

Question Paper

Exam Date & Time: 21-Jan-2021 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION - JANUARY 2021
SUBJECT: ANATOMY - PAPER I

Marks: 100

Duration: 180 mins.

Answer all the questions.

Section Duration: 20 mins

- 1) Which of the following artery when blocked by an embolus will cause ischemic necrosis (cell death) in the area supplied by it? (1)

[Internal thoracic](#)

[Facial](#)

[Central artery of retina](#)

[Superficial temporal](#)

- 2) Intrauterine contraceptive device (IUCD) releasing copper, prevents conception by which of the following method? (1)

[Inhibition of ovulation](#)

[Prevents capacitation of sperm](#)

[Prevents the sperm from entering the uterus](#)

[Prevents the fertilized ovum from attaching to the endometrium](#)

- 3) Choose from the following the factor responsible for thinning of the placental membrane after the fourth month of pregnancy: (1)

[Disappearance of endothelial cells of foetal vessels](#)

[Disappearance of Syncytiotrophoblast from the villi](#)

[Endothelium of foetal vessels come in close contact with Syncytial membrane](#)

[Reduction in blood flow into the intervillous space](#)

- 4) The following is the characteristic histological feature of lymph node: (1)

[Eccentric arteriole](#)

[Hassal's corpuscles](#)

[Stratified squamous non-keratinized epithelium](#)

[Subcapsular sinus](#)

- 5) The central processes of the neurons in this ganglion form ascending tracts of the spinal cord. Its microscopic anatomy shows which of the following feature? (1)

[Scattered unmyelinated nerve fibres](#)

[Pseudounipolar neurons with central nucleus](#)

[Multipolar neurons in groups](#)

[Satellite cells are less in number](#)

- 6) The right upper extremity of a baby born after difficult labor was positioned abnormally. The arm was adducted and medially rotated. The forearm was extended and pronated. This is due to injury to the trunk formed by which of the following roots of brachial plexus? (1)

[C5, C6](#)

[C7, C8](#)

[T1, T2](#)

[T2, T3](#)

- 7) A diagnosis of tenosynovitis was made after a gardener's little finger became red, swollen and painful following a thorn prick 2 days earlier. The infection will spread first to which of the following areas? (1)

[Digital synovial sheath of ring finger](#)

[Digital synovial sheath of thumb](#)

[Radial bursa](#)

[Ulnar bursa](#)

- 8) A 25 year-old biker fell off his motorcycle and suffered fracture of midshaft of humerus at the spiral groove. Which of the following is most likely to result from this accident? (1)

[Abe thumb deformity](#)

[Wrist drop](#)

[Claw hand](#)

[Hand of Benediction](#)

- 9) During muscle testing, the physician elicited flexion at the metacarpophalangeal joints and extension at the proximal and distal interphalangeal joints of 2nd to 4th digits of the hand, action of which of the muscles is he testing? (1)

[Flexor digitorum superficialis](#)

[Lumbricals](#)

[Flexor digitorum profundus](#)

[Dorsal interossei](#)

- 10) As a result of a sharp glass piercing the cubital fossa, a construction worker had difficulty in both flexion of elbow and supination. Tendon of which of the following muscle was injured by the glass? (1)

[Biceps brachii](#)

[Brachialis](#)

[Brachioradialis](#)

[Supinator](#)

- 11) A physician testing cutaneous sensations in a diabetic patient with peripheral neuritis found that the sensations were altered in the area innervated by the tibial nerve. Which of the following area is affected? (1)

[Dorsum of foot except first interdigital cleft](#)

[Dorsum of foot in the first interdigital cleft](#)

[Medial border of foot](#)

[Lateral border of foot](#)

- 12) A 30-year-old man was stabbed deeply in one of the gluteal region in a street fight. After convalescence he noticed that his right hip would sag when he lifted the right foot off the ground (positive Trendelenburg's sign). The nerve involved is: (1)

[Left superior gluteal](#)

[Left inferior gluteal](#)

[Right superior gluteal](#)

[Right inferior gluteal](#)

- 13) The curvature of the vertebral column that develops as the baby learns to stand erect and walk is: (1)

[Cervical](#)

[Thoracic](#)

[Lumbar](#)

[Sacral](#)

