paranasal sinuses along with its clinical importance	5hrs	Lecture and SGF	MCQs: Multiple Choice questions; Single best Type
28	2nd Year MBBS **Embryology**	Development of nose	• Describe the development of nasal cavities and paranasal air sinuses. • Describe the development of nasolacrimal groove, duct, and sac • Enlist developmental defects of nose	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type
29	2nd Year MBBS **Gross Anatomy**	Tongue	• Describe the mucosa and muscles of	2hr	Lectures	MCQs: Multiple Choice

			tongue along with its attachments, nerve supply and actions			questions; Single best Type
30	2nd Year MBBS **Gross Anatomy**	Salivary glands	• Name the salivary glands • Describe the location of each gland • Describe the relations of each gland • Name the nerve supply • Describe the drainage of salivary glands along with its importance	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

31	2nd Year MBBS **Gross Anatomy**	Palate	• Name the bones forming the hard palate • Describe the soft palate along with its muscles, attachments and nerve supply • Describe the relations of palate • Name the neurovascular supply of palate	1hrs	SGF	MCQs: Multiple Choice questions; Single best Type

32	2nd Year MBBS **Gross Anatomy**	Pharynx	• Enumerate the division of pharynx • Describe the nasopharynx with its clinical significance • Describe the oropharynx with its clinical significance • Describe the laryngopharynx with its clinical significance • Enlist the muscles of pharynx with its nerve supply and actions	2hrs	Lectures	MCQs: Multiple Choice questions; Single best Type
33	2nd Year MBBS **Gross Anatomy**	Extra-cranial course of CN IX, XXI, XII	Describe the extra cranial course of CN IX, X, XI and XII	3hrs	Lectures	MCQs: Multiple Choice questions; Single best Type

34	2nd Year MBBS **Embryology**	Tongue	• Describe the development of anterior 2/3 of the tongue • Discuss the role of the third pharyngeal arch in tongue development. • Discuss the innervation, blood vessels, and muscles of tongue. • Describe the development of papillae, taste buds and salivary glands. • Describe the developmental anomalies of tongue.	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type
35	2nd Year MBBS **Embryology**	Palate	Describe the development of primary and secondary palate. Discuss the developmental defects of lip and primary, secondary pala	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

36	2nd Year MBBS **Histology**	Submandibular glands	• Identify the variety of gland according to nature of its acinus. • Discuss the capsular structure and its extensions in the gland • Differentiate between the stroma and parenchyma of submandibular gland • Describe the ductal system of the gland and its differences with parotid gland • Describe the detailed structure of serous and mucous acinus • Discuss the formation of serous demilune • Discuss the opening of Wharton's duct • Discuss different pathological conditions of the gland	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

37	2nd Year MBBS **Gross Anatomy**	Sublingual glands	• Identify the variety of gland according to its nature of acinus • Differentiate between the stroma and parenchyma of sublingual gland • Describe the ductal system of the gland and its lining epithelium • Describe the detailed structure of its acinus • Discuss the opening of Bartholin ducts • Discuss different pathological conditions of the gland	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type
37	2nd Year MBBS **Histology**	Tongue	Identify the slide of tongue under the microscope	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type
Sr. No	**Class And Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**

38	2nd Year MBBs **GROSS ANATOMY**	Bony orbit	• Name the bones forming the bony orbit • Identify the foramina, fissures, and fossae associated with the orbit and what are the structures transmitted through these openings. • Name the contents of orbit	1 hr	SGF	MCQs: Multiple Choice questions; Single best Type

39	2nd Year MBBS **Gross Anatomy**	Eye ball	• Name the layers of eyeball • Describe the fibrous layer of eyeball • Describe the pigmented layers of eyeball • Describe the inner nervous layer of eyeball • Describe the chambers and of eyeball • Describe the secretion and drainage of aqueous humor and vitreous humor • Describe the neurovascular supply of eye • Describe the intra and extraoccular muscles with their attachment, actions and nerve supply	3hrs	Lecture	MCQs: Multiple Choice questions; Single best Type

40	2nd Year MBBS **Gross Anatomy**	Extra cranial course of CN III, IV, VI	Describe the course of optic, oculomotor, trochlear and abducent nerve with clinical importance	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type
41	**Embryology**	Development of eye	• Define lens placode and formation of retina. • Describe the development of ciliary body, iris, lens and choroid. • Discuss the formation of sclera, cornea, sphincter and dilator pupillae • Discuss the development of vitreous body and optic nerve • Describe developmental anomalies of eye	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

