



AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF REHABILITATION MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF EXAMINATIONS: MAY TO AUGUST 2026

UNIT CODE: PHT 133

UNIT NAME: REGIONAL ANATOMY OF THE HEAD, NECK AND THORAX (MAIN EXAM)

DATE: 3rd August 2026 Time: 11: 15am Stop: 1: 15pm

TIME: 2 HOURS

All students will have two (2) hours to complete the examination

- 1. Attempt all questions as per the instruction**
- 2. It is the student's responsibility to report any page and number missing in this paper.**
- 3. Check that the paper is complete**
- 4. Total number of pages is 10 including the cover.**
- 5. Read through the paper quickly before you start.**

SECTION ONE; Multiple Choice Questions.

Answer All the Questions (30 Marks)

Q1. When designing a cardiopulmonary rehabilitation program, which of the following thoracic content should be the primary focus to improve oxygen transport and endurance?

- A. Intercostal nerves
- B. Bronchial tree and alveoli
- C. Pulmonary arteries and veins
- D. Thoracic sympathetic trunk

Q2. A patient suffers a fracture at the junction between the frontal and parietal bones. Which of the following sutures is involved?

- A. Lambdoid suture
- B. Sagittal suture
- C. Coronal suture
- D. Squamous suture

Q3. A blow to the temple may rupture the middle meningeal artery. Applying your anatomy of the skull, which of the following skull landmark is most vulnerable?

- A. Bregma
- B. Lambda
- C. Pterion
- D. Nasion

Q4. A patient cannot abduct the eye after head trauma. From your facial anatomy, which of the following cranial nerves is most likely damaged?

- A. Oculomotor nerve (III)
- B. Trochlear nerve (IV)

- C. Abducens nerve (VI)
- D. Facial nerve (VII)

Q5. An injury causes paralysis of muscles of facial expression. Which of the following cranial nerve is most likely affected?

- A. V
- B. VII
- C. IX
- D. XII

Q6. A first-year physiotherapy anatomy student examines a vertebra and notes the presence of costal facets on the body and transverse processes. Which of the following vertebral regions does this specimen most likely belong to?

- A. Cervical region
- B. Lumbar region
- C. Thoracic region
- D. Sacral region

Q7. During laboratory identification, a vertebra is found to have a long, downward-sloping spinous process and a heart-shaped body. Which of the following is the most likely classification of this vertebra?

- A. Cervical vertebra
- B. Lumbar vertebra
- C. Thoracic vertebra
- D. Sacral vertebra

Q8. A physiotherapist student claims that all thoracic vertebrae possess facets on their transverse processes for rib articulation. How would you evaluate this statement?

- A. Completely correct
- B. Incorrect because T1 lacks transverse facets

- C. Incorrect because T11 and T12 lack transverse costal facets
- D. Incorrect because T5–T8 lack transverse facets

Q9. A physiotherapy clinician evaluates a patient with suspected vertebral artery insufficiency during neck rotation. Which of the following cervical levels should be most carefully assessed for anatomical vulnerability?

- A. C1–C2
- B. C3–C4
- C. C5–C6
- D. C7–T1

Q10. During dissection, a physiotherapy student identifies a rib with a single facet on its head and no neck or tubercle. Which of the following rib is most likely being observed?

- A. 5th rib
- B. 7th rib
- C. 11th rib
- D. 2nd rib

Q11. During a practical class, a physiotherapy student observes that a rib specimen has two articular facets on its head. Which of the following is the functional significance of this feature?

- A. Attachment to the sternum
- B. Articulation with two adjacent vertebral bodies
- C. Formation of the costal margin
- D. Attachment to the clavicle

Q12. A neurologist critiques the vascular arrangement that maintains cerebral blood flow through arterial connections at the base of the brain. Which of the following structure is responsible for this collateral circulation?

- A. Circle of Willis
- B. Carotid sinus

- C. Jugular venous arch
- D. Cavernous sinus

Q13. A physiotherapist analyzes supraclavicular swelling near the clavicle. Which of the following subdivision of the posterior triangle lies between the clavicle and the inferior belly of the omohyoid?

- A. Occipital triangle
- B. Supraclavicular triangle
- C. Carotid triangle
- D. Submental triangle

Q14. Based on your anatomical understanding, which of the following features best distinguishes a typical thoracic vertebra from a lumbar vertebra?

- A. Large vertebral body
- B. Bifid spinous process
- C. Presence of costal facets
- D. Transverse foramina

Q15. A physiotherapy student claims that the mandible is the only movable bone of the skull. How would you evaluate this statement?

