Sri Guru Ram Das University of Health Sciences, Sri Amritsar

BLUEPRINT OF THEORY PAPER DEPARTMENT OF ANATOMY

THEORY PAPER A

Duration-3 hours		100 marks	
	Type of question/ Number of questions	**Marks per question**	**Total marks**
Q No 1	Scenario based MCQ/ **TEN**	2	20
Q No 2	Long essay question/ **ONE**	10	10
Q No 3	Reasoning Questions/ **FIVE**	3	15
Q No 4	Short notes (applied aspects)/ **FOUR**	5	20
Q No 5	Short notes / **THREE**	5	15
Q No 6	Short notes / **THREE** + AETCOM 1.5/ **ONE**	5	20

THEORY PAPER B

Duration-3 hours		100 marks	
	Type of question/ Number of questions	**Marks per question**	**Total marks**
Q No 1	Scenario based MCQ/ **TEN**	2	20
Q No 2	Long essay question/ **ONE**	10	10
Q No 3	Reasoning Questions/ **FIVE**	3	15
Q No 4	Short notes (applied aspects)/ **FOUR**	5	20
Q No 5	Short notes / **THREE**	5	15
Q No 6	Short notes / **THREE** + AETCOM 1.4/ **ONE**	5	20

Department of Anatomy

Theory Paper A		Theory Paper B	
Topics	**Marks Distribution**	**Topics**	**Marks Distribution**
Head & Neck (Related Histology, Embryology and Applied Anatomy)	40	Abdomen and Pelvis (Related Histology, Embryology and Applied Anatomy)	40
• Brain & Neuroanatomy • (Related Histology, Embryology & Applied Anatomy	25	• Thorax • (Related Histology, Embryology & Applied Anatomy	20
Upper Limb (Applied Anatomy)	20	Lower Limb (Applied Anatomy)	20
General / Basic Anatomy	10	General Embryology	10
AETCOM 1.5	5	AETCOM 1.4	5
		Genetics	5
Total	**100**	**Total**	**100**

