



**AMREF INTERNATIONAL UNIVERSITY**  
**SCHOOL OF HEALTH SCIENCES**  
**DEPARTMENT OF REHABILITATION MEDICINE**  
**BACHELOR OF SCIENCE IN PHYSIOTHERAPY**  
**END OF TRIMESTER EXAMINATIONS**

**UNIT CODE: PHT 314**

**DATE: APRIL 2025**

**UNIT NAME: MUSCULOSKELETAL DISORDERS II (Direct entry)**

**TIME: 2pm-4pm**

**INSTRUCTIONS**

- 1. All students will have two (2) hours to complete the examination**
- 2. This is a Physical examination: Follow instructions per section**
- 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 7 including the cover.**
- 6. Read through the paper quickly before you start.**

## Section A

### Multiple Choice Questions (1 Mark Each)

1. What is the primary goal of physiotherapy in spinal rehabilitation?
  - a) Restoring mobility and function
  - b) Eliminating spinal pain through pain education
  - c) Avoiding risky movements
  - d) Enhancing dietary calcium intake
2. Which type of knee brace is most suitable for a patient recovering from an ACL reconstruction?
  - a) Hinged knee brace to provide stability while allowing controlled movement
  - b) Elastic compression brace for complete immobilization
  - c) Rigid cast to prevent all joint motion
  - d) Open-patella sleeve for unrestricted knee flexion
3. What is a key characteristic of lumbar spondylosis?
  - a) Narrowed disc spaces and osteophyte formation
  - b) Fractured vertebrae
  - c) Spinal cord injury
  - d) Decreased flexibility of the spine
4. What is a major risk factor for cervical spondylosis?
  - a) Aging process
  - b) Low-calcium diet
  - c) Excessive strength training
  - d) Viral infections
5. What is the correct goniometer placement for measuring cervical spine flexion?
  - a) Fulcrum at the C7 vertebra, stationary arm aligned with the spine, movable arm along the jawline
  - b) Fulcrum over the external auditory meatus, stationary arm perpendicular to the floor, movable arm aligned with the base of the nose
  - c) Fulcrum at the sternoclavicular joint, stationary arm parallel to the clavicle, movable arm aligned with the chin
  - d) Fulcrum at the occiput, stationary arm aligned with the eyes, movable arm perpendicular to the forehead

6. Which spinal condition is characterized by forward displacement of a vertebral body?
  - a) Spondylolisthesis
  - b) Spinal stenosis
  - c) Cervical radiculopathy
  - d) Ankylosing spondylitis
  
7. Which of the following is a key feature of semi-rigid bracing?
  - a) Immobilizes the joint
  - b) Used exclusively for fractures
  - c) Allows limited movement while providing moderate support
  - d) Enhances range of motion in hypermobile joints
  
8. Which of the following is a major complication after total knee arthroplasty?
  - a) Loss of sensation around the suture site
  - b) Deep vein thrombosis (DVT)
  - c) Quadriceps atrophy
  - d) Reduced proprioception lower limb joints
  
9. Which of the following is NOT a general sign of spinal conditions?
  - a) Pain
  - b) Increased spinal column movements
  - c) Stiffness
  - d) Neurological symptoms
  
10. What is the primary imaging technique used to assess intervertebral disc prolapse?
  - a) X-ray
  - b) MRI
  - c) CT scan
  - d) Ultrasound
  
11. Which symptom suggests possible cauda equina syndrome?
  - a) Bowel or bladder dysfunction
  - b) Mild lower back pain
  - c) Increased muscle tone
  - d) Intermittent claudication
  
12. When performing a postural assessment using a plumb line, which of the following is considered an abnormal finding?
  - a) Plumb line falls anterior to the ear lobe
  - b) Plumb line passes through the acromion
  - c) Plumb line aligns with the greater trochanter
  - d) Plumb line falls posterior to the knee joint

13. Which test is used to assess lumbar radiculopathy?

- a) Straight Leg Raise (SLR) Test
- b) Patrick's (FABER) Test
- c) Phalen's test
- d) Romberg test

John, a 40-year-old factory worker, reports experiencing lower back pain for the past three days after lifting heavy boxes. He denies any neurological symptoms and reports some improvement with rest and over-the-counter painkillers.