- A. Correct
- B. Incorrect; the maxilla is movable
- C. Incorrect; the zygomatic bone is movable
- D. Incorrect; the nasal bone is movable

Q16. A patient cannot rotate the head to the opposite side after injury to a neck muscle. Which of the following muscles is likely affected?

- A. Scalene anterior
- B. Sternocleidomastoid

C. Omohyoid

D. Platysma

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Q17. A vertebra possesses a den (odontoid process). Which of the following vertebrae is it?

- A. Atlas
- B. Vertebra prominens
- C. Axis
- D. T1

Q18. A patient presents with a fractured sternum. Which of the following parts articulates with the clavicles?

- A. Body
- B. Manubrium
- C. Xiphoid process
- D. Costal margin

Q19. Which of the following thoracic structure contains the heart, great vessels, trachea, and the oesophagus?

- A. Pleural cavity
- B. Mediastinum
- C. Costal margin
- D. Thoracic inlet

Q20. Which of the following cranial bone contributes most significantly to the floor of the cranial cavity?

- A. Sphenoid
- B. Nasal
- C. Lacrimal
- D. Vomer

Q21. A fracture of ribs 9–11 is more likely to compromise abdominal organs rather than thoracic organs. Which of the following anatomical relationships best explains this?

- A. These ribs articulate with lumbar vertebrae
- B. They lack costovertebral joints
- C. They overlie the liver, spleen, and kidneys
- D. They are directly attached to the sternum

Q22. A stab wound damages the spinal accessory nerve in the posterior triangle. Which of the following muscle is likely weakened?

- A. Masseter
- B. Sternocleidomastoid and trapezius
- C. Digastric
- D. Mylohyoid

Q23. Based on your understanding of skull anatomy, the hyoid bone is unique because it:

- A. Articulates with the mandible
- B. Articulates with the sternum
- C. Has no bony articulations
- D. Forms part of the vertebral column

Q24. A chest tube is inserted to drain pleural fluid. Applying your anatomy, which of the following cavity is entered?

- A. Pericardial cavity
- B. Pleural cavity
- C. Abdominal cavity
- D. Cranial cavity

Q25. A patient presents with a fractured sternum. Which of the following part articulates with the sternal end of the clavicles?

- A. Body
- B. Xiphoid process
- C. Manubrium
- D. Costal margin

Q26. Applying your anatomy, which of the following vertebrae is known as the atlas?

- A. C1
- B. C2
- C. C3
- D. C7

Q27. Applying your anatomy, loss of sensation over the forehead suggests injury to which of the following divisions of the trigeminal nerve?

- A. Ophthalmic (V1)
- B. Maxillary (V2)
- C. Mandibular (V3)
- D. Facial nerve

Q28. A vertebra has characteristics of both thoracic and lumbar vertebrae, including a large body and a single complete costal facet. Which of the following vertebrae is most likely represented?

- A. T1
- B. T6
- C. T10
- D. T12

Q29. While analyzing posterior circulation of the brain, a neurologist identifies arteries arising from the subclavian arteries that ascend through the transverse foramina of cervical vertebrae. Which of the following arteries are these?

- A. Common carotid arteries
- B. Vertebral arteries
- C. Internal carotid arteries
- D. Occipital arteries

Q30. While analyzing scalp circulation during trauma management, a doctor notes that scalp wounds bleed profusely due to rich arterial supply. Which of the following artery arises from the posterior aspect of the external carotid artery and supplies the posterior scalp?

- A. Occipital artery
- B. Lingual artery
- C. Facial artery
- D. Maxillary artery

SECTION TWO; Short Answer Questions

Answer all the questions (20 marks)

- Q31.** Formulate a simple explanation of the anatomical features that distinguish a typical cervical vertebra from a thoracic vertebra. **(4 Marks)**
- Q32.** Formulate a simple description of the meninges covering the brain **(4 Marks)**
- Q33.** Formulate a logical explanation of the contents of the superior mediastinum **(4 Marks)**
- Q34.** Formulate a simple description of the anatomical boundaries of the posterior triangle of the neck **(4 Marks)**
- Q35.** Provide a simple description of the blood supply of the brain **(4 Marks)**

SECTION THREE; Long Answer Questions.

Attempt Any of the Two (20 marks)

- Q36.** Analyze the anatomy of the skull and discuss how its structure contributes to the protection of the brain and sensory organs **(10 Marks)**
- Q37.** Analyze the anatomy of the thoracic cage and discuss its functions **(10 Marks)**
- Q38.** Evaluate the clinical importance of the carotid triangle **(10 Marks)**