AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCES

DEPARTMENT OF REHABILIATION MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF TRIMESTER EXAMINATIONS SEPTEMBER TO DECEMBER 2025

UNIT CODE: PHT 312

UNIT NAME: Sports physiotherapy 1 (Main exam)

DATE: 4th DECEMBER 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 10 including the cover.**
6. **Read through the paper quickly before you start.**

SECTION A – MULTIPLE CHOICE QUESTIONS (30 MARKS)

1. The main goal of sports physiotherapy is to:
   A. Enhance performance and prevent injuries through applied exercise science
   B. Treat injuries after competition only
   C. Focus solely on athlete rehabilitation post-surgery
   D. Improve muscle size regardless of function
2. An athlete who develops knee pain after increasing training volume suddenly most likely has:
   A. An acute traumatic injury
   B. An overuse or repetitive strain injury
   C. A systemic inflammatory disorder
   D. A ligamentous sprain due to twisting
3. The primary role of the physiotherapist in a multidisciplinary sports medicine team is to:
   A. Prescribe medication for pain relief
   B. Plan, implement, and monitor evidence-based injury prevention and rehabilitation programs
   C. Manage athletes' diets and hydration
   D. Serve as team coach
4. Which of the following training errors is most likely to cause tendinopathy?
   A. Gradual progression in load intensity
   B. High-frequency eccentric loading without adequate rest
   C. Balanced cross-training
   D. Alternating exercise modes appropriately
5. When applying cryotherapy after an acute soft-tissue injury, the key therapeutic effect is:
   A. Vasoconstriction reducing pain and swelling
   B. Vasodilation increasing inflammation
   C. Enhanced muscle tone
   D. Reduced blood pressure
6. Which of the following findings suggests a grade III muscle strain?
   A. Mild tenderness and no strength loss
   B. Partial tearing with moderate weakness
   C. Complete tear with significant loss of function
   D. Muscle spasm without structural damage
7. An athlete reports recurrent ankle instability. The most appropriate long-term intervention is to:
   A. Use rigid immobilization indefinitely
   B. Begin balance, proprioceptive, and functional training
   C. Focus solely on calf strengthening
   D. Discontinue sport permanently
8. Dynamic stretching before training primarily aims to:
   A. Increase muscle temperature and movement readiness
   B. Improve passive flexibility only
   C. Reduce cardiovascular load
   D. Induce relaxation before exercise
9. The isokinetic dynamometer in sports physiotherapy is mainly used to:
   A. Measure joint swelling

B. Objectively assess muscle strength and endurance under controlled speed
C. Determine oxygen uptake during training
D. Evaluate static posture

10. When evaluating an athlete with patellofemoral pain syndrome, the physiotherapist should assess:
    A. Quadriceps imbalance and lower limb alignment
    B. Only the knee joint in isolation
    C. Spinal flexibility
    D. Upper limb muscle strength
11. Delayed onset muscle soreness (DOMS) is mainly caused by:
    A. Lactic acid accumulation
    B. Microtrauma due to unaccustomed eccentric loading
    C. Protein deficiency
    D. Overhydration
12. A functional movement screen (FMS) helps physiotherapists to:
    A. Identify movement asymmetries and risk factors for injury
    B. Evaluate maximal muscle power
    C. Replace imaging techniques
    D. Determine resting metabolic rate
13. Which of the following demonstrates neuromuscular control?
    A. Coordinated muscle activation during landing
    B. Static strength without movement
    C. Passive stretching under supervision
    D. Manual therapy by the physiotherapist
14. Core stability enhances athletic performance by:
    A. Facilitating efficient force transfer between limbs and trunk
    B. Reducing flexibility and speed
    C. Replacing strength training entirely
    D. Acting only as a balance exercise
15. In the acute management of a hamstring strain, the physiotherapist should first:
    A. Apply the R.I.C.E. protocol and avoid early stretching
    B. Start resisted strengthening immediately
    C. Apply continuous heat to promote blood flow
    D. Use deep friction massage in the first hour
16. When assessing a shoulder impingement, which finding best confirms the diagnosis?
    A. Pain during resisted internal rotation
    B. Painful arc between 60°–120° of abduction
    C. Weakness in elbow flexion
    D. Decreased wrist mobility
17. Taping and strapping are most effective when:
    A. Applied correctly to support joint function without restricting performance
    B. Used permanently instead of rehabilitation
    C. Applied loosely to increase comfort
    D. Used only during warm-up
18. Which factor most influences flexibility?
    A. Muscle temperature and viscoelasticity