41	**Histology**	Eye	• Enlist different histological layers of the eye • Discuss retinal pigment epithelium (RPE) in detail • Describe the structural details of rods • and cones and the supporting cells • Discuss structure of macula densa • Describe the histological layers of cornea and retina	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type
42	**Histology**	Parotid Gland	Identify the histological layers of parotid gland under the microscope	2hrs	Practical	MCQs: Multiple Choice questions; Single best Type
Sr. No	**Class And Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode Of Teaching**	**Assessment Tool**

43	2nd Year MBBS **Gross anatomy**	External and middle ear	• Describe the auricle • Describe the external auditory meatus with clinical importance • Name the neurovascular supply of external ear • Name the boundaries of middle ear • Describe the contents of middle ear • Describe the auditory tube along with its clinical importance	2hrs	Lecture	MCQs: Multiple Choice questions; Single best Type
44	2nd Year MBBS **Gross anatomy**	Inner ear	Describe the bony labyrinth Describe the membranous labyrinth Describe the course of CN VIII along with its clinical importance	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

45	**Embryology**	Development of ears	Describe the development of external and middle ear Explain the origin of internal ear along the relationship of saccule, utricle, semi-circular canals Describe the development of cochlear duct and organ of corti Enlist the developmental anomalies of external middle and internal ear	1hr	Lecture	MCQs: Multiple Choice questions; Single best Type

1) **Painful swallowing—----------1 week**
2) **Abdominal pain—----------2 weeks**
3) **Jaundice—----------1 week**
4) **Diarrhea and Constipation—1 week**
5) **Bleeding Per Rectum—--------1 week**
6) **Hyperglycemia-(Carbohydrate metabolism)- 1 week**
7) **Obesity (Lipid metabolism)- 4 days**
8) **Wasting (Protein metabolism)- 8 days**

Theme 1: Painful swallowing

Sr. No.	2nd Year MBBS Subject	Topic	Learning objectives	Teaching Hours	Mode of Teaching	Assessment To
1	**Gross anatomy**	Oral cavity	Describe the musculature of tongue Describe the nerve supply of tongue	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
2	**Gross anatomy**	Salivary glands	Describe the gross anatomy of parotid, submandibular and sublingual salivary gland	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
3	**Gross anatomy**	Esophagus	Describe the extent, course, relations and gross structure of esophagus.	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
4	**Embryology**	Development of tongue	Describe the developmental events of tongue Enlist various anomalies of tongue development	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
		Development of esophagus	Describe the development of Esophagus	**1 Hr**	**Lecture**	MCQs: Multiple Choice question Single best Typ OSPE/OSCE
5		Development of salivary glands	Describe the development of salivary glands	**1 Hr**	**Lecture**	MCQs: Multiple Choice question Single best Typ OSPE/OSCE
	Histology	Oral cavity	Describe the microscopic structure of lips Describe the histological features of tooth in longitudinal and transverse section Explain the histology of tongue.	**1 Hr**	**Lecture**	MCQs: Multiple Choice question Single best Typ OSPE/OSCE

			Differentiate between the microscopic picture of anterior 2/3rds and posterior 1/3rds of the tongue			
6	Histology	Esophagus	Identify the epithelium of esophagus and esophageal glands in mucosa	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Differentiate between musculature in different parts of the esophagus			

7	**Gross Anatomy**	Anterior abdominal wall	Describe the origin, insertion, nerve supply and actions of anterolateral abdominal wall muscles	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe the formation of rectus sheath			
			Describe the contents of rectus sheath			
			Describe the surface anatomy of anterior abdominal wall Describe the structures related to transpyloric plane			
			Enlist various types of abdominal hernias			

8	**Gross Anatomy**	Inguinal canal	Describe the boundaries of inguinal canal	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Enlist the contents of inguinal canal in males and females			
			Differentiate between direct and indirect inguinal hernia			
9	**Gross Anatomy**	Peritoneum	Describe greater and lesser omentum	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe the nerve supply of peritoneum			
			Describe the anatomy of lesser sac.			
			Describe the boundaries of epiploiec foramen			
			Describe the various peritoneal pouches, recesses and ligaments			
10	**Gross Anatomy**	Stomach	Describe the gross structure of stomach	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe the blood supply and lymphatic drainage of stomach			
			Describe the anatomy of stomach bed			
		Duodenum	Describe the gross structure and blood supply of duodenum	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**

