



**AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF MEDICAL SCIENCES  
DEPARTMENT OF REHABILITATION MEDICINE  
BACHELOR OF SCIENCE IN PHYSIOTHERAPY**

**END OF TRIMESTER EXAMINATIONS JANUARY TO APRIL 2025**

**UNIT CODE: PHT 236**

**UNIT NAME: Musculoskeletal Disorder in PT 1 (Special Paper)**

**DATE: 9th APRIL 2025**

**TIME: 9AM-11AM**

**INSTRUCTIONS**

- 1. All students will have two (2) hours to complete the examination**
- 2. This is an online exam, 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 9 including the cover.**
- 6. Read through the paper quickly before you start.**
- 7. Upon finishing the exam paper, on submission, the message 'Your examination has been submitted' will appear.**

**TOTAL: \_\_\_\_\_/70**

**PERCENT: \_\_\_\_\_/100%**

**POINTS EARNED TOWARDS FINAL GRADE \_\_\_\_\_/70**

**Section A. Multiple choice questions. Answer all the questions (30 Marks)**

1. Which of the following BEST represents a scenario where a patient's low irritability allows for more aggressive physiotherapy intervention?
  - A) The patient experiences sharp pain with resisted knee extension, lasting for 5 minutes after the activity, and is relieved by ice.
  - B) The patient experiences a dull ache in the shoulder after overhead reaching, lasting for 2 hours, and is relieved by rest.
  - C) The patient reports mild discomfort in the ankle after walking for 10 minutes, which subsides completely within 15 minutes of rest.
  - D) The patient experiences intense pain with any spinal rotation, lasting the rest of the day, and is only partially relieved by strong opioids.
2. A patient presents with pain described as "throbbing," "pounding," and "beating" in their lower leg. They also report mild swelling and warmth in the affected area. Based on the pain descriptors and accompanying symptoms, which of the following is the MOST likely primary source of the patient's pain?
  - A. Neurogenic disorder, potentially involving the sciatic nerve.
  - B. Musculoskeletal disorder, possibly a muscle strain.
  - C. Vascular disorder, such as peripheral arterial disease.
  - D. Emotional disorder, manifesting as physical pain.
3. A physiotherapist is performing the supine leg lowering test on a patient. They observe that the patient can lower their leg until the posterior thigh is just about to lose contact with the table, but the knee remains flexed at only 60 degrees. What is the MOST likely explanation for this limitation in knee flexion during the test, assuming the hip portion of the test was normal?
  - A) Tightness in the quadriceps muscle group is restricting knee flexion.
  - B) The patient has a structural limitation in knee joint range of motion.
  - C) The patient is intentionally guarding due to pain in the knee joint.
  - D) Tightness in the hamstring muscle group is restricting knee extension
4. A physiotherapy clinic uses electronic health records (EHR). A patient's record is subpoenaed for a court case. The physiotherapist who treated the patient has since left the clinic. Which of the following is the most accurate statement regarding access to and interpretation of the patient's EHR?

- A) Only the physiotherapist who treated the patient can legally interpret the notes, as they have the best understanding of the context of the treatment.
- B) Any qualified physiotherapist currently employed at the clinic can interpret the notes, as the EHR system ensures continuity of care.
- C) The clinic's designated health records manager is responsible for interpreting the notes for the court, as they are trained in legal aspects of documentation.
- D) While the treating physiotherapist's interpretation is ideal, any qualified healthcare professional familiar with physiotherapy practice can interpret the notes for the court.
5. A 55-year-old female presents to the clinic with insidious onset shoulder pain that has progressively worsened over the past 3 months. She reports significant pain at night, especially when trying to sleep on her affected side. She has noticed a gradual decrease in her shoulder range of motion, particularly with external rotation and abduction. Based on this description, which phase of frozen shoulder is she MOST likely experiencing?
- A) Resolution/Thawing Phase
- B) Adhesive/Frozen/Stiffening Phase
- C) Acute/Freezing/Painful Phase
- D) Chronic Pain Phase
6. Which of the following statements BEST reflects the typical prognosis for frozen shoulder?
- A) It usually requires surgical intervention to achieve full recovery.
- B) It is a self-limiting condition that typically resolves within 6-12 months, although it can take up to several years in some cases.
- C) It often leads to permanent shoulder stiffness and disability.
- D) It responds best to long-term corticosteroid injections and should be the primary treatment.
7. Which of the following is considered the BEST parameter for characterizing the medial longitudinal arch structure in pes planus assessment?
- A. Calcaneal eversion angle
- B. Navicular height
- C. Ratio of navicular height to foot length
- D. Foot length alone