B. Skin color and hydration
C. Resting heart rate
D. Limb dominance

19. Plyometric training mainly improves:
A. Explosive strength and neuromuscular coordination
B. Static flexibility
C. Postural control in sitting
D. Cardiac endurance only

20. Proprioceptive retraining after ankle sprain enhances:
A. Joint position sense and neuromuscular stability
B. Muscle hypertrophy only
C. Flexibility of tendons
D. Static balance without feedback

21. In rehabilitation goal setting, short-term goals should:
A. Be specific, measurable, and progressive toward functional restoration
B. Focus on complete return to sport immediately
C. Be broad and motivational only
D. Ignore functional outcomes

22. A sports massage immediately after intense activity is primarily used to:
A. Promote recovery by improving circulation and reducing muscle tightness
B. Increase lactic acid retention
C. Induce sleep
D. Replace stretching sessions

23. Periodization in training allows:
A. Systematic variation in load and recovery to optimize performance and prevent overtraining
B. Continuous high-intensity workouts without rest
C. Random training schedules
D. Only skill practice without conditioning

24. Which of the following indicates successful rehabilitation outcome?
A. Restored pain-free function and sport-specific readiness
B. Absence of swelling alone
C. Completion of rest phase only
D. Reduced training frequency

25. The most reliable sign of concussion in an athlete is:
A. Headache and mild dizziness alone
B. Any transient loss of consciousness with post-event confusion
C. Elevated heart rate after exercise
D. Neck stiffness without trauma

26. In sports taping, tension must be adjusted primarily to:
A. Maintain circulation and allow functional movement
B. Create maximum compression
C. Prevent any motion at all
D. Ensure cosmetic appearance

27. When managing overuse injuries, the physiotherapist should first:
A. Analyze training loads, recovery, and technique errors

B. Apply deep tissue massage
C. Advise complete inactivity indefinitely
D. Focus on pharmacological pain relief

28. Hydration monitoring in athletes is best done by assessing:
    A. Body mass changes before and after training
    B. Sweat color
    C. Dietary logs
    D. Respiratory rate
29. Functional rehabilitation differs from basic exercise therapy in that it:
    A. Replicates sport-specific movement patterns under controlled progression
    B. Focuses solely on muscle hypertrophy
    C. Uses passive modalities only
    D. Occurs only after competition
30. The most important principle guiding sports injury rehabilitation is:
    A. Progressive overload respecting tissue healing and functional adaptation
    B. Immediate return to sport after pain reduction
    C. Training intensity irrespective of symptoms
    D. Rest alone without active recovery

SECTION B – SHORT ANSWER QUESTIONS (20 MARKS)

Answer ALL question only (4 Marks Each)

1. Explain the roles of a team physiotherapist before, during, and after a sports competition.
2. Describe four components of a pre-participation physical examination.
3. Explain how environmental factors can influence injury risk and athletic performance.
4. Describe the nutritional considerations for athletes during training and competition.
5. Outline the special considerations that a physiotherapist must take when managing youth and female athletes.

SECTION C – LONG ANSWER QUESTIONS (20 MARKS)

Answer ONE question only (20 Marks Each)

1. Discuss the components of Sports Rehabilitation following a musculoskeletal injury as follows:

a) Stages of rehabilitation (8 Marks)

b) Objectives and physiotherapeutic techniques used at each stage. (8 Marks)

c) Importance of monitoring and progression criteria. (4 Marks)

2. As a team physiotherapist, outline the planning, preparation, and management strategies you would employ when traveling with a sports team for an international competition as follows:

a) Medical screening and documentation (5 Marks)

b) Equipment and supplies preparation (5 Marks)

c) Injury-prevention programs (5 Marks)

d) Nutritional and environmental considerations. (5 Marks)

PAPER B – SUPPLEMENTARY / SPECIAL EXAMINATION

SECTION A – MULTIPLE CHOICE QUESTIONS (30 MARKS)