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
Anatomy (Topics = 82, Competencies = 413)							
	Topic 1: Anatomical terminology -	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN1.1	Describe & Demonstrate normal anatomical position, various planes, relation, comparison, laterality & movements in the human body	K/S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skills assessment	
AN1.2	Describe composition of bone and bone marrow	K	KH	Y	LGT	Written/ viva	
	Topic 2: General features of bones & Joints	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN2.1	Describe parts, types, peculiarities of each type, blood and nerve supply of bones.	K	KH	Y	LGT	Written/ viva voce	
AN2.2	Describe the laws of ossification, epiphysis, its various types and their importance	K	KH	N	LGT	Written/ Viva voce	
AN2.3	Describe special features of a sesamoid bone	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN2.4	Describe various types of cartilage with its structure & distribution in body	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN2.5	Describe & demonstrate various joints with possible movements, subtypes and examples	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/skills assessment	
AN2.6	Explain the concept of nerve supply of joints & Hilton's law	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
	Topic 3: General features of Muscle	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN3.1	Classify & describe muscle tissue according to structure, size, shape, region & action	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN3.2	Describe parts of skeletal muscle and differentiate between tendons and aponeuroses with examples	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN3.3	Explain Shunt and spurt muscles with examples and role in joint movement	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 4: General features of skin and fascia	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN4.1	Describe different types of skin & dermatomes in body	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN4.2	Describe & demonstrate structure of skin with its appendages along with clinical anatomy	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.3	Describe structure, contents and identify modifications of superficial fascia along with fat distribution in body	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.4	Describe & demonstrate modifications of deep fascia with its location, function & examples	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN4.5	Explain principles of skin incisions and their surgical importance	K	KH	N	LGT, Demonstration	Written	
	Topic 5: General features of the cardiovascular system	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN5.1	Differentiate between blood vascular and lymphatic system	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.2	Differentiate between pulmonary and systemic circulation	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.3	Describegeneral differences between arteries, veins and sinuses	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.4	Explain functional and gross structural differences between elastic, muscular arteries and arterioles	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.5	Describe portal system giving examples	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN5.6	Describe the concept of anastomoses and collateral circulation, its different sites & significance of end arteries	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN5.7	Explain function of meta-arterioles, precapillary sphincters, arterio-venous anastomoses	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN5.8	Describe thrombosis, infarction & aneurysm	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 6: General Features of lymphatic system	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN6.1	Describe the components and functions of the lymphatic system	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN6.2	Describe structure of lymph capillaries & mechanism of lymph circulation	K	KH	N	LGT, Demonstration	Written	
AN6.3	Explain the concept of lymphoedema and spread of tumors via lymphatics and venous system	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 7: Introduction to the nervous system	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN7.1	Describe general plan of nervous system with components of central, peripheral & autonomic nervous systems	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.2	List components of nervous tissue and their functions	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.3	Describe parts of a neuron and classify them based on number of neurites, size & function	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.4	Describe structure of a typical spinal nerve	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.5	Describe principles of sensory and motor innervation of muscles	K	KH	N	LGT, Demonstration	Written	
AN7.6	Describe concept of loss of innervation of a muscle with its applied anatomy	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN7.7	Describe various types of synapse	K	KH	N	LGT, Demonstration	Written	
AN7.8	Describe differences between sympathetic and spinal ganglia	K	KH	N	LGT, Demonstration	Written	
	Topic 8: Features of individual bones (Upper Limb)	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN8.1	Identify the given bone, its side, anatomical position, joint formation, important features and clinical anatomy (clavicle, scapula, humerus, radius , ulna, carpal bones)	K,S	SH	Y	Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN8.2	Demonstrate important muscle attachments on the given bone	K,S	SH	Y	Demonstration	Written/ Viva voce/ skill assessment	
AN8.3	Identify and name various bones in articulated hand, Specify the parts of metacarpals and phalanges and enumerate the peculiarities of pisiform	K,S	SH	Y	Demonstration	Viva voce Practicals	
AN8.4	Describe scaphoid fracture and explain the anatomical basis of avascular necrosis	K	KH	N	LGT, Demonstration	Viva voce	
	Topic 9: Pectoral region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN9.1	Describe attachment, nerve supply & action of pectoralis major and pectoralis minor and describe clavipectoral fascia	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN9.2	Describe the location, extent, deep relations, structure, blood supply, lymphatic drainage, microanatomy and applied anatomy of breast	K	KH	Y	LGT,	Written/ Viva voce	
AN9.3	Describe development of breast, associated age changes and congenital anomalies	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 10: Axilla, Shoulder and Scapular region	**Number of Competencies (13)**			**Number of competencies for certification: (NIL)**		
AN10.1	Identify & describe boundaries and contents of axilla	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.2	Identify, describe and demonstrate the origin, extent, course, parts, relations and branches of axillary artery & tributaries of axillary vein	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.3	Describe, identify and demonstrate formation, branches, relations, area of supply of branches, course and relations of terminal branches of brachial plexus	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN10.4	Describe the anatomical groups of axillary lymph nodes and specify their areas of drainage	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.5	Explain variations in formation of brachial plexus	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN10.6	Explain the anatomical basis of clinical features of Erb's palsy and Klumpke's paralysis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN10.7	Describe axillary lymph nodes, areas of drainage and anatomical basis of their enlargement	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
AN10.8	Describe, identify and demonstrate the position, attachment, nerve supply and actions of trapezius and latissimus dorsi	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.9	Describe the arterial anastomosis around the scapula and mention the boundaries of triangle of auscultation	K	KH	N	LGT, Practical, Demonstration, Dissection	Written	
AN10.10	Describe and identify the deltoid and rotator cuff muscles along with their nerve supply and clinical anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.11	Describe & demonstrate attachment, action and clinical anatomy of serratus anterior muscle	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN10.12	Describe and demonstrate shoulder joint for– type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, muscles involved, blood supply, nerve supply and applied anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN10.13	Explain anatomical basis of Injury to axillary nerve during intramuscular injections	K	KH	Y	LGT	Viva voce	
	Topic 11: Arm & Cubital fossa	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN11.1	Describe and demonstrate muscle groups of upper arm with emphasis on biceps and triceps brachii	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels in arm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.3	Describe the anatomical basis of Venipuncture of cubital veins	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN11.4	Describe the anatomical basis of Saturday night paralysis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN11.5	Identify & describe boundaries and contents of cubital fossa	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN11.6	Describe the anastomosis around the elbow joint	K	KH	N	LGT	Written	
	Topic 12: Forearm & hand	**Number of Competencies (15)**			**Number of competencies for certification: (NIL)**		
AN12.1	Describe and demonstrate important muscle groups of ventral forearm with attachments, nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.2	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of forearm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN12.3	Identify & describe flexor retinaculum with its attachments	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.4	Explain anatomical basis of carpal tunnel syndrome	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN12.5	Identify & describe small muscles of hand. Also describe movements of thumb and muscles involved	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.6	Describe & demonstrate movements of thumb and muscles involved	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN12.7	Identify & describe course and branches of important blood vessels and nerves in hand	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.8	Describe anatomical basis of Claw hand	K	KH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN12.9	Identify & describe fibrous flexor sheaths, ulnar bursa, radial bursa and digital synovial sheaths	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
AN12.10	Explain infection of fascial spaces of palm	K	KH	N	LGT	Written	
AN12.11	Identify, describe and demonstrate important muscle groups of dorsal forearm with attachments, nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.12	Identify & describe origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of forearm	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN12.13	Describe the anatomical basis of Wrist drop	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN12.14	Identify & describe compartments deep to extensor retinaculum and describe the boundaries and contents of anatomical snuff box.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN12.15	Identify & describe extensor expansion formation	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
	Topic 13: General Features, Joints, radiographs & surface marking	**Number of competencies: (8)**			**Number of competencies for certification: (NIL)**		
AN13.1	Describe and explain Fascia of upper limb and compartments, veins of upper limb and its lymphatic drainage	K	KH	Y	LGT, demonstration	Written/ Viva voce	
AN13.2	Describe dermatomes of upper limb	K	KH	N	LGT	Written/ Viva voce	
AN13.3	Identify & describe the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements, blood and nerve supply of elbow joint, proximal and distal radio-ulnar joints, wrist joint & first carpometacarpal joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN13.4	Describe Sternoclavicular joint, Acromioclavicular joint, Carpometacarpal joints & Metacarpophalangealjoint	K	KH	N	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN13.5	Identify the bones and joints of upper limb seen in anteroposterior and lateral view radiographs of shoulder region, arm, elbow, forearm and hand	K,S	SH	Y	LGT, Practical, Demonstration	Viva voce/ skill assessment	
AN13.6	Identify & demonstrate important bony landmarks of upper limb: Jugular notch, sternal angle, acromial angle, spine of the scapula, vertebral level of the medial end and Inferior angle of the scapula	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN13.7	Identify & demonstrate surface projection of: Cephalic and basilic vein, Palpation of Brachial artery, Radial artery, Testing of muscles: Trapezius, pectoralis major, serratus anterior, latissimus dorsi, deltoid, biceps brachii, Brachioradialis	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN13.8	Describe development of upper limb	K	KH	N	LGT	Written	
	Topic 14: Features of individual bones (Lower Limb)	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN14.1	Identify the given bone, its side, anatomical position, joint formation, important features and clinical anatomy (hip bone, femur, tibia fibula, tarsal bones)	K,S	SH	Y	Demonstration	Viva voce	
AN14.2	Identify & describe joints formed by the given bone	K,S	SH	Y	LGT, Demonstration	Viva voce	
AN14.3	Describe the importance of ossification of lower end of femur & upper end of tibia, and explain violation of law of ossification in fibula	K	KH	Y	LGT, Demonstration	Viva voce	
AN14.4	Identify and name various bones in the articulated foot with individual muscle attachment	K,S	SH	N	LGT, Demonstration	Viva voce	
	Topic 15: Front & Medial side of thigh	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN15.1	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior thigh	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.2	Describe and demonstrate major muscles with their attachment, nerve supply and actions	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.3	Describe and demonstrate boundaries, floor, roof and contents of femoral triangle	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN15.4	Explain anatomical basis of Psoas abscess & Femoral hernia	K	KH	N	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN15.5	Describe and demonstrate adductor canal with its contents	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 16: Gluteal region & back of thigh	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN16.1	Describe and demonstrate major muscles with their attachment, nerve supply and actions.	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.2	Describeanddemonstrate structures under thecover of gluteus maximus. Also explain the anatomical basis of sciatic nerve injury during gluteal intramuscular injections	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.3	Explain the anatomical basis of Trendelenburg sign	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN16.4	Describe and demonstrate the hamstrings group of muscles with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.5	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels on the back of thigh	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN16.6	Describe and demonstrate the boundaries, roof, floor, contents and relations of popliteal fossa with its clinical anatomy	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 17: Hip Joint	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN17.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply, bursae around the hip joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN17.2	Describe anatomical basis of complications of fracture neck of femur	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN17.3	Describe dislocation of hip joint and surgical hip replacement	K	KH	N	LGT, Demonstration	Written/ Viva voce	