14. What is the MOST LIKELY cause of John's pain?

- a) Mechanical back pain due to muscle strain or minor ligament injury from lifting, which is consistent with short-term pain and improvement with rest
- b) Ankylosing spondylitis, since inflammatory back pain presents similarly
- c) Long-term degenerative spinal disease, as all cases of back pain are due to aging-related wear and tear
- d) A severe disc herniation, even in the absence of neurological symptoms

15. What is the main purpose of spinal bracing?

- a) To increase spinal flexibility
- b) To provide support, stability, and balance
- c) To facilitate muscle strength re-education
- d) To reduce chances of disuse atrophy

16. Which of the following postural deviations is commonly associated with spinal stenosis?

- a) Forward leaning posture
- b) Swayback posture
- c) Hyperextended knees
- d) Increased thoracic lordosis

17. What condition involves thickening of the ligamentum flavum leading to spinal canal narrowing?

- a) Spinal stenosis
- b) Disc prolapse
- c) Spondylolisthesis
- d) Osteophyte formation

18. Which muscle group is primarily targeted in ACL rehabilitation?

- a) Vastus lateralis
- b) Vastus medialis
- c) Vastus intermedius
- d) Quadriceps muscles

Esther, a 60-year-old retiree, was once very active in her community but has been diagnosed with spinal stenosis. She now finds it difficult to attend social events due to pain and mobility challenges. She feels isolated and reports experiencing stress and a sense of helplessness.

19. What is the MOST likely impact of Esther's condition on her life?
  - a) She may become more independent as she learns to adapt to her limitations
  - b) She may withdraw from social activities, leading to increased stress, frustration, and emotional distress
  - c) Her condition will have no impact on her social life as long as she remains optimistic
  - d) Spinal stenosis primarily affects physical mobility and does not influence mental health
  
20. Which radiological sign is indicative of spondylolisthesis?
  - a) Forward displacement of a vertebra
  - b) Increased disc hydration
  - c) Posterior displacement of a vertebra
  - d) Decreased vertebral density
  
21. Which test is commonly used to diagnose sacroiliac joint dysfunction?
  - a) Patrick's (FABER) Test
  - b) Phalen's Test
  - c) Tinel's Sign
  - d) Spurling's Test
  
22. What is the most common cause of intervertebral disc prolapse?
  - a) Degenerative disc disease
  - b) Bacterial infection
  - c) Sudden high-impact trauma
  - d) Poor nutrition
  
23. What is a key rehabilitation goal after total hip arthroplasty?
  - a) Restoring functional mobility
  - b) Reducing body weight
  - c) Strengthening lower limb muscles
  - d) Progressive rehabilitation
  
24. Which of the following findings is most concerning in a patient with a spinal condition?
  - a) Progressive limb weakness and loss of sensation
  - b) Mild morning stiffness that improves with movement
  - c) Abnormal tone
  - d) Progressive weight gain

25. Which of the following is an important precaution after hip replacement surgery?
- a) Sleeping on the stomach
  - b) Walking without assistive devices immediately
  - c) Avoiding hip flexion beyond 90 degrees
  - d) Keeping legs crossed while sitting

26. What type of exercise is most beneficial in the early rehabilitation phase following an ACL reconstruction?
- a) Sprinting
  - b) Controlled Closed kinetic chain exercises
  - c) Isokinetic exercises
  - d) Plyometric training

A 55-year-old male patient presents with progressive knee pain, instability while walking, and a history of osteoarthritis.

27. Which of the following is the best long-term management option?

- a) Total knee arthroplasty
- b) Rest coupled with cryotherapy
- c) Use of knee braces for stability
- d) Quadriceps strengthening

28. What is a key goal of postoperative physiotherapy after orthopedic surgery?

- a) To return the patient to physical activities
- b) To ensure immobilization of the operated part
- c) To restore mobility and prevent complications such as deep vein thrombosis
- d) To reduce pain through controlled movement

29. What is the primary advantage of a compression brace?

- a) Completely immobilizes the affected joint
- b) Improves joint flexibility by increasing movement
- c) Provides support while enhancing circulation and reducing swelling
- d) Used exclusively in post-surgical rehabilitation

30. Which of the following is the most appropriate rehabilitation approach for a patient recovering from Achilles tendon repair?

- a) Gradual progressive weight-bearing combined with strength and flexibility exercises
- b) Immobilization for one month
- c) Early sprinting drills
- d) Only passive stretching without strengthening exercises

## **Section B**

### **Short Essay Questions (4 Marks Each)-Answer one question**

1. Explain the role of a physiotherapist in managing spinal conditions and improving mobility.
2. Describe the difference between cervical and lumbar spondylosis in terms of clinical presentation and management.
3. Discuss the importance of neurological assessment in diagnosing spinal conditions.
4. Explain the significance of pain education in musculoskeletal rehabilitation.
5. Describe the common postoperative physiotherapy interventions after total hip arthroplasty.

## **Section C**

### **Long Essay Questions (20 Marks Each)-Answer one question**

1. Describe the pathophysiology, clinical manifestations, and management of cervical spondylosis, including diagnostic and treatment approaches.
2. Discuss the role of imaging and clinical examination in diagnosing spinal conditions, comparing the use of X-rays, MRIs, and CT scans.
3. Explain the stepwise rehabilitation approach for a patient undergoing ACL reconstruction, covering preoperative, immediate postoperative, and long-term rehabilitation strategies.