			Write the relations of various parts of duodenum			
		Pancreas	Describe the gross structure of pancreas and its ductal system			
11	**Histology**	Stomach	Enumerate the different layers of the stomach wall	**1 Hr**	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Write a note on gastric glands.			
			Differentiate between fundic and pyloric mucosa			
12	**Histology**	Duodenum	Discuss histological features of duodenum and describe duodenal glands.	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
13	**Histology**	Pancreas	Describe the histology of pancreas	**1 Hr**	**Lecture**	MCQs: Multiple Choice question Single best Typ OSPE/OSCE
			Differentiate histologically between exocrine and endocrine portions of pancreas			
14	**Embryology**	Development of foregut	Describe the development of stomach	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe the development of duodenum			
			Enlist various developmental anomalies of stomach			
			Enlist various developmental anomalies of			

			duodenum			
15	**Embryology**	Pancreas	Describe the development of pancreas	**1 Hr**	**Lecture**	MCQs: Multiple Choice question Single best Typ OSPE/OSCE
			Enlist various anomalies of pancreas			

16	**Gross Anatomy**	Liver	Describe the borders and surfaces of liver Describe the visceral surface of liver Describe the peritoneal reflections and associated ligaments of liver Describe the lobes and segments of liver Describe the blood supply of liver Describe the hepato renal pouch of morrison and its clinical significance	1 Hr	Lecture	MCQs: Multiple Choice questions; Single best Type **OSPE/OSCE**
17	**Gross Anatomy**	Extra hepatic biliary apparatus	Describe the gross anatomy of gall bladder	1 Hr	Lecture	MCQs: Multiple Choice question Single best Type **OSPE/OSCE**
			Describe calot's triangle			
			Describe the gross anatomy of extra hepatic billiary tree			
18	**Gross Anatomy**	Spleen	Describe the gross anatomy of spleen and blood supply of spleen	1 Hr	Lecture	MCQs: Multiple Choice question Single best Type **OSPE/OSCE**
19	**Gross Anatomy**	Hepatic portal venous system	Describe the formation and tributaries / branches of hepatic portal venous system	1 Hr	Lecture	MCQs: Multiple Choice question Single best Type **OSPE/OSCE**
			Explain the clinical significance of hepatic portal			

			system			
20	**Embryology**	Development of distal fore gut	Describe the development of liver	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe the development of gall bladder and biliary tree			
			Describe the developmental anomalies of liver and biliary tree			
21	**Histology**	Liver	Discuss the histological features of liver	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Describe liver parenchyma and general structural plan of the liver			
			Describe the histological features of the structures present in the portal triad			
22	**Histology**	Spleen	Discuss the histological features of spleen	1 Hr	Lecture	MCQs: Multiple Choice question Single best Typ **OSPE/OSCE**
			Differentiate between red pulp and white pulp			

Theme 4: Diarrhoea and Constipation

23	**Gross Anatomy**	Jejunum and ileum	Describe the gross features of jejunum and ileum	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type**

						OSPE/OSCE
			Tabulate differences in gross features and blood supply of jejunum and ileum			
24		Mesenteries	Describe the mesentery of small intestine			**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
25		Appendix	Describe the gross features, blood supply and mesentery of appendix	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the clinical correlates of appendix			
26		Abdominal aorta	Enumerate the branches of abdominal aorta.	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the course and distribution of celiac trunk			
			Describe the course and distribution of superior mesenteric artery			
			Describe the course and distribution of inferior mesenteric			

			artery			
27		Inferior vena cava	Describe the origin, course, tributaries and relations of inferior vena cava	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
28		Lymphatic drainage	Describe the origin, course and relations of Cisterna chili	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the lymphatic drainage of abdominal organs			
29	**Embryology**	Development of midgut	Describe the formation and rotation of midgut loop	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the physiological herniation of midgut loop			
			Enlist the derivatives of mid gut loop			
			Describe the development of mesenteries			
			Describe the various anomalies of midgut development			
30	**Histology**	Jejunum and ileum	Discuss histological	1hr	lecture	**MCQs: Multiple**

			features of jejunum and describe plica circulares.			**Choice questions; Single best Type** OSPE/OSCE
			Discuss histological features of ileum and describe Payers patches.			
			Discuss the various structural specializations meant for increasing the surface area of small intestine (plica circulares, crypts of Lieberkühn, villi and microvilli)			
31		Appendix	Discuss histological features of appendix.	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

