AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF REHABILIATION MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL, 2026

UNIT CODE: PHT 123

UNIT NAME: ANATOMY OF THE UPPER AND LOWER LIMBS

DATE: 16th April 2026

TIME: 11.15am-1.15pm

INSTRUCTIONS

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

SECTION ONE; Multiple Choice Questions.

Answer All the Questions (30 Marks)

Q1. If you were to design an anatomical model demonstrating rotator cuff insertions, which scapular landmarks would you include to complete supraspinatus, infraspinatus and subscapularis mapping?
A. Coracoid process, acromion, inferior angle
B. Supraspinous fossa, infraspinous fossa, subscapular fossa
C. Glenoid cavity, spine, lateral border
D. Superior angle, medial border, acromion

Q2. During an anatomy practical class, you are asked to locate the origin of the long head of the triceps. Applying your knowledge of bony landmarks, which part of the scapula must be identified?
A. Infra-glenoid tubercle
B. Supraglenoid tubercle
C. Acromion
D. Inferior angle

Q3. During early mobilization after elbow immobilization, which movement should be carefully evaluated first due to its functional importance in daily activities?
A. Elbow extension
B. Elbow flexion
C. Forearm pronation–supination
D. Wrist flexion

Q4. A physiotherapy student is analyzing a child with a "pulled elbow" (Nursemaid's Elbow). Analyze which bony structure is primarily displaced in this condition?
A. Olecranon
B. Coronoid process
C. Radial head
D. Capitulum

Q5. A physiotherapy student is critiquing elbow joint stability in a patient with recurrent dislocations. Analyze which bony factor most contributes to inherent elbow stability?
A. Shallow capitulum
B. Shape of the trochlea and trochlear notch
C. Size of the radial head
D. Carrying angle

Q6. A physiotherapist is analyzing a patient with inability to abduct the shoulder beyond 15° following a fracture at the surgical neck of the humerus. Evaluate the most likely underlying cause.
A. Injury to supraspinatus tendon
B. Damage to the axillary nerve affecting deltoid function
C. Rupture of the long head of biceps brachii
D. Compression of the radial nerve

Q7. A physiotherapist is designing a strengthening program following distal humeral fracture repair. Evaluate which humeral structure provides origin for major wrist extensor muscles.
A. Medial epicondyle
B. Lateral epicondyle
C. Radial groove
D. Greater tubercle

Q8. A fracture affecting the lateral distal humerus results in difficulty with forearm pronation–supination. As a physiotherapy student, analyze which articulating surface is most relevant to this functional deficit.
A. Trochlea
B. Olecranon fossa
C. Capitulum
D. Medial epicondyle

Q9. A patient presents with limited hip abduction following a fracture involving the greater trochanter. Analyze which muscle attachment is most likely affected?
A. Iliopsoas
B. Gluteus medius
C. Adductor longus
D. Vastus medialis

Q10. When designing a rehabilitation program after a femoral shaft fracture, which anatomical characteristic of the femur is most important to consider?
A. Presence of the fovea capitis
B. Length and curvature of the shaft
C. Shape of the femoral head
D. Number of epiphyses

Q11. A fracture through the surgical neck of the femur places which blood supply at greatest risk, increasing the chance of avascular necrosis?
A. Obturator artery
B. Lateral circumflex femoral artery
C. Medial circumflex femoral artery
D. Popliteal artery

Q12. A physiotherapy student is asked to interpret the anatomical arrangement of the medial thigh muscles. Which muscle is thin, strap-like, and runs along the medial side of the thigh?
A. Gracilis
B. Adductor brevis
C. Pectineus
D. Adductor magnus

Q13. You are asked to analyze the anatomical significance of the sartorius muscle. Why is it described as the longest muscle in the body?
A. It has the greatest mass
B. It spans hip and knee joints with a long oblique course
C. It produces maximum force
D. It has multiple nerve supplies

Q14. You are asked to interpret the functional role of the quadriceps femoris group. Which action is common to all four muscles?
A. Hip flexion
B. Knee extension
C. Medial rotation of thigh
D. Knee flexion

Q15. During a practical class, you are required to identify the large superficial muscle forming the bulk of the anterior thigh.
A. Vastus medialis
B. Vastus lateralis
C. Rectus femoris
D. Sartorius

Q16. When analyzing the posterior compartment of the thigh. Which muscle group is commonly referred to as the hamstrings?
A. Adductor magnus, longus, brevis
B. Biceps femoris, semitendinosus, semimembranosus
C. Sartorius, gracilis, pectineus
D. Iliopsoas, rectus femoris