	Topic 18: Knee joint, Anterior compartment of leg & dorsum of foot	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN18.1	Describe and demonstrate major muscles of anterior compartment of leg with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.2	Describe and demonstrate origin, course, relations, branches (or tributaries), termination of important nerves and vessels of anterior compartment of leg	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.3	Explain the anatomical basis of foot drop	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN18.4	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, nerve supply, bursae around the knee joint along with anastomosis around the knee joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN18.5	Explain the anatomical basis of locking and unlocking of the knee joint	K	KH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN18.6	Describe knee joint injuries with its applied anatomy	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN18.7	Explain anatomical basis of Osteoarthritis	K	KH	N	LGT	Written/ Viva voce	
	Topic 19: Back of Leg & Sole	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN19.1	Describe and demonstrate the major muscles of back of leg with their attachment, nerve supply and actions	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN19.2	Describe and demonstrate the origin, course, relations, branches (or tributaries), termination of important nerves and vessels of back of leg	K,S	SH	Y	Dissection, LGT, SGT, Demonstration	Written/ Viva voce/ skill assessment	
AN19.3	Explain the concept of "Peripheral heart"	K	KH	Y	LGT	Written/ Viva voce	
AN19.4	Explain the anatomical basis of rupture of calcaneal tendon	K	KH	N	LGT	Written/ Viva voce	
AN19.5	Describe factors maintaining importance arches of the foot with its importance	K	KH	Y	LGT	Written/ Viva voce	
AN19.6	Explain the anatomical basis of Flat foot & Club foot	K	KH	N	LGT	Written/ Viva voce	
AN19.7	Explain the anatomical basis of Metatarsalgia & Plantar fasciitis	K	KH	N	LGT	Written/ Viva voce	
	Topic 20: General Features, Joints, radiographs & surface marking	Number of Competencies (10)			Number of competencies for certification: (NIL)		
AN20.1	Describe and demonstrate the type, articular surfaces, capsule, synovial membrane, ligaments, relations, movements and muscles involved, blood and nerve supply of tibiofibular and ankle joint	K,S	SH	Y	Dissection, LGT, SGT, Demonstration, Practical	Written/ Viva voce/ skill assessment	
AN20.2	Describe the subtalar and transverse tarsal joints	K	KH	N	LGT, Demonstration	Written/ Viva voce	
AN20.3	Describe and demonstrate Fascia lata, Venous drainage, Lymphatic drainage, Retinacula & Dermatomes of lower limb	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN20.4	Explain anatomical basis of enlarged inguinal lymph nodes	K	KH	N	LGT	Written/ Viva voce	
AN20.5	Explain anatomical basis of varicose veins and deep vein thrombosis	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN20.6	Identify the bones and joints of lower limb seen in anteroposterior and lateral view radiographs of various regions of lower limb	K/S	SH	Y	LGT, SGT, Demonstration	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN20.7	Identify & demonstrate important bony landmarks of lower limb: - Vertebral levels of highest point of iliac crest, posterior superior iliac spines, iliac tubercle, pubic tubercle, ischial tuberosity, adductor tubercle, -Tibial tuberosity, head of fibula, -Medial and lateral malleoli, Condyles of femur and tibia, sustentaculum tali, tuberosity of fifth metatarsal, tuberosity of the navicular	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.8	Identify & demonstrate palpation of femoral, popliteal, posterior tibial, anterior tibial & dorsalis pedis arteries in a simulated environment	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.9	Demonstrate surface projection of: femoral, popliteal, dorsalis pedis, post tibial arteries, Mid inguinal point, femoral nerve, Saphenous opening, Sciatic, tibial, common peroneal & deep peroneal nerve, Great and small saphenous veins	K,S	SH	Y	Practical, LGT, SGT, Demonstration	Viva voce/ skill assessment	
AN20.10	Describe basic concept of development of lower limb	K	KH	N	LGT	Viva voce	
	Topic 21: Thoracic cage	**Number of Competencies (11)**			**Number of competencies for certification: (NIL)**		
AN21.1	Identify and describe the salient features of sternum, typical rib and typical thoracic vertebra.	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Viva voce/ skill assessment	
AN21.2	Identify & describe the features of atypical ribs and atypical thoracic vertebrae.	K,S	SH	N	LGT, Dissection, Practical, Demonstration	Viva voce/ skill assessment	
AN21.3	Describe & demonstrate the boundaries of thoracic inlet, cavity and outlet along with its applied aspect.(Thoracic inlet Syndrome)	K/S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN21.4	Describe & demonstrate extent, attachments, direction of fibres, nerve supply and actions of intercostal muscles	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN21.5	Describe & demonstrate origin, course, relations and branches of a typical intercostal nerve	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN21.6	Mention origin, course and branches/ tributaries of: 1) anterior & posterior intercostal vessels 2) internal thoracic vessels	K	KH	Y	LGT, Dissection, Practical, Demonstration	Written/ Viva voce	
AN21.7	Mention the origin, course, relations and branches of 1) atypical intercostal nerve 2) superior intercostal artery, subcostal artery	K	KH	N	LGT, Dissection, Practical, Demonstration	Written	
AN21.8	Describe & demonstrate type, articular surfaces & movements of manubriosternal, costovertebral, costotransverse and xiphisternal joints	K,S	SH	N	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN21.9	Describe & demonstrate mechanics and types of respiration	K,S	SH	Y	Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN21.10	Describe costochondral and interchondral joints	K	KH	N	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN21.11	Mention boundaries and contents of the superior, anterior, middle and posterior mediastinum	K	KH	Y	LGT, Demonstration, Dissection	Written/ Viva voce	
	Topic 22: Heart & Pericardium	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN22.1	Describe & demonstrate subdivisions, sinuses in pericardium, blood supply and nerve supply of pericardium	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN22.2	Describe & demonstrate external and internal features of each chamber of heart	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN22.3	Describe & demonstrate origin, course and branches of coronary arteries	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN22.4	Describe anatomical basis of ischaemic heart disease	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN22.5	Describe & demonstrate the formation, course, tributaries and termination of coronary sinus	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
AN22.6	Describe the fibrous skeleton of heart	K	KH	Y	LGT	Written	
AN22.7	Mention the parts, position and arterial supply of the conducting system of heart	K	KH	Y	LGT	Written/ Viva voce	
	Topic 23: Mediastinum	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN23.1	Describe & demonstrate the external appearance, relations, blood supply, nerve supply, lymphatic drainage and applied anatomy of oesophagus	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce/ skill assessment	
AN23.2	Describe & demonstrate the extent, relations and tributaries of thoracic duct and enumerate its applied anatomy.	K,S	SH	Y	LGT	Written/ Viva voce/ skill assessment	
AN23.3	Describe & demonstrate origin, course, relations, tributaries and termination of superior vena cava, azygos, hemiazygos andaccessory hemiazygos veins	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN23.4	Mention the extent, branches and relations of arch of aorta & descending thoracic aorta	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN23.5	Identify & Mention the location and extent of thoracic sympathetic chain	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN23.6	Describe the splanchnic nerves	K	KH	N	LGT	Written	
	Topic 24: Lungs & Trachea	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN24.1	Mention the blood supply, lymphatic drainage and nerve supply of pleura, extent of pleura and describe the pleural recesses and their applied anatomy	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN24.2	Identify side, external features and relations of structures which form root of lung & bronchial tree and their clinical correlate	K,S	SH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce/ skill assessment	
AN24.3	Describe a bronchopulmonary segment with its clinical anatomy	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN24.4	Identify phrenic nerve & describe its formation & distribution	K,S	SH	Y	LGT, Demonstration	Written/ Viva voce	
AN24.5	Mention the blood supply, lymphatic drainage and nerve supply of lungs	K	KH	Y	LGT, Demonstration, Dissection, Practical	Written/ Viva voce	
AN24.6	Describethe extent, length, relations, bloodsupply, lymphatic drainageand nerve supply of trachea	K	KH	N	LGT, Demonstration	Written	
	Topic 25: Thorax	**Number of Competencies (9)**			**Number of competencies for certification: (NIL)**		
AN25.1	Identify, draw and label a slide of trachea and lung	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	
AN25.2	Describe development of pleura, lung & heart	K	KH	Y	LGT	Written	
AN25.3	Describe fetal circulation and changes occurring at birth	K	KH	Y	LGT, Demonstration	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN25.4	Describe embryological basis of: 1) atrial septal defect, 2) ventricular septal defect, 3) Fallot's tetralogy & 4) tracheoesophageal fistula	K	KH	Y	LGT	Written/ Viva voce	
AN25.5	Describe developmental basis of congenital anomalies, transposition of great vessels, dextrocardia, patent ductus arteriosus and coarctation of aorta	K	KH	Y	LGT	Written/ Viva voce	
AN25.6	Mention development of aortic arch arteries, SVC, IVC and coronary sinus	K	KH	N	LGT	Written/ Viva voce	
AN25.7	Identify structures seen on a plain x-ray chest (PA view)	K,S	SH	Y	LGT, Demonstration, Practical	Written/ Viva voce	
AN25.8	Identify and describe in brief a barium swallow	K,S	SH	N	LGT, Demonstration, Practical	Written/ Viva voce	
AN25.9	Demonstrate surface marking of lines of pleural reflection, lung borders and fissures, trachea, heart borders, apex beat & surface projection of valves of heart	K,S	SH	Y	Demonstration, Practical	Viva voce/ skill assessment	
Topic 26: Skull osteology		**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN26.1	Describe & demonstrate anatomical position of skull, Identify and locate individual skull bones in skull	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.2	Describe & demonstrate the features of norma frontalis, verticalis, occipitalis, lateralis and basalis	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.3	Describe & demonstrate cranial cavity, its subdivisions, foramina and structures passing through them	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.4	Describe & demonstrate morphological features of mandible	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.5	Describe & demonstrate features of typical and atypical cervical vertebrae (atlas and axis)	K,S	SH	Y	LGT, Demonstration	Viva voce/ skill assessment	
AN26.6	Explain the concept of bones that ossify in membrane	K	KH	N	LGT	Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN26.7	Describe & demonstrate the features of the 7th cervical vertebra	K,S	SH	N	LGT, Demonstration	Viva voce	
	Topic 27: Scalp	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN27.1	Describe & demonstrate the layers of scalp, its blood supply, nerve supply and surgical importance.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN27.2	Describe emissary veins with its role in the spread of infection from extracranial route to intracranial venous sinuses	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
	Topic 28: Face & parotid region	**Number of Competencies (10)**			**Number of competencies for certification: (NIL)**		
AN28.1	Describe & demonstrate muscles of facial expression and their nerve supply	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.2	Describe sensory innervation of face	K	KH	Y	LGT, Demonstration	Written/ Viva voce	
AN28.3	Describe & demonstrate origin /formation, course, branches /tributaries of facial vessels	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.4	Describe & demonstrate branches of facial nerve with distribution	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.5	Describe cervical lymph nodes and lymphatic drainage of head, face and neck	K	KH	Y	LGT	Written/ Viva voce	
AN28.6	Identify superficial muscles of face, their nerve supply and actions	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN28.7	Explain the anatomical basis of facial nerve palsy	K	KH	Y	LGT	Written	
AN28.8	Explain surgical importance of deep facial vein	K	KH	Y	LGT	Written	
AN28.9	Describe & demonstrate the parts, borders, surfaces, contents, relations and nerve supply of parotid gland with course of its duct and surgical importance	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN28.10	Explain the anatomical basis of Frey's syndrome	K	KH	N	LGT	Written	
	Topic 29: Posterior triangle of neck	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN29.1	Describe and demonstrate the boundaries, subdivisions and contents of posterior triangle of neck	K, S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN29.2	Describe & demonstrate attachments, nerve supply, relations and actions of sternocleidomastoid	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN29.3	Explain anatomical basis of Erb's & Klumpke's palsy	K	KH	Y	LGT, Demonstration	Written	
AN29.4	Explain anatomical basis of wry neck	K	KH	N	LGT, Demonstration	Written	
AN29.5	Describe & demonstrate attachments of 1) inferior belly of omohyoid, 2)scalenus anterior, 3) scalenus medius & 4) levator scapulae	K,S	SH	N	LGT, Practical, Demonstration, Dissection	Written/ Viva voce	
	Topic: 30 Cranial cavity	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN30.1	Describe the cranial fossae & identify related structures	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN30.2	Describe & identify major foramina with structures passing through them	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN30.3	Describe & identify dural folds & dural venous sinuses	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN30.4	Describe clinical importance of dural venous sinuses	K	KH	Y	LGT	Written	
AN30.5	Explain effect of pituitary tumours on visual pathway	K	KH	N	LGT	Written	
Topic 31: Orbit		**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN31.1	Describe & identify extra ocular muscles of eyeball, along with a note on its attachment, action and clinical anatomy	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN31.2	Describe & demonstrate nerves and vessels in the orbit	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN31.3	Describe anatomical basis of Horner's syndrome	K	KH	N	LGT	Written	
AN31.4	Describe the components of lacrimal apparatus	K	KH	Y	LGT	Written	
AN31.5	Explain the anatomical basis of oculomotor, trochlear and abducent nerve palsies along with strabismus	K	KH	Y	LGT	Written	
Topic 32: Anterior Triangle		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN32.1	Describe boundaries and subdivisions of anterior triangle	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN32.2	Describe & demonstrate boundaries and contents of muscular, carotid, digastric and submental triangles	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
	Topic 33: Temporal and Infratemporal regions	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN33.1	Describe & demonstrate extent, boundaries and contents of temporal and infratemporal fossae	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.2	Describe & demonstrate attachments, direction of fibres, nerve supply and actions of muscles of mastication	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.3	Describe & demonstrate articulating surface, type & movements of temporomandibular joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN33.4	Explain the clinical significance of pterygoid venous plexus	K	KH	Y	LGT	Written	