Theme 5: Bleeding Per Rectum

32	**Gross Anatomy**	Large intestine	Describe the gross features of cecum, ascending, transverse and descending and sigmoid colon	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the mesentery of large intestine			
			Describe the gross			

			anatomy of rectum			
			Describe the gross anatomy of anal canal			
			Describe the blood supply of anal canal and its clinical correlates.			
			Describe the boundaries and contents of Ischiorectal (anal) fossa			
33	**Embryology**	Development of hind gut	Describe the partitioning of cloaca	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Enlist the derivatives of hind gut			
			Enlist the developmental anomalies of hindgut			
34	**Histology**	Colon	Discuss the histological features of colon	1hr	lecture	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the characteristic features of intestinal glands			
35		Rectum	Describe the histological features of Rectum	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best**

						Type OSPE/OSCE

List of practical works

Sr. No.	Subject	Topic	Learning objectives	Teaching Hours	Mode of Teaching	Assessment Tool
36	**Histology**	Lips and tongue	Identify the histological features of lips and tongue under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
		Esophagus	Identify the histological features of Esophagus under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
37		Stomach	Identify the histological features of stomach under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
38		Duodenum	Identify the histological features of duodenum under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
39		Liver	Identify the histological features of liver under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
40		Gall bladder	Identify the histological features of gall	2hrs	**Practical**	**MCQs: Multiple Choice**

			bladder under the microscope			**questions; Single best Type** OSPE/OSCE
41		Jejunum and Ilium	Identify the histological features of Jejunum and Ilium under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
42		Appendix	Identify the histological features of Appendix under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
43		Colon and Rectum	Identify the histological features of Colon and Rectum under the microscope	2hrs	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

RENAL MODULE

List of Themes

Theme No.	Theme Name	Duration
1	Flank Pain /Loin Pain	1 week
3	Scanty Urine /Urinary retention and Edema	1 week
2	Urinary Incontinence	1 week

Flank Pain /Loin Pain						
Sr. No.	**Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**
1	**Gross anatomy**	Overview of the urinary system	List and describe the main components of the urinary system	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
2	**Gross anatomy**	Kidneys	Discuss the location, anatomical structure, and relations of right and left kidneys to other abdominal organs Discuss the gross morphological composition of kidneys Capsule Pericapsular adipose tissue Cortex Medulla Pelvis Hilum Vascular system within kidneys Arterial supply Venous drainage Lymphatic's	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

			Innervation Enumerate the various coverings of the kidney Explain the clinical significance of coverings of the kidneys Describe the structures entering and leaving the hilum of kidney and their relations			
3	**Gross anatomy**	Posterior abdominal wall	Describe the general features of lumbar vertebrae Describe the special features of lumbar vertebrae Enlist the muscles of posterior abdominal wall. Describe their origin, insertion, nerve supply and actions Explain the course and relations of Abdominal Aorta Enumerate and elaborate the paired branches of abdominal aorta Discuss the formation of inferior vena cava	**2hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
4	**Embryology**	Development of the urinary system	Trace the embryological origins and development of the urinary system	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
		Congenital anomalies of the urinary system	List and describe the common congenital anomalies of kidney and ureter.			
5	**Histology**	Kidney	Describe the parenchyma of kidney Enlist different components of uriniferous tubules	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best**

			Describe Histological features of the various components of Nephron Describe the histological features of renal corpuscle Describe filtration barrier Describe the parts of collecting tubules Describe the microscopic anatomy of collecting duct Enlist the components of juxtaglomerular apparatus			**Type** OSPE/OSCE
6	**Anatomy**	Surface anatomy of the urinary system and radiology	Identify the gross anatomic features the kidneys, renal pelvis, ureter, urinary bladder and urethra locate renal angle Perform renal punch and its clinical significance Develop Understanding of KUB Identify different parts of urinary system on IVU	**1hr**	**SGF**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
Theme-2 Edema and Urinary retention/ Scanty Urine						
7	**Anatomy**	Ureters	Describe the gross anatomy of ureters	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Describe the relations of right ureter in males and females			
			Describe the relations of left ureter in males and females			
			Highlight the clinical significance of relations of right and left ureters in both sexes			
			Discuss constrictions in ureter and their clinical relevance.			

