FACULTY OF MEDICINE, UNIVERSITY OF RUHUNA

SECOND EXAMINATION FOR MEDICAL DEGREES – April 2026

ANATOMY PAPER II - STRUCTURED ESSAY (New Curriculum)

Answer all five questions in the given spaces **Index Number - .....**

No extra sheets are provided

Handover the paper with all pages intact

Number of pages – (03) Three

Marks allocated to each part of a question are shown within parenthesis **1.00 - 4.00 p.m.**

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1. A 30-year-old mother is sent to the labour room following an internal pelvic assessment for normal vaginal delivery of her first baby. During delivery, episiotomy is to be performed.

1.1

1.1.1 What is meant by an internal pelvic assessment? (10 marks)

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.....

1.1.2 State **ONE** anatomical feature that would facilitate a normal vaginal delivery at the following levels of female pelvis (15 marks)

a. Inlet - .....

b. Mid cavity - .....

c. Outlet - .....

1.1.3 What is an episiotomy? (10 marks)

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1.1.4 List **FIVE** nerves that innervate female perineum (10 marks)

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1.1.5 List the layers of the perineum (from superficial to deep) that need to be incised during an episiotomy (15 marks)

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1.2 State **FOUR** light microscopic features of wall of vagina (20 marks)

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1.3 State the embryological development of uterus under following headings (20 marks)

a. Gestational age - .....

b. Germ layer - .....

c. Embryological components - .....

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d. Embryological process - .....

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e. **Two** congenital anomalies.....

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2. A 68-year-old man presents with drooping of left upper eyelid (ptosis), inability to see the objects in his right field of vision and weakness of the right side of his body for the past three days. During examination, it is noted that his left pupil is dilated and left eyeball deviated downwards and laterally. CT angiogram of brain reveals an aneurysm in one of the major blood vessels supplying his left cerebral hemisphere.

A diagnosis of compression of a major part of the brain stem and a cranial nerve supplying the extraocular muscles of the eye is made.

2.1 Answer the following questions related to the cranial nerve involved

2.1.1 What is the cranial nerve involved? (05 marks)

.....

2.1.2 What is the site of nerve compression? (02 marks)

.....

2.1.3 State the location of its intracranial nuclei (02 marks)

.....

2.1.4 What are the functional components of this cranial nerve (05 marks)

.....

.....

2.2 State the anatomical basis for the following findings

2.2.1 Drooping of left upper eyelid (10 marks)

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2.2.2 Deviation of left eyeball downwards and laterally (10 marks)

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2.2.3 Dilatation of left pupil (10 marks)

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2.3 State **THREE** major components of the accommodation reflex (06 marks)

.....

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2.4 Name the major blood vessel involved in this aneurysm (05 marks)

.....

2.5 State the anatomical basis for the presence of following features

2.5.1 Right sided visual field defect (05 marks)

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2.5.2 Weakness of the right side of the body (10 marks)

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2.6 State **FOUR** histological features of a muscular artery (15 marks)

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2.7 List the main embryological derivatives of the central nervous system (15 marks)

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3. A 30-year-old man presents to the surgical casualty ward following a traumatic injury to the right arm. On examination, some movements of the right upper limb are impaired. Right upper limb is flexed at the elbow with flexed wrist and fingers. An X-ray of the right arm reveals a fracture at the mid shaft of humerus. A diagnosis of wrist drop is made.

3.1

3.1.1 State the nerve injured (05 marks)

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3.1.2. List **FIVE** muscles affected due to the above nerve injury (20 marks)

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3.1.3. State **FIVE** movements likely to be affected due to the above nerve injury (15 marks)

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3.1.4 State **TWO** sensory nerves affected in this patient with area of sensory loss (12 marks)

Sensory nerve affected	Area of sensory loss
.....	.....
.....	.....

3.2 List the structures in a cross section of the mid-shaft of the arm as follows: (12 marks)

a. **FOUR** muscles – .....

.....

.....

.....

b. **FOUR** nerves – .....

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.....

.....

c. **FOUR** blood vessels - .....

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3.3 State **FOUR** arteries that can be used to check the arterial pulse of the lower limbs with their anatomical locations (16 marks)

Name of the artery	Anatomical location
.....	.....
.....	.....
.....	.....
.....	.....

3.4 State **FIVE** light microscopic features of a long bone at mid-shaft (20 marks)

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4. During a cardiac surgery, a surgeon inserts his left index finger into the transverse pericardial sinus after opening the pericardial cavity and compresses two great vessels that lie immediately anterior to it with his left thumb to clamp the blood flow.

4.1

4.1.1. Name the **TWO** great vessels that are compressed by the surgeon (10 marks)

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4.1.2 Name the major vein that lies immediately posterior to transverse pericardial sinus (10 marks)

.....

4.1.3 State where the transverse pericardial sinus opens into on each side (10 marks)

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4.2 List the ligaments attached to the fibrous pericardium (10 marks)

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4.3 List **FIVE** blood vessels that pierce the fibrous pericardium (10 marks)

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4.4 List **FIVE** the branches of the descending thoracic aorta (10 marks)

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4.5

4.5.1 List **FOUR** anatomical vascular defects observed in Tetralogy of Fallot's (10 marks)

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4.5.2 State the adult cardiovascular structures that arise from the following embryological components: (10 marks)

(a) Dorsal mesocardium .....

(b) Truncus arteriosus .....

.....

(c) Somatic layer of lateral plate mesoderm .....

(d) Visceral layer of lateral plate mesoderm .....

(e) Intraembryonic coelom .....

4.6.

4.6.1. List **FIVE** microscopic features of cardiac muscle fibers (15 marks)

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4.6.2. List **FOUR** microscopic features of Perkinje fibers that would help to differentiate them from cardiac muscle fibers (05 marks)

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Number of pages – (02) Two

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5. A 60-year-old woman presents to a surgical clinic with a painless lump in front of the auricle. Examination findings suggest paralysis of facial muscles on the same side of face. Investigations reveal that the lump is arising from the parotid gland which requires surgical removal.

5.1 List **FOUR** structures located within the parotid gland (20 marks)

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5.2 List the layers need to be incised (from superficial to deep) when exposing the parotid gland (20 marks)

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5.3 Explain the anatomical basis of facial muscle paralysis on the same side of the face in this patient (15 marks)

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5.4

5.4.1 List the immediate relations of the parotid gland as follows: (30 marks)

Superior .....

Anteromedial.....

Posteromedial.....

Superficial.....

5.4.2 Draw a labeled diagram to show the light microscopic appearance of the parotid gland

(15 marks)