- 14) Which of the following statements about the Psoas Major muscle is true: (1)
- [It arises from all the thoracic vertebrae](#)
 - [It inserts into the greater trochanter of the femur](#)
 - [It is the chief flexor of the hip joint](#)
 - [Sacral plexus is present within it](#)
- 15) A 16-year-old girl was diagnosed with maxillary sinusitis, following an episode of cold (Rhinitis) that lasted more than a week. Name the area through which the infection could have reached the affected sinus. (1)
- [Foramen caecum](#)
 - [Hiatus semilunaris](#)
 - [Nasolacrimal duct](#)
 - [Auditory tube](#)
- 16) 8-year-old Diya had continuous oozing of dark red blood after her pet cat deeply scratched her skin over the area of anatomical snuff box. The bleeding could be from which of the following vein? (1)
- [Basilic](#)
 - [Cephalic](#)
 - [Dorsal venous arch](#)
 - [Median cubital](#)
- 17) A 40-year-old man had a swelling in the upper part of his thigh which turned out to be enlargement of a lymph node belonging to the lower vertical group of superficial inguinal nodes. Which of the following areas could exhibit signs of infection? (1)
- [Anterior abdominal wall below the umbilicus](#)
 - [Anal canal below the pectinate line](#)
 - [Gluteal region](#)
 - [Great toe](#)
- 18) Sudden occlusion at the origin of the descending thoracic aorta would most likely reduce blood flow in which of the following intercostal arteries? (1)
- [All posterior](#)
 - [Lower nine posterior](#)
 - [Upper two posterior](#)
 - [Upper six anterior](#)
- 19) Tetralogy of Fallot is a cardiac malformation that exhibits which of the following? (1)
- [Atrial septal defect](#)
 - [Mitral valve stenosis](#)
 - [Right ventricular hypertrophy](#)
 - [Transposition of great vessels](#)
- 20) The following type of epithelium lines mucosa of trachea: (1)
- [Pseudo stratified ciliated columnar](#)
 - [Simple ciliated columnar](#)
 - [Simple cuboidal](#)
 - [Stratified squamous non-keratinized](#)

Answer all the questions.

1. During a cricket match, one of the fielders, fell on his outstretched left arm and was brought to the casualty complaining of pain and limited movements in the left shoulder. He was seen supporting his left upper limb at the elbow with his right hand. On examination the normal rounded contour of the shoulder was lost and there was some fullness seen below the lateral part of the clavicle. Before sending the patient for X-ray the medical officer tested the sensation of the skin over the lower part of the left deltoid which was found to be normal.

- 1A) Analyze the given case and name the joint involved and the clinical condition. (1)
- 1B) Describe the affected joint under-type, articulating surfaces, movements and muscles bringing about (8) movements.
(1+2+5 = 8 marks)
- 1C) Reason out the testing of the skin sensation over the lower part of left deltoid in this case. (1)

2. A 60-year-old heavy smoker was operated to remove the right middle lobar (secondary) bronchus along with lung tissue aerated by it, as this part of the lung had developed bronchogenic carcinoma.

- 2A) What is the well-defined sector of the lung supplied by the branch of the removed bronchus called? (1)
- 2B) Give any six characteristic features of these sectors. (3)
- 2C) Diagrammatically represent these sectors in both the lungs. (6)

- 3A) Describe the appendage of the skin that secretes sweat and list the other appendages seen in the skin. (4)
- 3B) Explain the attachments of the bands of deep fascia present on the medial side of the ankle. Name the structures passing deep to them. (4)
- 3C) Explain with a help of flow chart the process of maturation of male gamete. (4)
- 3D) Describe the sheath of deep cervical fascia, which encloses important neurovascular structures of the neck. (4)
- 3E) Compare and contrast between the microscopic structure of cardiac and skeletal muscle. (4)
- 3F) Illustrate the formation and mention the branches of the arterial anastomosis located at the base of the brain. (4)
- 3G) Elaborate on the development and fate of Somites. (4)
- 3H) Describe the origin, insertion nerve supply hybrid of the hamstring muscle which is an adductor. (4)
- 3I) Illustrate the microscopic anatomy of the epithelium that lines interior of urinary bladder and list its salient features. (4)
- 3J) A 72-year-old man presented with a pulsatile swelling at the back of the knee. Describe the origin, termination and branches of the vessel involved. (4)
- 3K) A paramedian abdominal incision will cut through a sheath formed by the aponeuroses of the abdominal muscles. Describe its formation at various levels. (4)
- 3L) Illustrate the microscopic anatomy of the cartilage found in epiglottis and give its salient features. (4)
- 3M) Describe the extra-articular ligaments of knee which are responsible for side to side stability of the joint. (4)
- 3N) Describe the formation, termination, course and any two tributaries of a large vein which grooves the posterior surface of the liver. (4)
- 3O) Explain the embryological basis of Patent ductus arteriosus. (4)