Q17. Applying clinical anatomy during movement analysis. Which hamstring muscle contributes to lateral rotation of the leg when the knee is flexed?
A. Semitendinosus
B. Semimembranosus
C. Biceps femoris
D. Gracilis

Q18. Applying knowledge of compartmental anatomy. Which nerve supplies the anterior compartment muscles of the thigh?
A. Obturator nerve
B. Sciatic nerve
C. Femoral nerve
D. Tibial nerve

Q19. Evaluating functional loss following ulnar nerve injury. Which forearm muscle will be directly affected?
A. Flexor digitorum superficialis
B. Flexor carpi ulnaris
C. Pronator teres
D. Extensor carpi radialis brevis

Q20. You are asked to interpret the action of the extensor muscles of the forearm. Which muscle is the prime extensor of the wrist?
A. Extensor carpi ulnaris
B. Extensor digitorum
C. Extensor carpi radialis longus
D. Abductor pollicis longus

Q21. Analyzing clinical patterns seen in repetitive loading. Which metatarsal is most commonly affected by stress fractures?
A. First
B. Second
C. Fourth
D. Fifth

Q22. Interpreting the distal anatomy of the metatarsals. The heads of the metatarsals articulate with the:
A. Tarsal bones
B. Proximal phalanges
C. Distal phalanges
D. Sesamoid bones only

Q23. Applying surface anatomy knowledge during palpation. Which bone is subcutaneous along most of its anterior surface?
A. Femur
B. Tibia
C. Fibula
D. Talus

Q24. You are asked to interpret the functional importance of a rough anterior projection on the tibia. Which structure serves as the attachment for the patellar ligament?
A. Intercondylar eminence
B. Tibial tuberosity
C. Soleal line
D. Fibular notch

Q25. Applying anatomical orientation while holding a femur bone. The femoral head is always directed:
A. Laterally
B. Anteriorly
C. Medially
D. Inferiorly

Q26. Apply your knowledge of femoral landmarks to distinguish anterior from posterior surfaces. Which structure is present on the anterior aspect between the greater and lesser trochanters?
A. Intertrochanteric crest
B. Quadrate tubercle
C. Intertrochanteric line
D. Trochanteric fossa

Q27. A lecturer asks students to evaluate the role of the medial epicondyle of the humerus. Which statement best reflects its significance?
A. It articulates with the radius
B. It provides attachment for flexor muscles of the forearm
C. It transmits the radial nerve
D. It deepens the glenoid cavity

Q28. During a practical examination, you are asked to evaluate the clinical significance of the radial groove. Which structure lies within this groove?
A. Axillary nerve and posterior circumflex humeral artery
B. Median nerve and brachial artery

C. Radial nerve and profunda brachii artery
D. Ulnar nerve and superior ulnar collateral artery

Q29. While analyzing the proximal humerus on a dry bone, a physiotherapy student identifies a shallow groove separating the greater and lesser tubercles. Evaluate the functional importance of this structure.
A. It transmits the radial nerve
B. It allows attachment of the deltoid muscle
C. It accommodates the tendon of the long head of biceps brachii
D. It forms part of the elbow joint

Q30. A physiotherapy student must analyze why fractures of the mid-shaft of the humerus often present with wrist drop. Which explanation best justifies this?
A. Damage to the musculocutaneous nerve
B. Injury to the ulnar nerve
C. Compression of the radial nerve in the radial groove
D. Disruption of the brachial artery

SECTION TWO; Short Answer Questions

Answer all the questions (20 marks)

Q31. Formulate a logical simplified differentiation between the actions of flexor carpi ulnaris and flexor carpi radialis. **(5 Marks)**

Q32. Provide a simplified analysis of the anatomical course of the femoral artery **(5 Marks)**

Q33. Provide a simplified analysis of the anatomical course of the ulnar nerve and explain why it is vulnerable at the elbow. **(5 Marks)**

Q34. Correlate radial nerve injury at the axilla with clinical correlations **(5 Marks)**

SECTION THREE; Long Answer Questions.

Attempt Any of the Two (20 marks)

Q35. Formulate an overview of the superficial flexor muscles of the forearm and their functions. **(10 Marks)**

Q36. Formulate a logical explanation of the four muscles of the anterior compartment of the leg and their actions/functions **(10 Marks)**

Q37 Analyze the anatomical features of the femur and explain how they contribute to its weight-bearing function. **(10 Marks)**