AN33.5	Describe the features of dislocation of temporomandibular joint	K	KH	N	LGT	Written	
	Topic 34: Submandibular region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN34.1	Describe and demonstrate the superficial and deep structures, muscles, nerves, vessels, and glands in the submandibular region	K,S	SH	Y	LGT, Dissection, Practical, Demonstration	Written/Viva/ Skill Assessment	
AN34.2	Describe & demonstrate the morphology, relations and nerve supply of submandibular salivary gland & submandibularganglion	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN34.3	Describe the basis of formation of submandibular stones	K	KH	N	LGT	Written	
	Topic 35: Deep structures in the neck	**Number of Competencies (10)**			**Number of competencies for certification: (NIL)**		
AN35.1	Describe the parts, extent, attachments, modifications of deep cervical fascia	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN35.2	Describe & demonstrate location, parts, borders, surfaces, relations, blood supply & applied anatomy of thyroid gland. Also describe the parathyroid glands in brief.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.3	Demonstrate & describe the origin, parts, course & branches subclavian artery	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.4	Describe & demonstrate origin, course, relations, tributaries and termination of internal jugular & brachiocephalic veins	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.5	Describe and demonstrate extent, drainage & applied anatomy of cervical lymph nodes	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.6	Describe and demonstrate the extent, formation, relation & branches of cervical sympathetic chain	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN35.7	Describe the course and branches of IX, X, XI & XII nerve in the neck	K	KH	Y	LGT	Written	
AN35.8	Describe the anatomically relevant clinical features of Thyroid swellings	K	KH	N	LGT, Demonstration	Written	
AN35.9	Describe the clinical features of compression of subclavian artery and lower trunk of brachial plexus by cervical rib	K	KH	N	LGT	Written	
AN35.10	Describe the fascial spaces of neck	K	KH	N	LGT	Written	
	Topic 36: Mouth, Pharynx & Palate	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN36.1	Describe and demonstrate the structures of the vestibule of the mouth and oral cavity proper.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN36.2	Describe the 1) morphology, relations, blood supply andapplied anatomy of palatine tonsil 2) composition of soft palate	K	KH	Y	LGT, Practical, Demonstration, Dissection	Written	
AN36.3	Describe and demonstrate the muscles, nerve supply, blood supply and lymphatic drainage of the pharynx	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN36.4	Describe the components and functions of Waldeyer's lymphatic ring	K	KH	Y	LGT	Written	
AN36.5	Describe the pharyngeal spaces. Also describe the boundaries and clinical significance of pyriform fossa	K	KH	N	LGT	Written	
AN36.6	Describe the anatomical basis of tonsillitis, tonsillectomy, adenoids and peri-tonsillar abscess	K	KH	N	LGT	Written	
AN36.7	Describe the clinical significance of Killian's dehiscence	K	KH	N	LGT	Written	
Topic 37: Cavity of Nose		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN37.1	Describe & demonstrate features of nasal septum, lateral wall of nose, their blood supply and nerve supply	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN37.2	Describe location and functional anatomy of paranasal sinuses	K	KH	Y	LGT, Practical, Demonstration	Written	
AN37.3	Describe anatomical basis of sinusitis & maxillary sinus tumours	K	KH	N	LGT	Written	
Topic 38: Larynx		**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN38.1	Describe & demonstrate the morphology, identify structure of the wall, nerve supply, blood supply and actions of intrinsic and extrinsic muscles of the larynx	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN38.2	Describe the anatomical aspects of laryngitis	K	KH	N	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN38.3	Describe anatomical basis of recurrent laryngeal nerve injury	K	KH	N	LGT	Written	
	Topic 39: Tongue	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN39.1	Describe & demonstrate the morphology, nerve supply, embryological basis of nerve supply, blood supply, lymphatic drainage and actions of extrinsic and intrinsic muscles of tongue	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN39.2	Explain the anatomical basis of hypoglossal nerve palsy	K	KH	N	LGT	Written	
	Topic 40: Organs of hearing and equilibrium	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN40.1	Describe & identify the parts, blood supply and nerve supply of external ear	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN40.2	Describe & demonstrate the boundaries, contents, relations and functional anatomy of middle ear and auditory tube	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN40.3	Describe the features of internal ear	K	KH	N	LGT	Written	
AN40.4	Explain anatomical basis of otitis externa and otitis media	K	KH	N	LGT	Written	
AN40.5	Explain anatomical basis of myringotomy	K	KH	N	LGT	Written	
	Topic 41: Eyeball	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN41.1	Describe & demonstrate parts and layers of eyeball	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN41.2	Describe the anatomical aspects of cataract, glaucoma & central retinal artery occlusion	K	KH	N	LGT	Written	
AN41.3	Describe the position, nerve supply and actions of intraocular muscles	K	KH	N	LGT, Practical, Demonstration	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
	Topic 42: Back Region	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN42.1	Describe and demonstrate the contents of the vertebral canal	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN42.2	Describe & demonstrate the boundaries and contents of Suboccipital triangle	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN42.3	Describe the position, direction of fibres, relations, nerve supply, actions of semispinalis capitis and splenius capitis	K	KH	N	LGT	Written	
	Topic 43: Head & neck Joints, Histology, Development, Radiography & Surface marking	**Number of Competencies (9)**			**Number of competencies for certification: (NIL)**		
AN43.1	Describe & demonstrate the movements with muscles producing the movements of atlantooccipital joint & atlantoaxial joint	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN43.2	Identify, describe and draw the microanatomy of pituitary gland, thyroid, parathyroid gland, tongue, salivary glands, tonsil, epiglottis, cornea, retina	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN43.3	Identify, describe and draw microanatomy of olfactory epithelium, eyelid, lip, sclero-corneal junction, optic nerve, cochlea- organ of corti, pineal gland	K,S	SH	N	LGT, Practical	Written/ skill assessment	
AN43.4	Describe the development and developmental basis of congenital anomalies of face, palate, tongue, branchial apparatus, pituitary gland, thyroid gland & eye	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN43.5	Demonstrate- 1) Testing of muscles of facial expression, extraocular muscles, muscles of mastication, 2) Palpation of carotid arteries, facial artery, superficial temporal artery, 3) Location of internal and external jugular veins, 4) Location of hyoid bone, thyroid cartilage and cricoid cartilage with their vertebral levels	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN43.6	Demonstrate surface projection of- Thyroid gland, Parotid gland and duct, Pterion, Common carotid artery, Internal jugular vein, Subclavian vein, External jugular vein, Facial artery in the face & accessory nerve	K,S	SH	N	Practical, Demonstration	Viva voce/ skill assessment	
AN43.7	Identify the anatomical structures in 1) Plain x-ray skull, 2) AP view and lateral view 3) Plain x-ray cervical spine-AP and lateral view 4) Plain x- ray of paranasal sinuses	K,S	SH	Y	Practical, Demonstration	Viva voce/ skill assessment	
AN43.8	Describe the anatomical route used for carotid angiogram and vertebral angiogram	K	KH	N	LGT	Viva voce/ skill assessment	
AN43.9	Identify anatomical structures in carotid angiogram and vertebral angiogram	K,S	SH	N	Practical, Demonstration	Viva voce/ skill assessment	
	Topic 44: Anterior abdominal wall	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN44.1	Describe & demonstrate the Planes (transpyloric, transtubercular, subcostal, lateral vertical, linea alba, linea semilunaris), regions & Quadrants of abdomen	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.2	Describe & identify the Fascia, nerves & blood vessels of anterior abdominal wall	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.3	Describe the formation of rectus sheath and its contents	K	KH	Y	LGT, Practical, Demonstration,	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN44.4	Describe & demonstrate extent, boundaries, contents of Inguinal canal including Hesselbach's triangle.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.5	Explain the anatomical basis of inguinal hernia.	K	KH	Y	LGT	Written/ Viva voce	
AN44.6	Describe & demonstrate attachments of muscles of anterior abdominal wall	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN44.7	Describe common abdominal incisions with example and their clinical importance	K	KH	N	LGT	Written	
	Topic 45: Posterior abdominal wall	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN45.1	Describe Thoracolumbar fascia, its different layers, their attachments and extents	K	KH	Y	LGT	Written	
AN45.2	Describe & demonstrate Lumbar plexus, its root value, formation, branches and clinical anatomy (compression/ injury to the rootlets of lumber plexus)	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN45.3	Describe and demonstrate back muscles, nerve supply and action	K	KH	N	LGT	Written	
	Topic 46: Male external genitalia	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN46.1	Describe & demonstrate coverings, internal structure, side determination, blood supply, nerve supply, lymphatic drainage & descent of testis with its applied anatomy	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN46.2	Describe parts of Epididymis	K	KH	Y	LGT, Dissection	Written/ Viva voce	
AN46.3	Describe Penis under following headings: (parts, components, blood supply and lymphatic drainage)	K	KH	Y	LGT, Dissection	Written/ Viva voce	
AN46.4	Explain the anatomical basis of Varicocele	K	KH	N	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN46.5	Explain the anatomical basis of Phimosis & Circumcision	K	KH	N	LGT	Written	
	Topic 47: Abdominal cavity	**Number of Competencies (14)**			**Number of competencies for certification: (NIL)(NIL)**		
AN47.1	Describe & demonstrate horizontal and vertical tracing of peritoneum. Also describe boundaries and recesses of Lesser & Greater sac.	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.2	Name & identify various peritoneal folds & pouches with its explanation .	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.3	Explain anatomical basis of Ascites & Peritonitis	K	KH	N	LGT	Written	
AN47.4	Explain anatomical basis of Subphrenic abscess	K	KH	N	LGT	Written	
AN47.5	Describe & demonstrate major viscera of abdomen under following headings (anatomical position, external and internal features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and applied aspects)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN47.6	Explain the anatomical basis of Splenic notch, Accessory spleens, Kehr's sign, Different types of vagotomy, Liver biopsy (site of needle puncture), Referred pain in cholecystitis, Obstructive jaundice, Referred pain around umbilicus, Radiating pain of kidney to groin & Lymphatic spread in carcinoma stomach	K	KH	N	LGT	Written	
AN47.7	Demonstrate boundaries of Calot's triangle and mention its clinical importance	K	KH	N	LGT	Written	
AN47.8	Describe & identify the formation, course relations and tributaries of Portal vein, Inferior vena cava & Renal vein	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN47.9	Describe & identify the origin, course, important relations and branches of Abdominal aorta, Coeliac trunk, Superior mesenteric, Inferior mesenteric & Common iliac artery	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN47.10	Describe sites of portosystemic anastomosis, describe its applied anatomy andanatomical correlations	K	KH	Y	LGT	Written	
AN47.11	Explain the anatomic basis of hematemesis& caput medusae in portal hypertension	K	KH	Y	LGT,	Written/ Viva voce	
AN47.12	Describe important nerve plexuses of posterior abdominal wall	K	KH	N	LGT	Written	
AN47.13	Describe & demonstrate the attachments, openings, nerve supply & action of the thoracoabdominal diaphragm	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN47.14	Describe the abnormal openings of thoracoabdominal diaphragm and diaphragmatic hernia	K	KH	N	LGT	Written	
	Topic 48: Pelvic wall and viscera	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN48.1	Describe & demonstrate the position, features, important peritoneal and other relations, blood supply, nerve supply, lymphatic drainage and clinical aspects of important male & female pelvic viscera.	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.2	Describe & identify the muscles of Pelvic diaphragm.	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.3	Describe & demonstrate the origin, course, important relations and branches of internal iliac artery	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN48.4	Describe the branches of sacral plexus	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/S H/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN48.5	Explain the anatomical basis of suprapubic cystostomy, Urinary obstruction in benign prostatic hypertrophy, Retroverted uterus, Prolapse uterus, Internal and external haemorrhoids, Anal fistula, Vasectomy, Tubal pregnancy & Tubal ligation	K	KH	N	LGT	Written	
AN48.6	Describe the neurological basis of Automatic bladder	K	KH	Y	LGT	Written	
AN48.7	Mention the lobes involved in benign prostatic hypertrophy & prostatic cancer	K	KH	N	LGT	Written	
AN48.8	Mention the structures palpable during vaginal & rectal examination	K	KH	N	LGT	Written	
	Topic 49: Perineum	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN49.1	Describe& demonstrate the superficial & deep perineal pouch (boundaries and contents)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill	
AN49.2	Describe & identify Perineal body	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.3	Describe & demonstrate Perineal membrane in male & female	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.4	Describe & demonstrate boundaries, content & applied anatomy of Ischiorectal fossa	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN49.5	Explain the anatomical basis of Perineal tear, Episiotomy, Perianal abscess and Anal fissure	K	KH	N	LGT	Written	
	Topic 50: Vertebral column	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN50.1	Describe the curvatures of the vertebral column	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN50.2	Describe & demonstrate the type, articular ends, ligaments and movements of Intervertebral joints, Sacroiliac joints & Pubic symphysis	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN50.3	Describe lumbar puncture (site, direction of the needle, structures pierced during the lumbar puncture)	K	KH	Y	LGT	Written/ Viva voce	
AN50.4	Explain the anatomical basis of Scoliosis, Lordosis, Prolapsed disc, Spondylolisthesis & Spina bifida	K	KH	N	LGT	Written	
	Topic 51: Sectional Anatomy	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN51.1	Describe & identify the cross-section at the level of T8, T10 and L1 (transpyloric plane)	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
AN51.2	Describe & identify the midsagittal section of male and female pelvis	K	SH	Y	Dissection, LGT, SGT, DOAP	Written/ Viva voce/ skill assessment	
	Topic 52: Histology & Embryology	**Number of Competencies (8)**			**Number of competencies for certification: (NIL)**		
AN52.1	Describe & identify the microanatomical features of Gastro-intestinal system: Oesophagus, Fundus of stomach, Pylorus of stomach, Duodenum, Jejunum, Ileum, Large intestine, Appendix, Liver, Gall bladder, Pancreas & Suprarenal gland	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	
