



AMREF INTERNATIONAL UNIVERSITY

SCHOOL OF MEDICAL SCIENCE

DEPARTMENT OF REHABILITATION MEDICINE

BACHELOR OF SCIENCE IN PHYSIOTHERAPY

END OF MAY-AUGUST 2026 TRIMESTER EXAMINATIONS

UNIT CODE: PHT 311 UNIT NAME: Clinical reasoning (Main Exam)

DATE: 6th/ Aug/ 2026

TIME: TWO HOURS

START: 6:00PM STOP : 8:00PM

INSTRUCTIONS (physical exams)

1. Do not write on this question paper

(Marks and questions distribution as per program curriculum.)

INSTRUCTIONS (Online examinations)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This online exam shall take 2 Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam

10. In case you have any questions call the invigilator for this exam on Tel. 0705833434 and or the Head of Department on Tel 0720491032
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

SECTION A. MULTIPLE CHOICE QUESTIONS

1. A physical therapist is conducting a subjective examination on a patient with chronic low back pain. The therapist notices that whenever they discuss reducing sedentary behaviors, the patient crosses their arms, looks away, and raises their voice slightly. Which of the following is the most appropriate immediate action for the therapist to take?
 - A. Document these behaviors as definite negative indicators of psychological yellow flags requiring a formal psychology referral.
 - B. Ignore these behaviors to maintain therapeutic alliance and proceed directly to the objective physical examination.
 - C. Recognize these social cues as signals of discomfort and skilfully adjust the current approach or manner of interaction.
 - D. Use a highly specific test immediately to rule out a major underlying personality disorder driving the behaviour.
2. During a subjective examination, a patient with knee osteoarthritis states they are unmotivated to perform cardiovascular exercise because they "just don't see the point." Which of the following describes the best response required from the physiotherapist?
 - A. Present the latest high-level research proving that a lack of cardio will accelerate joint degeneration and increase mortality risk.
 - B. Explore alternative values the patient holds, such as reducing daily stress or improving sleep quality, and connect exercise to those values.
 - C. Accept that the patient is in the action phase of the change cycle and move on to prescribing a rigorous home exercise program.
 - D. Pivot to an auditory learning style explanation, utilizing anatomical models to show why cardiovascular health protects the knee joint.

3. An orthopedic manual therapist is trying to establish a strong therapeutic alliance with a newly admitted patient reporting complex shoulder pain. Which of the following behavior best demonstrates the highest operational level of connection needed to optimize the patient's prognosis?
- A. Expressing deep sympathy by telling the patient how bad the therapist feels for their structural limitations.
 - B. Employing empathy by purely attempting to imagine what it feels like to walk in the patient's shoes.
 - C. Demonstrating compassion by recognizing the patient's suffering and actively committing to a tailored plan to address it.
 - D. Directing the patient to independent online reading modules to match an assumed adult learning style.
4. A physical therapist is evaluating a patient with lumbar radiculopathy. While reviewing the time behavior of symptoms, the therapist decides to look beyond just the standard "time of day" behavior and asks the patient if their pain shifts based on the time of the week, month, or year. What is the clinical reasoning purpose of thinking in these progressively larger increments of time?
- A. To mathematically calculate the pre-test probability of non-indicated imaging errors.
 - B. To assist in uncovering hidden symptom patterns related to wider systemic factors like stress, weather, or the GI and reproductive systems.
 - C. To bypass the narrative reasoning stage and establish an immediate path toward highly specific diagnostic testing.
 - D. To verify whether the patient's cognitive reading level falls precisely between the seventh and eighth-grade averages.
5. A physical therapist utilizes a special orthopedic screening test that is known to possess very high sensitivity but low specificity. If the patient tests negative on this highly sensitive screening tool, how should the clinical reasoner interpret this result?
- A. The result is highly trustworthy, meaning the therapist can comfortably trust that the specific pathology is absent.
 - B. The result is highly untrustworthy, meaning the therapist must immediately order a highly specific biopsy to confirm.
 - C. The result is highly trustworthy for ruling in the condition, establishing an immediate need for an urgent medical referral.

- D. The result is inconclusive because highly sensitive tests only have clinical value when their results are positive.
6. A patient presenting with low back pain reports a Fear-Avoidance Beliefs Questionnaire (FABQ) score of 18. Which of the following is the most appropriate management strategy?
- A. Stop the examination immediately, initiate an urgent medical referral, and refuse treatment until a clear MRI is provided.
 - B. Strictly instruct the patient to "never bend your back" under any circumstance to prevent reinforcing their generalized pain disorder.
 - C. Utilize a clinical approach that directly works through the fear avoidance the patient is experiencing, as it is generally safe to continue PT.
 - D. Order immediate routine imaging to improve the patient's overall sense of well-being and lower their anxiety.
7. A 22-year-old collegiate baseball pitcher presents with acute shoulder pain that started during the 7th inning of a game after he threw 50 pitches more than his typical limit. He denies any specific pop, collision, or fall. According to the clinical reasoning framework for classifying the mechanism of injury, how should this onset be categorized?
- A. Microtraumatic, because it was caused by repetitive throwing over a lifetime of pitching.
 - B. Macrotraumatic, because there was a substantial, acute increase in load over a short period of time leading to immediate symptoms.
 - C. Insidious, because there was no external contact or traumatic collision (like an anvil or slide tackle) to initiate the pain.
 - D. Status post-injury combination, because it represents an unknown underlying degenerative state mixed with normal training loads.
8. A physical therapist is evaluating a patient and writing a working diagnosis using the Jackson Clinics Residency movement diagnosis framework. The therapist writes: "Patient presents with left glenohumeral and scapular instability with left rotator cuff weakness." Which essential element is missing from this movement diagnosis that would significantly weaken its clinical utility and communication value?
- A. Laterality and specific anatomical structures.
 - B. Clear magnitude, direction, and the key activity limitation or participation restriction.
 - C. A clear distinction between intraarticular and extraarticular structures.
 - D. The precise medical pathoanatomic classification code.