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Question Paper

Exam Date & Time: 22-Jan-2021 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION - JANUARY 2021

SUBJECT: ANATOMY - PAPER II

All questions are compulsory.

Write brief, clear, relevant and legible answers.

Marks: 80

Duration: 160 mins.

Descriptive Essay Type:

1. A 57-year-old man is admitted to the emergency department with dizziness and severe headache. A CT scan evaluation reveals a tumor in the right superior orbital fissure. Upon physical examination, the patient's right eyeball is fixed in an abducted position, slightly depressed, and the pupil is dilated. Also, the upper eyelid seems drooping.

1A) Analyse the given case and name the nerve that would have been compressed. (1)

1B) Correlate the clinical signs with the anatomical structures involved. (3)

1C) Explain the origin, course and distribution of the affected nerve. (6)

2. Following an automobile accident, a 45-year-old woman was taken to the emergency department. On radiographic examination, it was observed that she had fractures of the right ninth and tenth rib that pierced an abdominal organ of the right hypochondrium.

2A) Analyze the case and name the organ injured. (1)

2B) Describe the relations to its various surfaces. (7)

2C) Enumerate all the peritoneal folds related to it. (2)

3. Short Notes:

3A) Describe the relations of the spleen. (4)

3B) Investigations in a child with complaints of watery discharge from the umbilicus revealed that the allantois had failed to obliterate. Name the ligament that is formed by the obliterated allantois and the organ to which it is attached. Describe the other ligaments that form true supports of this organ. (4)

3C) An ulcer on the posterior wall of the stomach perforates. Draw and describe the peritoneal space into which the fluid would accumulate. (4)

3D) During an ultrasound examination of abdomen in a 5-year-old boy, radiologist was surprised to find the appendix in the left iliac fossa. Doctor identified it as a case of mid gut rotation

- anomaly. Name the anomaly associated with this condition and explain the embryological basis of this anomaly. (4)
- 3E) Illustrate the microscopic structure of the organ involved in filtration of the blood. (4)
- 3F) Describe the formation and fate of the embryological structure that gives rise to the major part of the female reproductive system. (4)
- 3G) Illustrate and explain the microscopic structure of the anterior pituitary. (4)
- 3H) Draw a neat labelled diagram of the functional areas on the superolateral surface of the cerebral hemisphere. (4)
- 3I) On neurological examination of a 65-year-old man, you observe that his right eye is pointed medially at rest. There is weakness of facial muscles on the right side. The left side of his body is paralyzed. CT examination reveals a thrombosis of the basilar artery. Identify the level of lesion and illustrate the cross-section of the affected level. (4)
- 3J) A 35-year-old man visits the doctor with complaints of ear discharge and reduced hearing. The doctor diagnoses it as chronic otitis media. Describe the bones located within the affected part of the ear. (4)
- 3K) A 32-year old lady presented with complaints of overflow of tears. Enumerate the structures concerned with secretion and drainage of tears and list the factors that help in its drainage. (4)
- 3L) Describe the development and derivatives of the optic cup. (4)
- 3M) A 40-year-old male, father of two underwent a minor sterilization operation for family planning. Mention the structure that is cut in this operation and describe its course. (4)
- 3N) A 55-year-old female has a swelling in her neck that moves with deglutition. CT reveals that it was a malignant tumor of a gland invading the structures related medially and posteriorly to it. Analyze the case and enumerate all the structures that tumor would probably invade. (4)
- 3O) A 30-year-old man visits the doctor for infertility. After clinical examination the patient is asked to get his Karyotyping done. The report states the karyotype of the individual as 47XXY. Analyze the case, name the chromosomal abnormality and list the characteristic clinical features. (4)

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