AN52.2	Describe & identify the microanatomical features of: Urinary system: Kidney, Ureter & Urinary bladder Male Reproductive System: Testis, Epididymis, Vas deferens, Prostate & penis Female reproductive system: Ovary, Uterus, Uterine tube, Cervix, Placenta & Umbilical cord	K,S	SH	Y	LGT, Demonstration, Practical	Written/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN52.3	Describe & identify the microanatomical features of Cardiooesophageal junction, Corpus luteum	K,S	SH	N	LGT, Demonstration, Practical	Written/ skill assessment	
AN52.4	Describe the development of anterior abdominal wall	K	KH	N	LGT	Written/ Viva voce	
AN52.5	Describe the development and congenital anomalies of Diaphragm	K	KH	Y	LGT	Written/ Viva voce	
AN52.6	Describe the development and congenital anomalies of: Foregut, Midgut & Hindgut	K	KH	Y	LGT	Written/ Viva voce	
AN52.7	Describe the development of Urinary system	K	KH	Y	LGT	Written/ Viva voce	
AN52.8	Describe the development of male & female reproductive system	K	KH	Y	LGT	Written/ Viva voce	
	Topic 53: Osteology	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN53.1	Identify & hold the bone in the anatomical position, Describe the salient features, articulations & demonstrate the attachments of muscle groups	K,S	SH	Y	LGT, Demonstration, Practical	Viva voce/ skill assessment	
AN53.2	Demonstrate the anatomical position of bony pelvis & show boundaries of pelvic inlet, pelvic cavity, pelvic outlet	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN53.3	Define true pelvis and false pelvis and demonstrate sex determination in male & female bony pelvis	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN53.4	Explain and demonstrate clinical importance of bones of abdominopelvic region (sacralization of lumbar vertebra, Lumbarization of 1st sacral vertebra, types of bony pelvis & Coccyx)	K,S	SH	N	LGT, DOAP	Viva voce/ skill assessment	
	Topic 54: Radiodiagnosis	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN54.1	Describe the principles of Plain and contrast radiography, Computed Tomography, Magnetic Resonance Imaging, Positron Emission Tomography scan and Digital subtraction angiography	K	KH	Y	LGT	Viva voce/ skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN54.2	Describe & identify features of plain X ray abdomen	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN54.3	Describe & identify the special radiographs of abdominopelvic region (contrast X ray Barium swallow, Barium meal, Barium enema, Cholecystography, Intravenous pyelography & Hysterosalpingography)	K,S	SH	Y	LGT, DOAP	Viva voce/ skill assessment	
AN54.4	Describe role of ERCP, CT abdomen, MRI, Arteriography in radiodiagnosis of abdomen	K	KH	N	LGT	Viva voce	
	Topic 55: Surface marking	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN55.1	Demonstrate the surface marking of Regions and planes of abdomen, Superficial inguinal ring, Deep inguinal ring, McBurney's point, Renal Angle & Murphy's point	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Viva voce/ skill assessment	
AN55.2	Demonstrate the surface projections of: Stomach, Liver, Fundus of gall bladder, Spleen, Duodenum, Pancreas, Ileocaecal junction, Kidneys & Root of mesentery	K,S	SH	Y	Dissection, LGT, SGT, DOAP	Viva voce/ skill assessment	
	Topic 56: Meninges & CSF	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN56.1	Describe & identify various layers of meninges with its extent & modifications	K,S	SH	Y	LGT, Practical, Demonstration, Dissection	Written/ Viva voce/ skill assessment	
AN56.2	Describe formation, circulation and absorption of CSF with its applied anatomy.	K	KH	Y	LGT	Written/ Viva voce	
	Topic 57 : Spinal Cord	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN57.1	Identify external features of spinal cord	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN57.2	Describe extent of spinal cord in child & adult with its clinical implication	K	KH	Y	LGT, Demonstration	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN57.3	Draw & label transverse section of spinal cord at mid-cervical & mid-thoracic level	K	KH	Y	LGT	Written/ Viva voce	
AN57.4	Enumerate ascending & descending tracts at mid thoracic level of spinal cord	K	KH	Y	LGT	Written/ Viva voce	
AN57.5	Describe the anatomical basis of clinical conditions affecting the grey and white matter of spinal cord (Brown-Sequard Syndrome, Poliomyelitis, Amyotrophic lateral sclerosis or motor neuron disease, Syringomyelia, Hereditary sensory neuropathy, Subacute Combined degeneration, Transversemyelitis, paraplegia)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 58 : Medulla Oblongata	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN58.1	Identify external features of medulla oblongata	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN58.2	Describe transverse section of medulla oblongata at the level of 1) pyramidal decussation, 2) sensory decussation 3) Inferior Olivary Nucleus	K	KH	Y	LGT	Written/ Viva voce	
AN58.3	Describe cranial nerve nuclei in medulla oblongata with their functional group	K	KH	Y	LGT	Written/ Viva voce	
AN58.4	Describe the anatomical basis of clinical conditions affecting the medulla oblongata (Medial and lateral medullary syndromes, Crossed Diplegia)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 59: Pons	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN59.1	Identify external features of pons	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN59.2	Draw & label transverse section of pons at the upper and lower level	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN59.3	Describe cranial nerve nuclei in pons with their functional group	K	KH	Y	LGT	Written/ Viva voce	
AN59.4	Describe the anatomical basis of clinical conditions affecting the pons (Locked-in syndrome, Pontine haemorrhage, Foville syndrome, Raymond syndrome, Millard-Gubler syndrome)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 60: Cerebellum	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN60.1	Describe & demonstrate external & internal features of cerebellum	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN60.2	Describe connections of cerebellar cortex and intracerebellar nuclei	K	KH	Y	LGT	Written/ Viva voce	
AN60.3	Describe anatomical basis of cerebellar dysfunction	K	KH	N	LGT	Written	
	Topic 61: Midbrain	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN61.1	Identify external & internal features of midbrain	K,S	SH	Y	Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN61.2	Describe internal features of midbrain at the level of superior & inferior colliculus	K	KH	Y	LGT	Written/ Viva voce	
AN61.3	Describe the anatomical basis of clinical conditions affecting the midbrain (Weber syndrome, Benedikt syndrome, Parinaud syndrome)	K	KH	Y	LGT	Written/ Viva voce	
	Topic 62: Cranial nerve nuclei & Cerebral hemispheres	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN62.1	Describe the cranial nerve nuclei with its functional components	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN62.2	Describe & demonstrate surfaces, sulci, gyri, poles, & functional areas of cerebral hemisphere. Also describe the effects of damage to various functional areas of cerebral cortex	K,S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN62.3	Describe the white matter of cerebrum. Also describe the effects of damage to corpus callosum and different parts of internal capsule	K	KH	Y	LGT	Written/ Viva voce	
AN62.4	Describe the parts & major connections of basal ganglia & limbic lobe. Also explain the anatomical basis of Parkinson's disease, chorea, athetosis and ballismus	K	KH	Y	LGT	Written/ Viva voce	
AN62.5	Describe boundaries, parts, gross relations, major nuclei and connections of dorsal thalamus, hypothalamus, epithalamus, metathalamus and subthalamus	K	KH	Y	LGT	Written/ Viva voce	
AN62.6	Describe & identify formation, branches & major areas of distribution of circle of Willis	K/S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
	Topic 63: Ventricular System & Special sensory pathways	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN63.1	Describe & demonstrate parts, boundaries & features of 3rd, 4th & lateral ventricle	K,S	SH	Y	LGT, Practical, Demonstration	Written/ Viva voce/ skill assessment	
AN63.2	Describe anatomical basis of congenital hydrocephalus	K	KH	N	LGT	Written	
AN63.3	Describe the olfactory, visual, auditory and gustatory pathways	K	KH	Y	LGT	Written/ Viva voce	
	Topic 64: Histology & Embryology	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN64.1	Describe & identify the microanatomical features of Spinal cord, Cerebellum & Cerebrum	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN64.2	Describe the development of neural tube, spinal cord, medulla oblongata, pons, midbrain, cerebral hemisphere & cerebellum	K	KH	Y	LGT	Written/ Viva voce	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN64.3	Describe various types of open neural tube defects with its embryological basis	K	KH	N	LGT	Written/ Viva voce	
	Topic 65: Epithelium histology	**Number of Competencies (2)**			**Number of competencies for certification: (01)**		
AN65.1	Identify epithelium under the microscope & describe the various types that correlate to its function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN65.2	Describe the ultrastructure of epithelium	K	KH	N	LGT, Practical	Written	
	Topic 66: Connective tissue histology	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN66.1	Describe & identify various types of connective tissue with functional correlation	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN66.2	Describe the ultrastructure of connective tissue	K	KH	N	LGT, Practical	Written	
	Topic 67: Muscle histology	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN67.1	Describe & identify various types of muscle under the microscope	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN67.2	Classify muscleand describe the structure-function correlation of the same	K	KH	Y	LGT	Written	
AN67.3	Describe the ultrastructure of muscular tissue	K	KH	N	LGT	Written	
	Topic 68: Nervous tissue histology	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN68.1	Describe & Identify multipolar & unipolar neuron, ganglia, peripheral nerve under the microscope	K/S	SH	Y	LGT, Practical	Written/ skill assessment	
AN68.2	Describe the structure-function correlation of neuron	K	KH	Y	LGT	Written	
AN68.3	Describe the ultrastructure of nervous tissue	K	KH	N	LGT	Written	
	Topic 69: Blood Vessels	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN69.1	Identify elastic & muscular blood vessels, capillaries under the microscope	K,S	SH	Y	LGT, Practical	Skill assessment	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN69.2	Describe the various types and structure-function correlation of blood vessel	K	KH	Y	LGT	Written	
AN69.3	Describe the ultrastructure of blood vessels	K	KH	Y	LGT	Written	
	Topic 70: Glands & Lymphoid tissue	**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN70.1	Identify exocrine gland under the microscope & distinguish between serous, mucous and mixed acini	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN70.2	Identify the lymphoid tissue under the microscope & describe microanatomy of lymph node, spleen, thymus, tonsil andcorrelatethe structure with function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic: Bone & Cartilage - Number of Competencies (2)						
AN71.1	Identify bone under the microscope; classify various types and describe the structure-function correlation of the same	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
AN71.2	Identify cartilage under the microscope & describe various types and structure- function correlation of the same	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic 72: Integumentary System	**Number of Competencies (1)**			**Number of competencies for certification: (NIL)**		
AN72.1	Identify the skin and its appendages under the microscope and correlate the structure with function	K,S	SH	Y	LGT, Practical	Written/ skill assessment	
	Topic: 73 Chromosomes	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN73.1	Describe the structure of chromosomes with classification	K	KH	Y	LGT, Practical	Written	
AN73.2	Describe technique of karyotyping with its applications	K	KH	Y	LGT, Practical	Written	
AN73.3	Describe the Lyon's hypothesis	K	KH	Y	LGT, Practical	Written	
	Topic 74: Patterns of Inheritance	**Number of Competencies (4)**			**Number of competencies for certification: (NIL)**		
AN74.1	Describemendelian and non-mendelian inheritance. Explain various modes of inheritance with examples.	K	KH	Y	LGT, Practical	Written	
AN74.2	Draw pedigree charts for the various types of inheritance & give examples of diseases of each mode of inheritance	K	KH	Y	LGT, Practical	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN74.3	Describemultifactorial inheritance with examples	K	KH	Y	LGT, Practical	Written	
AN74.4	Describe the genetic basis & clinical features of Achondroplasia, Cystic Fibrosis, Vitamin D resistant	K	KH	N	LGT, Practical	Written	
Topic 75: Principles of Genetics, Chromosomal Aberrations & Clinical Genetics		**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN75.1	Describe the structural and numerical chromosomal aberrations	K	KH	Y	LGT, Practical	Written	
AN75.2	Explain the terms mosaics and chimeras with example	K	KH	N	LGT	Written	
AN75.3	Describe the genetic basis & clinical features of: Prader Willi syndrome, Edward syndrome, Patau syndrome, Down syndrome, Turner Syndrome & Klinefelter syndrome	K	KH	N	LGT	Written	
AN75.4	Describe genetic basis of variation: polymorphism and mutation	K	KH	Y	LGT	Written	
AN75.5	Describe in brief: genetic counseling, karyotyping, FISH, PCR and genetic sequencing	K	KH	Y	LGT	Written	
Topic 76: Introduction to embryology		**Number of Competencies (2)**			**Number of competencies for certification: (NIL)**		
AN76.1	Describe the stages of human life	K	KH	Y	LGT	Written	
AN76.2	Explain the terms- phylogeny, ontogeny, trimester, viability	K	KH	Y	LGT	written	
Topic 77: Gametogenesis and fertilization		**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN77.1	Describe the uterine changes occurring during the menstrual cycle	K	KH	Y	LGT	Written	
AN77.2	Describe the synchrony between the ovarian and menstrual cycles	K	KH	Y	LGT	Written	
AN77.3	Describe spermatogenesis and oogenesis along with diagrams	K	KH	Y	LGT	Written	
AN77.4	Describe the stages and consequences of fertilisation	K	KH	Y	LGT	Written	
AN77.5	Describe the anatomical principles underlying contraception	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN77.6	Describe teratogenic influences: fertility and sterility, surrogate motherhood, social significance of "sex- ratio".	K	KH	N	LGT	Written	
	Topic 78 : Second week of development	**Number of Competencies (5)**			**Number of competencies for certification: (NIL)**		
AN78.1	Describe cleavage and formation of blastocyst	K	KH	Y	LGT	Written	
AN78.2	Describe the development of trophoblast	K	KH	Y	LGT	Written	
AN78.3	Describe the process of implantation & common abnormal sites of implantation	K	KH	Y	LGT	Written	
AN78.4	Describe the formation of extra-embryonic mesoderm and coelom, bilaminar disc and prochordal plate	K	KH	Y	LGT	Written	
AN78.5	Describe abortion, decidual reaction, pregnancy test	K	KH	Y	LGT	Written	
	Topic 79: 3rd to 8th week of development	**Number of Competencies (6)**			**Number of competencies for certification: (NIL)**		
AN79.1	Describe the formation & fate of the primitive streak	K	KH	Y	LGT	Written	
AN79.2	Describe formation & fate of notochord	K	KH	Y	LGT	Written	
AN79.3	Describe the process of neurulation	K	KH	Y	LGT	Written	
AN79.4	Describe the development of somites and intra-embryonic coelom	K	KH	Y	LGT	Written	
AN79.5	Explain embryological basis of congenital malformations, nucleus pulposus, sacrococcygeal teratomas, neural tube defects	K	KH	N	LGT	Written	
AN79.6	Describe the diagnosis of pregnancy in first trimester and role of teratogens, alpha-fetoprotein	K	KH	N	LGT	Written	
	Topic 80: Fetal membranes	**Number of Competencies (7)**			**Number of competencies for certification: (NIL)**		
AN80.1	Describe formation, functions & fate of chorion, amnion, yolk sac, allantois & decidua	K	KH	Y	LGT	Written	
AN80.2	Describe formation & structure of umbilical cord	K	KH	Y	LGT	Written	