8	**Gross anatomy**	Urinary bladder	Describe the gross structure of urinary bladder Discuss the Ligaments/supports.	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Discuss the blood supply and nerve supply of urinary bladder			
			Discuss the relations of urinary bladder in males			
			Discuss the relations of urinary bladder in females			
9	**Gross anatomy**	Prostate gland	Describe the structure of prostate gland Describe Lobes, capsule, relations and structures within prostate.	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Discuss the common problems resulting from abnormal growth of the prostate. Relate the symptoms to structures			
10	**Gross anatomy**	Urethra	Describe the gross anatomy of urethra	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
			Enlist the differences between male and female urethra			
11	**Embryology**	Development of the urinary system (Kidney and Ureter)	Enlist the stages of development of kidneys	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type**

						OSPE/OSCE
			Describe the formation of pronephric, mesonephric and metanephric kidneys			
			Enumerate the derivatives of metanephric blastema and describe their development			
			Enumerate the derivatives of metanephric diverticulum/ureteric bud			
			Describe the changes in position and blood supply of kidneys during development			
			Enlist the various types of developmental anomalies of kidneys along with their embryological causes			
			Enlist the various types of developmental anomalies of ureters along with their embryological causes			
12		Bladder and urethra	Describe the development of bladder Discuss the developmental anomalies of bladder Describe the development of male urethra Describe the development of prostate and bulbourethral glands Describe the development of female urethra Discuss the	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

			developmental anomalies of male and female urethra			
13		Prostate gland	Describe Embryological development of prostate gland			
14		Congenital anomalies of the urinary system	List and describe the common congenital anomalies of of bladder and urethra.			
15	**Histology**	Ureter	Describe the microscopic anatomy of ureter	**2hr**	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
16		Bladder	Describe the histological features of urinary bladder	**2hr**	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
17		Prostate	Describe the microscopic structure of prostate	**2hr**	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
18		Urethra	Discuss the microscopic structure of male and female urethra	**2hr**	**Practical**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
Theme-3 Urinary incontinence						
19	**Anatomy**	The Perineum	Define the pelvis and the perineum Discuss the openings in the pelvis and what passes through them List and describe the contents of the	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

			urogenital triangle Contents of the male urogenital triangle Urethral injuries Injury to the perineum in childhood			

ENDOCRINE MODULE

Theme-1 (Tall stature)						
Sr. No.	**Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**
1	Embryology	Pituitary gland	Describe the development of Anterior and posterior pituitary gland	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
2	Histology	Pituitary gland	Enlist the histological differences between anterior and posterior pituitary glands	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
Theme-2 (Neck swelling with bulging eyes and Tetany)						
3	Gross Anatomy	Thyroid Gland	Describe the gross structure, lobes, relations, bold supply, venous drainage, nerve supply and lymphatic drainage of thyroid gland	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
4	Embryology	Thyroid Gland	Describe the developmental events and anomalies of thyroid gland	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
5	Histology	Thyroid Gland	Microscopic Structure of Thyroid Gland	**1hr**	**lecture**	**MCQs: Multiple Choice**

						questions; Single best Type OSPE/OSCE
Theme-3 (Increased thirst and urination)						
6	Histology	Pancreas	Histology Of Pancreas	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
Theme-4 (Moon face)						
7	Gross Anatomy	Adrenal Gland	Describe the gross anatomy and relations of adrenal glands on both side	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
8	Embryology	Adrenal Gland	Development of adrenal Gland	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
9	Histology	Adrenal Gland	Microscopic Picture of Adrenal Gland	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

REPRODUCTION

MODULE

List of Themes

3-Weeks

S. No	Themes	Weeks
1	**Pregnancy and child birth**	**02**
2	**Infertility**	**01**

Pregnancy and child birth						
Sr. No.	**Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**
1	Gross anatomy	Bony pelvis Uterus	1 Describe the general features of bony pelvis 2 Differentiate between male and female pelvis 3 Classify the differences between true and false pelvis 4 Describe the gross structure, location and relations of uterus 5 Describe the blood supply of uterus 6 describe the boundaries of pouch of Douglas/recto-uterine pouch and its clinical significance 7 Describe the gross structure, location and relations of Fallopian tubes 8 Describe the blood supply of Fallopian tubes 9 Enlist various support mechanisms of uterus 10 Describe the formation and components of broad ligament 11 Discuss the clinical correlates of uterus and fallopian tubes	**4hr**	**SGF/Lectures**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
2	Gross Anatomy	Ovary	Describe the gross structure, location and relations of ovaries.	**1hr**	**lecture**	**MCQs: Multiple Choice questions;**

