



FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA  
SECOND EXAMINATION FOR MEDICAL DEGREES MARCH 2012

ANATOMY PAPER II

MONDAY 12<sup>th</sup> MARCH 2012

THREE HOURS

Answer all FIVE Questions

Answer EACH QUESTION in a SEPARATE BOOK

Use diagrams where necessary

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1. A 20 year-old female has undergone surgical removal of an impacted right lower 3<sup>rd</sup> molar tooth. Following recovery from anesthesia, she complained of loss of sensation in the gums of her right lower jaw and right lower lip. She also complained of dry mouth and diminished taste sensation in the anterior two-thirds of the tongue but not in the posterior part.
  - 1.1 Explain the anatomical basis for the patient's complaints. (40 marks)
  - 1.2 State why taste sensation in the posterior portion of the tongue was not affected. (10 marks)
  - 1.3 Describe the embryological development of the tongue. (20 marks)
  - 1.4 Describe the light microscopic appearance of the tongue. (30 marks)
  
2. Previously healthy 12 year-old boy was presented with a recurrent headache of 6 months duration and recent onset of visual problems. Following investigations, a Rathke's pouch tumor (craniopharyngioma) and loss of vision in his both temporal visual fields were detected.
  - 2.1 Using a labeled diagram, discuss the anatomical basis for the loss of vision in both temporal visual fields observed in the above patient. (40 marks)
  - 2.2 State the possible pressure effects of further growth of this tumor into four adjacent structures. (30 marks)
  - 2.3 State briefly the fate of Rathke's pouch in the development of the pituitary gland. (15 marks)
  - 2.4 Describe briefly the light microscopic appearance of the pituitary gland. (15 marks)

3. A female neonate with breathing and feeding difficulties was investigated for a possible cause. Auscultation revealed a continuous murmur that was best heard over the pulmonary area. Echocardiogram revealed a patent ductus arteriosus.

- 3.1 Explain the embryological basis of the patent ductus arteriosus. (20 marks)
- 3.2 State briefly the changes in the foetal circulation that occur at birth under normal circumstances. (25 marks)
- 3.3 Describe how you would surface mark the arch of aorta, heart and its auscultatory areas in an adult. (40 marks)
- 3.4 Describe the light microscopic appearance of the pulmonary artery. (15 marks)

4. A 50 year-old manual worker complaining of lower abdominal pain, gross distention of the abdomen and vomiting of two days duration was admitted to a surgical ward. On examination, he had a painful lump at the right inguinal region which was diagnosed as an obstructed inguinal hernia.

- 4.1 List the types of herniae found in the inguinal area and explain how you would differentiate them using your knowledge in Anatomy. (30 marks)
- 4.2 Explain the anatomical basis for lower abdominal pain and gross distention of the abdomen observed in the above patient. (25 marks)
- 4.3 Describe the gross anatomy of the inguinal canal. (30 marks)
- 4.4 Describe the light microscopic appearance of a cross section of the ileum. (15 marks)

5. A young man was admitted to a surgical ward with a history of cut injury following an assault with a sword. On examination, the cut injury was found at the medial side of the lower one-third of his right arm. During the surgery, it was noted that the cut has passed through the medial halves of the brachialis, biceps and triceps muscles and also about 1 cm into the humeral shaft.

- 5.1 Name two main nerves and the main artery that have been cut in this patient. (15 marks)
- 5.2 Discuss the deformities and dysfunctions of the forearm and hand you may see in this patient due to the damage of one of the nerves you mentioned in 5.1. (40 marks)
- 5.3 State the embryological origins of the structures that had been cut in this patient. (25 marks)
- 5.4 Describe the light microscopic appearance of a peripheral nerve. (20 marks)