Number	COMPETENCY The student should be able to	Predominant Domain K/S/A/C	Level K/KH/SH/P	Core (Y/N)	Suggested Teaching Learning method	Suggested Assessment method	Number required to certify P
AN80.3	Describe formation of placenta, its physiological functions, foetomaternal circulation & placental barrier	K	KH	Y	LGT	Written	
AN80.4	Describe embryological basis of twinning in monozygotic & dizygotic twins	K	KH	Y	LGT	Written	
AN80.5	Describe role of placental hormones in uterine growth & parturition	K	KH	Y	LGT	Written	
AN80.6	Explain embryological basis of estimation of fetal age.	K	KH	N	LGT	Written	
AN80.7	Describe various types of umbilical cord attachments	K	KH	N	LGT	Written	
	Topic 81: Prenatal Diagnosis	**Number of Competencies (3)**			**Number of competencies for certification: (NIL)**		
AN81.1	Describe various invasive & non-invasive methods of prenatal diagnosis	K	KH	Y	LGT	Written	
AN81.2	Describe indications, process and disadvantages of amniocentesis	K	KH	Y	LGT	Written	
AN81.3	Describe indications, process and disadvantages of chorion villus biopsy	K	KH	Y	LGT	Written	
	Topic 82: Ethics in Anatomy	**Number of Competencies (1)**			**Number of competencies for certification: (NIL)**		
AN 82.1	Demonstrate respect, and follow the correct procedure when handling cadavers and other biologic tissue	A	SH	Y	SGT	NIL	