8. A patient presents with a leg length discrepancy. Radiographic examination reveals a shortened fibula compared to the other leg. Which of the following conditions is the MOST likely cause of this discrepancy?
- A. Iliotibial band contracture
  - B. Congenital fibular deficiency
  - C. Growth stimulation following a greenstick fracture
  - D. Rheumatoid arthritis of the knee
9. Which of the following best describes centralization of pain according to the McKenzie Method?
- A) Pain that increases in intensity with movement.
  - B) Pain that remains unchanged with movement.
  - C) Pain that shifts from a distal location to a more proximal location.
  - D) Pain that spreads to new areas of the body.
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11. A physiotherapy student is learning to assess ankle dorsiflexion ROM using a universal goniometer. They consistently underestimate the true ROM compared to their clinical instructor. Which of the following factors is MOST likely contributing to the student's measurement error?
- A. The goniometer's poor criterion validity when assessing ankle dorsiflexion.
  - B. The student's inconsistent application of the fulcrum and arms of the goniometer.
  - C. The inherent low reliability of goniometric measurements for ankle joint motions.
  - D. The student's reliance on visual estimation rather than precise goniometer alignment.
12. During a passive range of motion (ROM) test of the shoulder, a physical therapist feels a slight resistance followed by a gradual restriction at the end of external rotation. This end feel is most likely caused by tightness in which structure?
- A. Muscle
  - B. Tendon

C. Ligament

D. Joint Capsule

13. John, a 42-year-old construction worker, presents to the physiotherapy department complaining of pain and stiffness in his right knee joint for the past two weeks. He states the pain started after a misstep while carrying heavy materials at work. He reports difficulty bending and straightening his knee fully, especially in the mornings. John denies any recent injuries or accidents. As a physiotherapist carrying out the examination, which myotome are you likely to assess according to John's history
- A. L4
  - B. L3
  - C. L2
  - D. L1
14. A 45-year-old single mother presents with a two-week history of right neck pain radiating down the medial aspect of his forearm. He describes the pain as a sharp, burning sensation that worsens with prolonged overhead activities and carrying heavy objects. He also reports occasional numbness and tingling in the thumb, index, and middle fingers of his right hand. Which upper limb test would be most appropriate to assess potential nerve root involvement?
- A. Median bias upper limb tension test
  - B. Spurling's Test
  - C. Ulna bias upper limb tension test
  - D. Radial bias upper limb tension test
15. Which of the following is NOT a factor that affects healing of fracture?
- A. Blood supply
  - B. Age
  - C. Nutrition
  - D. Occupation
16. Which of the following is NOT a principle of fracture management?
- A. Rehabilitation
  - B. Weight bearing
  - C. Immobilization
  - D. Reduction
17. 16-year-old Michael fractures his right elbow after a fall from his bike. He undergoes surgery to fix the fracture, and afterwards, his arm is placed in a cast. Two days later,

Michael complains of extreme pain, tightness, and numbness in his forearm and hand. He also reports feeling increasingly weak in his grip. Unfortunately, the doctor dismisses Michael's complaints as typical post-surgical discomfort and doesn't investigate further. The cast remains unchanged. Weeks later the cast is removed and Michael is referred for physiotherapy. The therapist notices an obvious deformity, "claw-like" deformity. Based on the history given and the clinical presentation, which of the following is the likely complication?