			Describe the blood supply of ovaries Name ligaments supporting the ovaries			**Single best Type** OSPE/OSCE
3.	Gross Anatomy	Pelvic Floor	Describe the general features of sacrum Describe the special features of sacrum Name the muscles making the pelvic floor Describe their origin, insertion, nerve supply and actions of muscles of pelvic floor Describe the boundaries and contents of superficial perineal pouch Describe deep perineal pouch List the boundaries and contents of ischio-rectal (anal) fossa Give the clinical significance of ischi-orectal Fossa	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
4	Embryology	Uterus	Describe the development of uterus Enlist the various developmental Anomalies of uterus Describe the remnants of mesonephric and Paramesonephric ducts in females	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
5	Embryology	Ovaries Mammary gland	Describe the development of ovaries Enlist various developmental anomalies of mammary gland along with embryological reasons	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

6	Histology	Uterus	Describe the microscopic structure of uterus Discuss the microscopic features of endometrium in different phases of menstrual cycle	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
7	Histology	Ovary	Describe the microscopic structure of ovary Elaborate the different stages of ovarian follicle	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
8	Histology	Mammary gland	Describe the microscopic features of inactive mammary gland Describe the microscopic features of mammary gland during pregnancy and lactation	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
Theme-2: Infertility						
9	Gross Anatomy	Scrotum, Testes and male genitalia of male genital system	Describe the anatomy of scrotum Discuss the gross anatomy of testes Describe the coverings and contents of spermatic cord Describe epididymis, ductus deferens and seminal vesicles Describe the clinical correlates	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
10	Gross Anatomy	Female external genitalia and vaginal canal	Give the gross Anatomy of female external genitalia and vagina	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
11	Embryology	Genitalia	Describe the development of external genitalia in males	**1hr**	**lecture**	**MCQs: Multiple Choice**

			Describe the development of external genitalia in females			**questions; Single best Type** OSPE/OSCE
12	Histology	Testes	Discuss general microscopic structure of testes Discuss seminiferous tubules Discuss different cells of seminiferous epithelium Define blood testes barrier Male genital Ducts Describe the microscopic structure of epididymis, ductus deferens and seminal vesicle Fallopian tube Describe the microscopic structure of fallopian tube	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

3rd Year MBBS

MSK -II Module						
Sr. No.	**Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**
1	Anatomy	Important Anatomical Characteristics of MSK	Discuss important anatomical characteristics of musculoskeletal system	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
CVS-II MODULE						
2	Anatomy	Gross anatomy of heart, valves and coronary arteries	Describe surface anatomy of the heart and heart valves Describe the anatomy of coronary	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type**

			circulation Enumerate heart valves and describe their gross morphology			OSPE/OSCE
RESPIRATORY - II MODULE						
3	Anatomy	Overview of Respiratory System	Describe clinical anatomy of thorax including thoracic wall, lungs and trachea-bronchial tree anatomy Correlate the different developmental stages of lung with its congenital anomalies Describe the surface marking of clinically relevant areas of the respiratory system	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

4th Year MBBS

Renal Module						
Sr. No.	**Subject**	**Topic**	**Learning objectives**	**Teaching Hours**	**Mode of Teaching**	**Assessment Tool**
1	Anatomy	Describe applied anatomy of renal system	Discuss the gross anatomical features (internal and external) of kidney. Describe the structures entering and leaving the hilum of kidney along with their relations. Discuss the lympho-vascular supply of kidney.	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
2	Anatomy	Describe applied anatomy of ureters, urinary bladder, prostate and urethra	Describe gross structure of kidney, ureter, bladder, and urethra. Describe the microscopic structure of	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