Department of Anatomy

Guidelines for question paper as per the Medical Council of India, Competency Based Undergraduate Curriculum for Indian Medical Graduate.

Theory paper should include questions from core competencies and not from Non Core Competency

BLUEPRINT OF THEORY PAPER

Sr. No.	Type	Explanation	Topics	Distribution of marks as per weightage
1.	**Scenario based MCQ**		**10 MCQs for Paper A** **10 MCQs for Paper B**	**10 X 2 = 20** **10 X 2 = 20**
2.	**Long essay question**	1. The question should pose a Clinical/ Practical problem to the students and require them to apply knowledge and integrate it with disciplines. Avoid giving one liners as questions. 2. Avoid giving one liners as questions. 3. The question stem should be structured and marking distribution should be provided. 4. Use action verbs from higher domains as given in this document.	**Paper A (one Questions)** Structured Question from core competency of • Head and Neck • Brain & Neuroanatomy • Upper Limb **Paper B (one Question)** Structured Question from core competency of • Abdomen and Pelvis • Thorax • Lower Limb	**1 X 10= 10** **1 X 10= 10**
3.	**Reasoning Questions**	Paper A (3 Questions)	**Paper A (3 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1	**3 X 5 = 15**

		Paper B (3 Questions)	Marks for each part should be indicated separately **Paper B (3 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 Marks for each part should be indicated separately	**3 X 5 = 15**
4.	**Short notes (applied aspects)**	Paper A (4 Questions) Paper B (4 Questions) All four subparts related to six integrated topics if subject is part of integrated modules. However, if a subject has less competencies in integrated module than atleast 2 sub-parts from integrated modules.	**Paper A (4 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 **Paper B (4 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate , VOLUME 1	**4 X 5 = 20** **4 X 5 = 20**
5.	**Short notes**	Paper A (3 Questions) Paper B (3 Questions)	**Paper A (3 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 **Paper B (3 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate , VOLUME 1	**3 X 5 = 15** **3 X 5 = 15**
6.	**Short notes**	Paper A (4 Questions) **One subpart of 5 marks from AETCOM 1.5)** Paper B (4 Questions) **One subpart of 5 marks from AETCOM 1.4)**	**Paper A (4 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate, VOLUME 1 **Paper B (4 Questions)** From Core Competencies as per competency based undergraduate curriculum for the Indian Medical Graduate , VOLUME 1	**4X5=20** **4X5=20**

Total Marks 200(Paper A- 100 marks, Paper B-100 marks)

Blueprinting in knowledge domain
(Representative example only. Actual figures may vary with the subject and phase)

Level	Topic A	Topic B	Topic C	Topic D	Total
Knowledge	1	2	1	1	5(20%)
Comprehension	1	1	1	2	5(20%)
Application	2	1	1	1	5(20%)
Analysis	1	1	2	2	6(24%)
Synthesis		1		1	2(8%)
Evaluation	1		1		2(8%)
Total	6(24%)	6(24%)	6(24%)	7(28%)	25(100%)

Verbs in various levels in Knowledge domain (Bloom's taxonomy)

Knowledge	Define, Describe, Draw, Find, Enumerate, Cite, Name, Identify, List, label, Match, Sequence, Write, State, Choose ,Indicate, isolate, Order, Recognize, Underline
Comprehension	Discuss, Conclude, Articulate, Associate, Estimate, Rearrange, Demonstrate understanding, Explain, Generalise, Identify, Illustrate, Interpret, Review, Summarise, Extrapolate, Update
Application	Apply, Choose, Compute, Modify, Solve, Prepare, Produce, Select, Show, Transfer, Use
Analysis	Analyse, Characterise, Classify, Compare, Contrast, Debate, Diagram, Differentiate, Distinguish, Relate, Categorise
Synthesis	Compose, Construct, Create, Verify, Determine, Design, Develop, Integrate, Organise, Plan, Produce, Propose, rewrite
Evaluation	Appraise, Assess, Conclude, Critic, Decide, Evaluate, judge, Justify, Predict, Prioritise, Prove, Rank

The question part of the MCQ (item) is called STEM; correct answer is called the KEY and the rest of the options are called DISTRACTORS.

Steps in writing:

1. Select the specific learning objectives which you want to test.
2. Write the stem, it should be self-explanatory and complete, avoid using terms like (NOT, EXPECT, NEVER, ALWAYS, SOMETIMES) in the stem, if the terms are being used they should be in UPPERCASE and **bold** letter.
3. Write unambiguous and unarguably the correct answer to the stem.
4. Select the most plausible alternatives and arrange them in the form of options.
5. Avoid window dressing of the stem. This means adding superfluous and unnecessary words which confuses the student.
6. Abbreviations should be avoided.
7. Options should be grammatically parallel to the key, and should be parallel and have the same relation to the stem.
8. When writing options, avoid duplications or making options all inclusive, e 1-6, 6-10 etc.
9. The options should be arranged in rank order, eg. 256, 266, 280, 290 and not 290, 266, 280, 256.
10. “All the above” and “None of the above” should be avoided as an option.

Distribution of Marks: - Anatomy

Papers		**Maximum Marks**	**Minimum Passing Marks**
Theory (Summative Assessment) (100 +100=200 Marks)	Theory Paper I(Sample paper Attached)	100	Mandatory to get 40% marks separately in theory and in practical and with minimum 50% in aggregate for theory plus practical.
	Theory paper II(Sample paper Attached)	100	
Practical *(Summative Assessment) (60 + 40= 100 Marks) 1. Practical/clinical examinations will be conducted in the laboratories and /or hospital wards. The objective will be to assess proficiency and skills to conduct experiments, interpret data and form logical conclusion.)	**Practical** a) Gross Anatomy OSPE 1 **10 Marks** b) ECE OSPEs – 2 **10 Marks** c) Embryology OSPEs-2 **10 Marks** d) Histology OSPEs – 1 **5 Marks** e) Surface marking **5 Marks** f) Radiology **5 Marks** g) Gross Anatomy Spotters **10 Marks** h) Histology Spotters **5 Marks**	60	
2. Viva/oral examination should assess approach to patient management, emergencies, attitudinal, ethical and professional values. Candidate's skill in interpretation of common investigative data, X-rays, identification of specimens, ECG, etc. is to be also assessed.	**Viva (oral examination should focus on the application and interpretation)** **Interactive Components (Dissection-Discussion)** 1. Above diaphragm **10 marks** 2. Below diaphragm **10 marks** **3.** Osteology **10 marks** 4. **Histology Slide-Discussion 10 marks** a) General Slides b) Systemic Slides	40	
Internal Assessment (Not added to the marks of the university examinations and should be shown separately in the grade card)	Theory	100	50% Combined in theory and practical (not less than 40% in each for eligibility for appearing for university examination
	Practical	100	

***During practical examinations assessment tools are not limited to above mentioned methods; you can use other methods also to improve authenticity. Please refer to competency based assessment module for UG medical education for more examples of methods. Also includes topics covered in ECE.**

Formative & Internal Assessment: - Internal assessment shall be based on day-to-day assessment. Efforts should be made to use multiple tools even for a given competency to improve validity and reliability of assessment.
It shall relate to different ways in which learners participate in learning process which is day to day recorded in record book and log book in the form of :-

a) Assignments,
b) Preparation for seminar,
c) Clinical case presentation,
d) Preparation of clinical case for discussion,
e) Clinical case study/problem solving exercise participation in project for health care in the community,
f) Proficiency in carrying out a practical or a skill in small research project etc.

Regular periodic examination shall be conducted throughout the course as per following schedule:-

SRI GURU RAM DAS INSTITUTE OF MEDICAL SCIENCES & RESEARCH												
DEPARTMENT OF ANATOMY / PHYSIOLOGY/ BIOCHEMISTRY												
MBBS	**Year/phase 1st Prof. Phase-I**						**Session --**					**Cumulative percent of Theory & Practical**
			Formative Assessment				**Continuous Internal Assessment (Theory)**					
S.No.	**Roll No.**	**Name of Student**	**1st PCT Theory**	**2nd PCT Theory**	**Prelims theory Paper I and II**	**Send up**	**Assignments**	**Seminars/ Class Test**	**Attendance (Theory)**	**Total**	**Percentage Theory (Minimum cut off 40%)**	**Theory + Practical=100+100=200 (Minimum cut off 50%)**
			10	**10**	**15**	**30**	**15**	**15**	**05**	**100**		
1.												
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SRI GURU RAM DAS INSTITUTE OF MEDICAL SCIENCES & RESEARCH											
DEPARTMENT OF ANATOMY / PHYSIOLOGY/ BIOCHEMISTRY											
MBBS	**Year/phase 1st Prof. Phase-I**								**Session --**		
			Formative Assessment			**Continuous Internal Assessment (Practical)**					
S.No.	**Roll No.**	**Name of Student**	**1st PCT Practical**	**2nd PCT Practical**	**Send up**	**Log Book**	**AETCOM**	**Case Base Discussion / Viva/ Museum**	**Attendance (Practical)**	**Total**	**Percentage Practical (Minimum cut off 40%)**
			10	**10**	**15**	**30**	**15**	**15**	**05**	**100**	
1.											
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8.											