1. The primary objective of a pre-participation physical examination (PPE) is to:
   A. Identify musculoskeletal and medical conditions that may predispose an athlete to injury
   B. Determine the athlete's eligibility for scholarship awards
   C. Assess only cardiovascular endurance
   D. Estimate performance potential
2. An effective warm-up before training mainly enhances performance by:
   A. Inducing early fatigue for quicker adaptation
   B. Increasing muscle temperature and improving neuromuscular coordination
   C. Decreasing metabolic rate before exertion
   D. Reducing joint lubrication
3. Sports injury prevention programs are most effective when they:
   A. Are implemented only after injuries occur
   B. Integrate conditioning, flexibility, and neuromuscular control exercises
   C. Focus solely on aerobic fitness
   D. Exclude load monitoring
4. Which of the following mechanisms most commonly causes an anterior shoulder dislocation?
   A. Excessive external rotation and abduction

B. Direct posterior blow on a flexed elbow
C. Axial compression during adduction
D. Forced internal rotation

5. The R.I.C.E. protocol is most beneficial when applied:
   A. Within the first 24–48 hours of an acute injury
   B. After inflammation has subsided completely
   C. Only during rehabilitation exercises
   D. Before competition to reduce fatigue
6. A grade II ligament sprain typically involves:
   A. Mild stretching of ligament fibers with no instability
   B. Partial tearing of fibers with moderate functional loss
   C. Complete rupture with joint dislocation
   D. Muscle fiber strain only
7. The most appropriate criterion for an athlete's safe return to play is:
   A. Absence of pain alone
   B. Restored strength, range of motion, and sport-specific function
   C. Completion of rest period regardless of symptoms
   D. Coach's subjective judgment
8. Eccentric muscle contractions are essential in sports because they:
   A. Increase joint stability and control during deceleration
   B. Reduce muscle control during landing
   C. Promote relaxation before movement
   D. Prevent force absorption in dynamic motion
9. In rehabilitation planning, functional progression should:
   A. Follow a structured sequence from basic mobility to sport-specific activities
   B. Begin with maximal resistance exercises immediately
   C. Omit proprioceptive retraining until late recovery
   D. Be random to enhance adaptation
10. When designing a rehabilitation program after ACL reconstruction, the physiotherapist should prioritize:
    A. Strengthening quadriceps without knee control
    B. Gradual loading guided by tissue healing phases and functional assessment
    C. Early return to sport without testing
    D. Immobilization for over six weeks
11. An athlete with delayed onset muscle soreness (DOMS) after intense eccentric training should:
    A. Stop all activity for a week
    B. Use active recovery and gradual reloading
    C. Apply deep tissue massage immediately
    D. Begin maximal strength testing
12. Overtraining syndrome can best be prevented through:
    A. Structured periodization with planned rest and monitoring of recovery
    B. Continuous high-intensity training without deloading
    C. Nutritional supplementation alone
    D. Short-term increased workload without evaluation

13. When performing functional assessment, the physiotherapist emphasizes:
    A. The athlete's ability to execute sport-specific movements safely and efficiently
    B. Range of motion only
    C. Muscle bulk measurement
    D. Static balance testing in sitting position
14. Core stability training enhances athletic performance primarily by:
    A. Improving force transmission and postural control during movement
    B. Isolating superficial trunk muscles
    C. Reducing limb flexibility
    D. Replacing cardiovascular training
15. Which of the following evaluation principles is most important for valid injury assessment?
    A. Systematic observation, palpation, and functional testing sequence
    B. Immediate imaging before history taking
    C. Assessment only after swelling resolves
    D. Focusing on pain description without physical exam
16. When preventing sports injuries in youth athletes, the most critical strategy is to:
    A. Emphasize skill repetition with minimal rest
    B. Apply age-appropriate training load and gradual progression
    C. Encourage competition against older players for growth
    D. Use identical training volumes for all team members
17. Stability of the glenohumeral joint during overhead activities depends primarily on:
    A. Static ligamentous structures
    B. Rotator cuff muscle activation and neuromuscular control
    C. Scapular retraction alone
    D. Deltoid strength without scapular stabilization
18. A positive Lachman test suggests:
    A. Partial injury to the posterior cruciate ligament
    B. Involvement of the anterior cruciate ligament causing anterior tibial translation
    C. Injury to the medial collateral ligament
    D. Tear of the lateral meniscus affecting tibial rotation
19. Tendinopathy in a long-distance runner most likely results from:
    A. Direct trauma to the tendon
    B. Excessive eccentric loading without adequate recovery
    C. Acute ligament rupture
    D. Repetitive passive stretching of the joint capsule
20. In the first 24 hours after an ankle sprain, the physiotherapist's priority intervention is:
    A. Compression and elevation to minimize oedema
    B. Heat application to enhance blood flow
    C. Early resistance exercises for strength recovery
    D. Massage to improve flexibility immediately
21. During a 100-meter sprint, the predominant energy system used is:
    A. Anaerobic glycolysis
    B. Phosphagen (ATP-PC) system
    C. Aerobic oxidative phosphorylation
    D. Lactate buffering system

