

Question Paper

Exam Date & Time: 05-Mar-2021 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

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

Marks: 80

Duration: 160 mins.

All questions are compulsory. Write brief, clear, relevant and legible answers.

Illustrate your answers with diagrams and flow-charts wherever appropriate.

1. A Formula 1 race car in a Grand Prix tournament collided with the boundary of the track. Driver was diagnosed to have a nerve injury in the hand. On physical examination it was found that he was unable to oppose his thumb. Also he was unable to flex the metacarpophalangeal and extend the interphalangeal joints of the 2nd and 3rd digits.
 - 1A) Analyse the case and name the nerve that has been damaged (1)
 - 1B) Justify the loss of action in 2nd and 3rd digit and describe the attachment of the muscles involved. (5)
 - 1C) Explore the possibilities of paralysis of two other muscle mentioning the movements affected. (2)
 - 1D) Describe the possible sensory loss in this case. (2)

2. During thyroidectomy injury to recurrent laryngeal nerve is a possibility. Hence care should be taken to identify the nerve and prevent its injury.
 - 2A. Explain how this nerve is identified and what care is taken to prevent its injury. (2)
 - 2B. Tabulate the muscles supplied by this nerve and their actions. (6)
 - 2C. Name the other nerve that is likely to be injured during thyroidectomy and the muscle supplied by it. (2)

- 3A. Discuss blood supply of a long bone along with a neat labeled diagram. (4)
- 3B. A MRI of a patient showed a huge hematoma of the right knee joint and physical examination. (4)
- 3C. Discuss the formation of blastocyst. (4)
- 3D. In scalp injury the advantage is that wound healing is fast but at times it can be problematic since the bleeding is difficult to control. Debate on this statement and draw schematic labeled diagram of arterial supply of scalp. (4)
- 3E. Illustrate with a neat labeled diagram the microscopic structure of early placenta and give its salient features. (4)
- 3F. Doppler studies revealed thrombosis of an artery running along the superior border of pancreas. (4)
- 3G. The first indication of gastrulation is the formation of a structure on the dorsal surface of the bilaminar germ disc. Discuss the formation and fate of this structure. (4)
- 3H. A medical student after two weeks of jogging started to feel stinging sensation along the entire lateral aspect of thigh. Elaborate on the anatomy of the involved structure which is a fascial modification. (4)
- 3I. Illustrate with a neat labeled diagram the microscopic structure of the skin. (4)

- 3J. A CT Scan of thorax showed early signs of carcinoma of the middle segment of esophagus behind the left atrium. Explain the boundaries of the region in which the oesophagus is located and list the other contents. (4)
- 3K. Draw and discuss the nine regions of abdomen. Mention its importance in medical practice. (4)
- 3L. Compare and contrast between the microscopic structure of a bronchus and bronchiole. (4)
- 3M. A 23-year male athlete, was suddenly not able to "unlock" the knee joint. Discuss the attachment and nerve supply of the muscle responsible for this movement. (4)
- 3N, A thoracic surgeon harvested a segment of a superficial vein of the lower limb to prepare venous graft for coronary bypass surgery. Give an account of origin, course and termination of this vein. (4)
- 3O. The echocardiogram of a baby born with Down's syndrome confirmed an ostium secundum defect. Elaborate on the normal development of the affected part of heart. (4)

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Question Paper

Exam Date & Time: 06-Mar-2021 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

FIRST MBBS DEGREE EXAMINATION - MARCH 2021

SUBJECT: ANATOMY - PAPER II

Marks: 80 Duration: 160 mins.

Answer all the questions.

1. A 25-year-old student presented with a history of gradual and progressive impairment of coordination. His speech was slurred and monotonous. There were no features of seizures. He was a non-smoker, non-alcoholic, and no history of drug abuse but had a previous history of head injury 5 years ago. Clinical examination revealed tremors that disappeared on rest and staggered gait. Cranial nerves were normal and all biochemical parameters were within normal limits.
 - 1A) Analyse the given case and name the organ that is affected. (1)
 - 1B) Name the nuclei present within its core. (1)
 - 1C) Describe the morphological subdivision of the affected organ (2)
 - 1D) List two other signs that is likely to be seen in this case (6)

2. A 70-year-old man presented with increased frequency and urgency in passing urine and sense of incomplete bladder emptying. Digital per rectal examination revealed a firm, non-tender mass related to its anterior wall. Radiologist while observing the interior of bladder, noticed a rounded elevation close to the orifice neck of the bladder where the urine drains into urethra.
 - 2A) Analyse the given case and name the organ that is enlarged and give its position. (2)
 - 2B) Describe the coverings and relations of the organ affected. (5)
 - 2C) Name and illustrate the anatomical structures located within the affected organ. (3)

3. **Write Short Answers:**
 - 3A) The muscle that divides the submandibular gland into superficial and deep part is paralysed by a salivary tumour. Name the muscle and describe its attachments and nerve supply. (4)
 - 3B) Tabulate the differences between external and internal sphincters of urethra. (4)
 - 3C) A surgeon performing total gastrectomy will have to ligate the vessels supplying it. Enumerate these arteries ligated mentioning their source of origin. (4)
 - 3D) Describe the covering of the kidney that surrounds both kidney and suprarenal gland. (4)
 - 3E) A chronic alcoholic male presented with abdominal pain, jaundice and weight loss. Examination revealed a tumour in the head of pancreas. Name the parts and relations of the structure most likely compressed by this tumour. (4)
 - 3F) Illustrate and describe the microscopic features of organ that produces bile (4)
 - 3G) Illustrate the microscopic features of the ureter and give its salient features (4)

- 3H) Vascular insult to a part of brain stem in a 55-year old hypertensive lead to dysphagia and loss of(4) pain and temperature in the contralateral trunk and limbs, and from ipsilateral face. Analyse the case and name the artery and part of brain stem involved. Name any 4 nuclei situated in this part of brainstem. (4)
- 3I) Explain any two anatomical components of basal ganglia (4)
- 3J) A soldier complains of sudden hearing loss and pain in both ears followed by a military blast.(4) Describe the structure that is damaged. (4)
- 3K) An adult male with past history of head trauma presented with double vision while coming down(4) stairs and with near work. Analyse the case and name the nerve that is damaged. What is its origin? What are the functions of the muscle supplied by the damaged nerve? (4)
- 3L) This layer of eyeball is used for transplantation from a donor to restore vision in the recipient.(4) Illustrate and describe the microscopic anatomy of that layer. (4)
- 3M) A 30-year-old infertile women presented with two uterine horns and cervices. A septum dividing the(4) vagina. Describe the development of uterus and explain the embryologic basis of this anomaly. (4)
- 3N) Illustrate the microscopic feature of the endocrine glands involved in blood calcium regulation (4)
- 3O) Explain any two structural abnormalities of chromosomes with example. (4)

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