SRI GURU RAM DAS UNIVERSITY OF HEALTH SCIENCES, SRI AMRITSAR

Maximum Marks: 100 | **MBBS 1st Professional Examination** | Time: 3 Hours

(Session September 2025)

Subject- Anatomy (New Scheme)

Paper-A

Note:
1. Attempt all questions. Illustrate your answer with suitable diagrams where applicable.
2. Question No. I (Multiple Choice Questions (1-10)) is to be attempted on OMR Sheet in first 15 minutes of the start of exam.
3. Question No. II-VI are to be attempted on the main answer book. No supplementary sheet shall be provided.
4. Students must write QP code in the space provided on OMR sheet as well as on the title page of the main answer book.

QP Code: MBN101A

I. Multiple Choice Questions (MCQs): [10X2=20]

1. A man presents with loss of sensations in skin of lower arm following the fracture of the surgical neck of the humerus. Name the nerve affected.

a. Ulnar nerve
b. Axillary nerve
c. Radial nerve
d. Nerve to serratus anterior

2. A person with history of inability to close his mouth immediately after yawning. What may the reason?

a. Dislocation of TM joint
b. Injury to mandibular nerve
c. Fracture of mandible
d. Fracture of temporal bone

3. **Following an operation of right parotid gland, a patient develops weakness of facial muscles of that side. Name the affected structure injured**

a. Facial nerve
b. Retromandibular vein
c. Trigeminal nerve
d. Auriculotemporal nerve

4. After carrying heavy weight on the right shoulder, the person was unable to do overhead abduction of arm and also pushing and punching movements on the right side. What has possibly happened?

a. Injury to long thoracic nerve
b. Fracture of Scapula
c. Injury to Axillary nerve
d. Injury to Erb's point

5. **During surgical operation of thyroid gland, the patient suffered from hoarseness of voice. The surgeon must have injured**

a. Internal laryngeal nerve
b. External laryngeal nerve
c. External carotid artery
d. Vagus nerve

6. A patient is brought to the physician presenting right sided ocular signs of ptosis, strabismus, diplopia and a loss of accommodations as well as the light reflex with the contralateral hemiplegia. From your anatomical knowledge, which part of brain is involved

a. Midbrain
b. Medulla oblongata

c. Internal capsule
d. pons

7. A patient in OPD came with tremors in one hand, slow movements, stiffness and loss of balance was diagnosed having Parkinson's disease which is caused by loss of ONE of the following neurotransmitters:

a. Acetylcholine
b. Dopamine
c. Epinephrine
d. Glutamate

8. A new born baby was found to have with nasal regurgitation of milk during breast feeding. The baby is suffering from

a. Cleft palate
b. Thyroglossal cyst
c. Cervical sinus
d. Injury to facial nerve

9. After accident, a patient came to emergency with fracture of sphenoidal spine at base of skull. It causes all EXCEPT

a. Injury to chordatympani neve
b. Loss of taste sensations later
c. Loss of salivation later
d. Loss of sweating

10. A patient presents came with signs and symptoms, which included contralateral homonymous hemianopia, visual agnosia and memory deficits. What is the probable diagnosis

a. Posterior cerebral artery occlusion
b. Middle cerebral artery occlusion
c. Internal carotid artery occlusion
d. Anterior cerebral artery occlusion

II. Describe the Larynx under following headings: [5+2+3=10]

a. Origin, insertion and action of intrinsic muscles of larynx
b. Nerve supply (Motor and sensory) of larynx
c. Clinical anatomy

III. Write short notes on: [5X3=15]

a. Explain why in shoulder joint dislocation, the humerus generally dislocates inferiorly and endangers which nerve and why?
b. Explain why the neglected infection in dangerous area of face of a patient leads to cavernous sinus thrombosis.
c. Explain why the fracture of the scaphoid of the wrist is often associated with avascular necrosis of the proximal segment
d. Describe blood supply of thyroid gland and explain why following thyroidectomy, a patient may develop hoarseness of voice
e. Explain why the patient with pituitary tumor suffers from bitemporal hemianopia.

IV. Write short notes on: [4X5=20]

a. Anatomical basis of Klumpke's paralysis
b. Anatomical basis of Wallenberg's syndrome with well labelled diagram
c. Anatomical basis of Carpal tunnel syndrome
d. Anatomical basis of black eye

V. Short notes on: [3X5=15]

a. Describe the development of tongue. Correlate the nerve supply of tongue with its development
b. Describe the floor of the 4th ventricle with well labelled diagram
c. Describe blood supply of superolateral surface of cerebrum. Draw and label Circle of Willis

VI. Short notes on: [4X5=20]

a. Describe classification of synovial joint
b. Describe Microanatomy of Parotid gland with well labelled diagram
c. Describe the endochondral ossification
d. Cadaver as the first teacher

SRI GURU RAM DAS UNIVERSITY OF HEALTH SCIENCES, SRI AMRITSAR

Maximum Marks: 100 | **MBBS 1st Professional Examination** | Time: 3 Hours

(Session September 2025)

Subject- Anatomy (New Scheme)

Paper-B

Note:
1. Attempt all questions. Illustrate your answer with suitable diagrams where applicable.
2. Question No. I (Multiple Choice Questions (1-10)) is to be attempted on OMR Sheet in first 15 minutes of the start of exam.
3. Question No. II-VI are to be attempted on the main answer book. No supplementary sheet shall be provided.
4. Students must write QP code in the space provided on OMR sheet as well as on the title page of the main answer book.

QP Code: MBN102A

1. **A patient came to the clinic whom you operated for obstructed irreducible indirect left inguinal hernia one month ago. He complained of tingling and numbness on the inner side of left thigh. Which nerve was likely to be damaged during surgery:** [10X1=10]

a. Genital branch of Genitofemoral nerve
b. Ilioinguinal nerve
c. Cremasteric nerve
d. Subcostal nerve

2- A patient presented with history of difficulty in respiration. X ray chest showed left atrial dilatation. Which structure is likely to be compressed:

a. Oesophagus
b. Left pulmonary vein
c. Trachea
d. Left pulmonary artery

3 A 9year old boy presented with rupture of penile urethra in the emergency department. Urine from this can spread into which of the following structures:

a. Scrotum
b. Ischiorectal fossa
c. C. Pelvic Cavity
d. Testis

4 A 21year old lady met an accident and had difficulty in causing inversion of right foot. Which muscle is likely to be injured:

a. Tibialis anterior
b. Peroneus longus
c. Flexor digiti minimi brevis
d. Abductor digiti minimi

5- **A thoracic surgeon wants a portion of the great saphenous vein for coronary bypass surgery. He finds this vein:**

a. In popliteal fossa
b. Posterior to medial malleolus
c. Anterior to medial malleolus
d. On the dorsum of foot

6- **An old man presented with foot drop after a road side accident. What can be most commonly injured nerve:**

a. Sciatic nerve
b. Femoral Nerve
c. Tibial nerve

d. Common peroneal nerve

7. **An alcoholic middle aged male presented in the hospital with blood in the vomit. His endoscopy showed tortuous veins in the lower end of the oesophagus. What can be diagnosis:**

a. Oesophageal ulcer

b. Oesophageal carcinoma

c. Oesophageal varices

d. GERD

8. **A 55year old obese male presented with chronic acid reflux and epigastric discomfort. Endoscopy revealed a diaphragmatic hernia. Which type of diaphragmatic hernia is likely to be present:**

a. Posterolateral hernia

b. Anterior hernia

c. Sliding hiatal hernia

d. Rolling hiatal hernia

9 A 65year male presented with urinary tract symptoms like urinary frequency, urgency and hesitancy. Digital per rectal examination showed Benign Hypertrophy of Prostate. Which lobe is most likely to be involved:

a. Anterior lobe
b. Median lobe
c. Posterior lobe
d. Lateral lobe

10. A 30year old female presented with difficult in passing stools and bleeding during passing stools for the last three months. There was presence of swelling around the anus. On examination when she strains mass bulges out of the anus and regresses spontaneously. What is the likely diagnosis.

a. Anal fissure

b. Anal carcinoma

c. Internal haemorrhoids

d. Anal polyp

II Describe Inguinal canal under the following heads: [2+6+2=10]

a. Formation
b. Boundaries and contents
c. Applied anatomy

III Write notes on **[5X3=15]**

a. Explain why pain of ureteric colic radiating in the medial side of the thigh
b. Explain why does the foreign body enters commonly to the right bronchus.
c. Explain why femoral hernia is more common in females than in males.
d. Explain why pain of appendicitis is referred to umbilicus
e. Explain why carcinoma of head of pancreas may produce jaundice

IV Write short notes on [4X5=20]

a. Anatomical basis of Foot drop
b. Anatomical basis of Autonomous bladder
c. Anatomical basis of Tracheoesophageal fistula
d. Anatomical basis of Hydrocele

V Write notes on [3X5=15]

a. Supports of uterus and draw and label broad ligament with its contents
b. Ligaments of knee joint and applied aspect
c. Right coronary artery-its origin, course branches, termination and applied aspect

VI Write short notes on [4X5=20]

a. Placenta
b. Karyotyping
c. Microstructure of Spleen with well labelled diagram
d. Doctor -Patient communication