- A. Volkmann's ischemic contracture
- B. Compartment syndrome
- C. Dinner fork deformity
- D. Cubitus varus deformity

18. Based on the above question (13), which of the following is NOT a goal of physiotherapy?

- A. Improve range of motion in the hand and fingers
- B. Improve hand function for daily activities
- C. Prevent contractures from worsening
- D. Improve co-ordination for Activities of Daily Living (ADLs)

19. Which of the following test is necessary before performing Maitland techniques on the cervical spine?

- A. Cervical joint range of motion
- B. Upper limb reflexes
- C. Blood pressure
- D. Spurling test

20. Which of the following is NOT a differential diagnosis for fat embolism?

- A. Acute respiratory distress syndrome
- B. Heart attack
- C. Pneumonia
- D. Pulmonary embolism

21. Which statement best reflects the Mulligan concept of positional fault?

- A. Injuries always lead to major structural damage.
- B. Pain is solely a result of tissue inflammation.
- C. Minor joint misalignments can restrict movement.
- D. Traditional physical therapy techniques are ineffective.

22. Which of the following is NOT a type of mal union in fracture healing?
- A. Gapping
  - B. Linear
  - C. Rotation
  - D. Angulation
23. Which of the following is NOT part of the 4 steps of McKenzie methods?
- A. Classification
  - B. Treatment
  - C. Prevention
  - D. Manipulation
24. Mulligan Mobilization with Movement (MWM) techniques aim to address:
- A. Trigger points
  - B. Joint tracking problems
  - C. Muscle imbalances
  - D. Scar tissue adhesions
25. The following is the best parameter of classification of Pes Planus?
- A. Heel inversion angle
  - B. Arc height
  - C. Rigidity
  - D. Symptoms
26. Which of the following is NOT a precaution for hip arthroplasty?
- A. Adduction of the leg beyond the body midline
  - B. Internal rotation of the leg
  - C. External rotation of the leg
  - D. Flexion of more than 90 degrees of the hip joint
27. A 25-year-old healthy male cyclist is involved in a high-speed collision with a car. Upon emergency medical services arrival, he is found with a visibly deformed left thigh and is unable to bear weight on the leg. During the initial assessment indicate he has sustained fracture midshaft femur, which neurological structure are at the biggest risk of affected by this kind of fracture?
- A. Sciatica nerve
  - B. Femoral nerve
  - C. Perineal nerve
  - D. Obturator nerve

28. 10-year-old Nick took a tumble while skateboarding and landed hard on his outstretched arm. After an x-ray at the emergency room, the doctor diagnosed him with a displaced supracondylar fracture. Due to the displacement, (ORIF - Open Reduction Internal Fixation). The Surgeon asked Billy to come for review after 2 weeks. At what stage of healing is the fracture on the 2nd week?
- A. Reparative stage
  - B. Inflammatory stage
  - C. Remodeling stage
  - D. Acute Stage
29. A 19-year-old college basketball player, dislocates his left shoulder while playing the game in a intervarsity tournament a few weeks ago. After his initial management, the surgeon refers him for physiotherapy. Which shoulder movements will the physiotherapy be cautions in the early stages of the rehabilitation program?
- A. Internal rotation
  - B. External rotation
  - C. Shoulder abduction
  - D. Shoulder adduction
30. In question 24, what is the likely mechanism of injury for the 19-year-old basketball player?
- A. Collusion on the shoulder with the opponent player
  - B. Direct fall on the shoulder
  - C. Fall on outstretched extend, abducted and externally rotated arm
  - D. Fall on outstretched flexed, adducted and internally rotated arm

**Section B. Short structured questions. Attempt all the questions (20 Marks)**

- 31. Discuss the four types of vertebral tuberculosis (8 Marks)
- 32. Explain the traditional capsular pattern for frozen shoulder (3 Marks)
- 33. Discuss the three Eponymous fractures of the cervical spine (9 Marks)

**Section C. Long Structured questions. Attempt the question (20 marks)**

- 1. John Mwangi, 35-year-old male has been diagnosed with tuberculosis (TB) of the spine, specifically affecting his thoracic vertebrae (T3-T4). This caused compression on his spinal cord leading to progressive weakness and pain. He underwent decompression surgery to remove the infected bone and disc material compressing the

spinal cord. This surgery aimed to alleviate his neurological symptoms and create space for bone healing. Following a successful surgery, John is recovering in the hospital but experiences significant weakness and stiffness in his trunk and legs due to prolonged inactivity and nerve compression. He has been referred to physiotherapy. Outline the physiotherapy short- and long-term goals and care plan of Mr. Mwangi including the prognosis of this condition (20 Marks)

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