



FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA
SECOND EXAMINATION FOR MEDICAL DEGREES – AUGUST 2022

ANATOMY PAPER II ESSAY

Answer all five questions

Use illustrations where necessary

Answer each question in a separate booklet

2.00-5.00 p.m. (three hours)

01st of August 2022

1.
 - 1.1. A 57-year-old man presents with pain in the right shoulder during abduction over a few weeks duration. Investigations revealed that the problem is due to an inflammation of a tendon of a rotator cuff muscle. The condition is diagnosed as painful arc syndrome.
 - 1.1.1 What is the muscle involved? (10 marks)
 - 1.1.2 What is the anatomical basis for the painful arc syndrome? (10 marks)
 - 1.1.3 List the rotator cuff muscles, their innervation and action/s using a table. (20 marks)
 - 1.2. A 40-year-old man is admitted to the surgical casualty ward with a stab injury to the upper thigh. On examination it is noted that the stab is lateral to the femoral artery in the right femoral triangle. All distal pulses are normal.
His lower limb examination reveals signs of a nerve injury.
 - 1.2.1 What is the nerve injured? (10 marks)
 - 1.2.2 State **three (03)** examination findings that would confirm the injury to the nerve you stated above in 1.2.1 (15 marks)
 - 1.2.3 Draw a labeled diagram of a cross section of the nerve you stated in 1.2.1 (20 marks)
 - 1.2.4 List the boundaries of the femoral triangle. (15 marks)
2. A 3-year-old child suddenly develops persistent cough with difficulty in breathing while eating peanuts. He is immediately rushed to the Emergency Treatment Unit. Chest X-ray revealed, mediastinal shift to the right side with collapsed right lung. Emergency bronchoscopy revealed an aspirated peanut on the right side.
 - 2.1
 - 2.1.1 List **three (03)** anatomical features that led to aspiration of the peanut to the right bronchus. (15 marks)
 - 2.1.2 List the structures that form the left mediastinal border in a chest X-ray. (10 marks)
 - 2.1.3 List in order, the parts of the bronchial tree up to the segmental bronchus. (05 marks)
 - 2.2 Describe briefly the anatomy of a bronchopulmonary segment. (25 marks)
 - 2.3 Describe the light microscopic appearance of the lung. (20 marks)
 - 2.4 Describe briefly the
 - 2.4.1 embryological development of trachea. (15 marks)
 - 2.4.2 embryological development of tracheo-oesophageal fistula. (10 marks)

3. A 75-year-old woman admits to the surgical ward with a complaint of blood-stained stool. Her condition is diagnosed as the carcinoma of the rectum. A colostomy is performed as the initial treatment.
- 3.1
- 3.1.1 State **two (02)** parts of the colon that can be used for the colostomy. (10 marks)
- 3.1.2 State the anatomical basis for your answer stated in 3.1.1 (10 marks)
- 3.1.3 List the anatomical relations of the rectum in this patient. (10 marks)
- 3.2 State **three (03)** external gross anatomical features that help to differentiate the rectum from the rest of the colon. (10 marks)
- 3.3 Describe blood supply of the rectum. (20 marks)
- 3.4 Describe the light microscopic appearance of the anorectal junction. (20 marks)
- 3.5 List the structures derived from the hindgut. (20 marks)
4. A 32-year-old man presents to the Emergency Treatment Unit following a hard blow to his right eye. He complains of double vision when attempting to look upwards. CT scan reveals a fracture of the orbital floor. An extraocular muscle that attaches to the orbital floor and a paranasal air sinus that lies inferior to the orbit are injured. There is no sensory loss over the skin of the maxilla.
- 4.1
- 4.1.1 What is the extraocular muscle injured? (10 marks)
- 4.1.2 Explain the anatomical basis for the double vision experienced by the patient. (20 marks)
- 4.1.3 What is the paranasal air sinus involved? (10 marks)
- 4.1.4 What is the nerve that provides sensory innervation to the skin over the maxilla? (10 marks)
- 4.2 List the bones that form the floor of the orbit. (10 marks)
- 4.3 Describe the light microscopic appearance of the mucosa of the paranasal air sinus. (20 marks)
- 4.4 List **five (05)** muscles and **five (05)** bones that derive from the first pharyngeal arch. (20 marks)
5. A 60-year-old man is brought to a medical clinic with complaints of irregular swaying gait and difficulty in keeping balance when standing still. On examination he is ataxic and there is diminished muscle tone on his right upper and lower limbs. When he is asked to quickly pronate and supinate the forearms the movements are normal on left side but jerky and slow on the right side. Bilateral papilloedema is observed. CT scan reveals a tumour in posterior cranial fossa compressing the cerebellum.
- 5.1
- 5.1.1 Explain the anatomical basis of papilloedema. (10 marks)
- 5.1.2 Which of the above complaints are due to direct involvement of the cerebellum? (10 marks)
- 5.2 List lobes and fissures of the cerebellum. (10 marks)
- 5.3 Describe the blood supply of the cerebellum. (20 marks)
- 5.4 Describe the light microscopic appearance of cerebellar cortex. (25 marks)
- 5.5 Describe embryological development of cerebellum. (25 marks)