			prostate Discuss the microscopic structure of urethra			
GIT & HEPATOBILIARY-II MODULE						
3	Anatomy Gross anatomy	Liver, Gall Bladder and Pancreas	Explain the lobes and segments of the liver Discuss the gross structure of gall bladder and biliary channels Explain the gross and microscopic structure of the pancreas	**2hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
4	Histology	Liver And Gall Bladder	Explain the microscopic structure of the liver and gall bladder	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE
ENT Module 4th Year MBBS						
5	Gross Anatomy	Anatomy of oral cavity, Pharynx & salivary glands	1. Discuss the anatomy of oral cavity and site classification of oral cavity. 2. Discuss applied anatomy of pharynx & mechanism of deglutition 3. Discuss applied anatomy of nasopharynx and anatomy and physiology of adenoids 4. Discuss applied anatomy of oropharynx and anatomy and physiology of pharyngeal tonsils 5. Discuss the anatomy of minor and major salivary glands	**1hr**	**lecture**	**MCQs: Multiple Choice questions; Single best Type** OSPE/OSCE

Learning Resources:

Sr. No	Text/ Reference Books	Edition
1	Human Anatomy B.D Chaurasia	6th
2	Grey's Anatomy	4th
3	Medical Histology	5th
4	Langman's Medical embryology	14th
5	Snell's Clinical Anatomy	10th & 11th
6	Atlas of human anatomy	7th
7	Atlas of histology	9th
8	Snell's Clinical Neuroanatomy	8th

Additional Learning Resources:

Hands on	Museum / Histology Lab
Skills Lab	Histology Lab
Videos	Multimedia
Internet Resources	B & B, Dr Najeebs Lectures, Anatomy Zone, Kenhub

Assessment Methods:

- MCQs: Multiple Choice questions; Single best Type
- OSPE/OSCE: Objective Structured Practical

Multiple Choice Questions:

4. Single best type MCQs having five options with one correct answer and four distract or are part of assessment.
5. Correct answer carries one mark, and incorrect will be marked zero. Rule of negative marking is not applicable.
6. Students mark their responses on specified computer-based designed sheet.

Objective Structured Practical:

9. OSPE stations are used for formative as well as summative assessment.

10. Time allocated for each station is five minutes as per Examination rules of Khyber Medical University, Peshawar.
11. All students are rotated through the same stations.
12. Stations used are unobserved, observed, interactive and rest stations.
13. On unobserved stations, models, lab reports, radiographs, flow charts, case scenarios may be used to assess cognitive domain.
14. On observed station, examiners don't interact with candidate and just observe the performance of skills/procedures.
15. On interactive station, examiner asks questions related to the task within the allocated time.
16. On rest station, students are not given any task. They just wait to move to the next station.

Internal Assessment Criteria:

3. Internal Assessment of each block according to the policy of Khyber Medical University is given below.

1st Year MBBS	Paper A = 14
	Paper B = 13
	Paper C = 13
2nd Year MBBS	Paper D = 14
	Paper E = 13
	Paper F = 13

4. This Internal Assessment will comprise of following components

d) Attendance
e) Block Examination Results
f) Histology journal

Examination Rules & Regulations:

4. Exam Cell conducts the End of Module and Block Assessments according to the blue print provided by the Khyber Medical University, marks of which will be included in internal assessment.
5. The minimum passing marks in each subject shall be 50% in theory and practical. A student who fails in theory or practical examination of a subject shall be considered to have failed in the subject.
6. No student is eligible for university examination without attending at least 75% of lecturers, demonstrations, tutorials, and practical in that academic session.

Feedback on Examination:

3. Students' feedback on assessment strategies will be taken in a preformed proforma for feedback at the end of the session.
4. Department of Medical Education & Quality Enhancement Cell in collaboration with Exam Cell of WDC is responsible to conduct this exercise.

Model Questions:

One Best Question:

1. **Which of the following is an example of condylar type of joint?**

   f. Wrist Joint
   g. Atlanto Occipital Joint
   h. Temporomandibular Joint
   i. Hip Joint
   j. Elbow Joint

2. **A victim of an automobile accident is unable to abduct her left arm. This indicates damage to which of the following parts of the brachial plexus:**

   f. Middle trunk & posterior cord
   g. Middle trunk & lateral cord
   h. Lower trunk & lateral cord
   i. Upper trunk & posterior cord
   j. Lower trunk & medial cord

3. **Infarction of cardiac muscle located near the posterior interventricular sulcus would most likely indicate a blockage of which of the following vessels?**

   f) circumflex artery
   g) Left anterior descending artery
   h) Left coronary artery
   i) Marginal artery
   j) Right coronary artery

Suggestions for Next Academic Year: 2024

Prepared By:

Anatomy Team MBBS Section