22. Mental imagery in athletic preparation primarily enhances:
    A. Reaction time through improved neuromuscular strength
    B. Performance confidence and focus under competitive stress
    C. Cardiovascular endurance during maximal effort
    D. Muscle hypertrophy during conditioning phases
23. Compared to open-chain movements, closed-chain exercises provide greater:
    A. Joint isolation for single muscle activation
    B. Proprioceptive feedback and joint compression stability
    C. Mobility and reduced joint load
    D. Flexibility without weight-bearing demand
24. When managing heat exhaustion on-field, the most effective immediate measure is to:
    A. Move athlete to shade, initiate rehydration, and apply active cooling
    B. Administer electrolyte drinks only after 30 minutes
    C. Apply hot packs to prevent shivering
    D. Resume play once sweating stops
25. Among macronutrients, fats are most energy-dense because they:
    A. Contain more hydrogen bonds yielding higher ATP per molecule
    B. Are digested faster than carbohydrates
    C. Are stored with minimal water
    D. Convert directly to glycogen
26. The Female Athlete Triad is best characterized by the interaction among:
    A. Reduced caloric intake, menstrual dysfunction, and low bone mineral density
    B. Excess protein intake, amenorrhea, and muscle hypertrophy
    C. Dehydration, menstrual pain, and stress fractures
    D. Calcium deficiency, overtraining, and reduced performance
27. In preparing a team first-aid kit for outdoor tournaments, the physiotherapist should include:
    A. Elastic wraps, antiseptic, gloves, and instant cold packs
    B. Only diagnostic tools such as sphygmomanometers
    C. Supplemental energy drinks and nutrition bars
    D. Whistles, cones, and referee cards
28. A positive Thomas test indicates:
    A. Tightness in the hip flexors restricting hip extension
    B. Contracture of hamstrings limiting knee flexion
    C. Weakness of gluteal muscles affecting balance
    D. Instability of the sacroiliac joint
29. The primary purpose of prophylactic taping is to:
    A. Support injured tissue while allowing functional movement
    B. Completely restrict joint motion
    C. Improve aesthetic appearance of the joint
    D. Replace proper rehabilitation exercises
30. When accompanying a team abroad, the physiotherapist's most critical nutrition-related role is to:
    A. Coordinate individualized hydration and meal plans suitable to the climate
    B. Encourage athletes to sample new local diets

C. Reduce carbohydrate intake to avoid bloating
D. Eliminate snacks to maintain discipline

SECTION B – SHORT ANSWER QUESTIONS (20 MARKS)

Answer ALL question only (4 Marks Each)

1. Explain the importance of acclimatization when athletes travel to compete at high altitude or in extreme heat.
2. Discuss the roles of nutrition in the recovery and performance of athletes.
3. Describe the main differences between sprains, strains, and contusions.
4. Explain the benefits and limitations of taping and strapping as injury-prevention techniques.
5. Outline the special considerations when managing sports injuries in older athletes.

SECTION C – LONG ANSWER QUESTIONS (20 MARKS)

Answer ONE question only (20 Marks Each)

1. Discuss the evaluation and management of a sprained ankle sustained during a football match. Describe the application of the TOTAPS procedure in your answer.
2. Discuss the preventive and treatment strategies used in managing sports injuries, giving examples from at least three types of sports.