9. A patient presents with a highly irritable musculoskeletal condition. The physical therapist notes that the patient has a very narrow optimal loading zone and everything seems to hurt, with pain staying severe long after an examination item is performed. What is the primary risk of conducting a vigorous biomechanical examination on this patient?
- A. It will prematurely push the patient from an acute stage into a chronic, degenerative phase of healing.
 - B. It will trigger centrally mediated conditions such as kinesiophobia, fear avoidance, or secondary gain.
 - C. It will erode the reliability and validity of subsequent examination items because symptoms linger and cloud the clinical picture.
 - D. It will cause an immediate conversion of mechanical symptoms into permanent chemical radiculopathies.
10. A runner is diagnosed with a traumatic tendon injury of the lower extremity. The injury occurred exactly 2 weeks ago. According to the tissue-specific healing guidelines, what is the status of the collagen at this point, and how should it guide your objective exam and treatment planning?
- A. Fibroblasts are actively laying down disorganized collagen in the gap, and the tissue is vulnerable; loading should be minimized or avoided until about 1 month post-injury.
 - B. The remodeling phase has peaked, meaning type 3 collagen has completely converted to type 1; aggressive plyometric loading should begin immediately.
 - C. The tissue has entered a degenerative phase because normal tendon healing concludes its reparative phase by day 7.
 - D. A robust vascular network has fully matured, meaning the tendon can tolerate near-maximal eccentric loads without protection.
11. A patient is 8 months post-injury following a severe Grade III ligament sprain. They ask why they are still performing reflexive and agility training when they feel their muscle strength has recovered. Based on ligament healing timelines, which statement provides the most accurate clinical justification?
- A. The ligament is fully healed by month 6, but reflexive training is required to reverse secondary centrally mediated chronic fibromyalgia.
 - B. Ligament remodeling is notoriously prolonged, and at 6–12 months, strength may only be 50% to 70% of normal; muscle contraction provides the primary protective barrier.
 - C. Without reflexive training, the ligament will revert to an acute inflammatory phase characterized by rebound vasodilation.

- D. The ligament has entered a degenerative phase, and underloading it will cause the scar density to decrease.
12. A patient presents to your clinic with a musculoskeletal complaint following a traumatic injury. They bring a copy of a negative radiograph (X-ray) taken yesterday. The patient's symptoms do not add up, and they are not progressing as expected based on standard soft tissue timelines. Which of the following tissue injury should you consider as a potential underlying cause, and why?
- A. Bone fracture; because bone is completely radiolucent and never shows up on an X-ray until 6 to 8 weeks of healing have passed.
 - B. Articular cartilage injury; because articular cartilage is radiolucent, and injuries can be missed on standard radiographs.
 - C. Myotendinous junction tear; because a negative radiograph confirms that the fibrin clot has failed to form.
 - D. Peripheral nerve neurotmesis; because X-rays only detect nerve damage if Wallerian degeneration has occurred.
13. A physical therapist determines that a patient's condition is characterized as subacute with moderate irritability, and the involved tissue is currently in the late reparative or early remodeling phase of healing. According to the clinical reasoning form guidelines, which phase of treatment is most appropriate, and what are its requirements?
- A. Phase 1; requires maximal tissue protection to eliminate pathological insult.
 - B. Phase 2; requires moderate tissue protection, such as a brace, corset, taping, or a sling.
 - C. Phase 3; indicates minimal need for external support, where patients are educated to control symptoms via posture or muscle recruitment.
 - D. Phase 5; requires no home exercise program and an immediate return to the general populace.
14. During a passive range of motion assessment in an objective examination, the physical therapist notes that the patient's movement exhibits an "empty" end-feel, and symptoms are provoked prior to reaching the first point of tissue resistance. The symptoms also linger long after the stimulus is removed. These findings are telltale signs of which stage of a condition?
- A. Chronic stage, where symptoms are ongoing despite adequate completion of healing.

- B. Subacute stage, where signs reflect a recently resolved inflammatory phase.
 - C. Degenerative stage, where consistent underloading has altered tissue properties.
 - D. Acute stage, which is dominated by the inflammatory stage of healing and chemically dominant symptoms.
15. A physical therapist is evaluating a patient with sharp lower back pain. Based on the subjective intake, the therapist hypothesizes a lower lumbar facet arthropathy, noting that the patient is highly fearful, highly severe, and highly irritable. To optimize the therapeutic alliance and manage tissue tolerance, which of the following objective assessment strategies should be chosen first on Day 1?
- A. Immediately perform passive overpressure into lumbar extension to rule in the facet hypothesis via research-driven validation.
 - B. Utilize open-ended questioning to explore the patient's fears, ease into testing by offloading the irritable tissue, and delay highly provocative tests.
 - C. Perform an exhaustive static and dynamic posture analysis across all planes to ensure a comprehensive movement baseline before treatment.
 - D. Conduct a rapid, mid-range manual muscle brake test of the trunk stabilizers to determine if muscular weakness is driving the structural facet overload.
16. A patient presents with a visible lateral shift during static standing observation. According to the principles of objective examination outlined in the text, this posture serves as a primary visual demonstration of which mechanical force acting on the patient's body segments?
- A. Compression force
 - B. Tension force
 - C. Shear force
 - D. Non-musculoskeletal force
17. During a gait and posture assessment, a physical therapist considers why a patient with hypothyroidism exhibits severe fatigue and altered movement mechanics. Failing to analyse how the endocrine system creates these adaptive or maladaptive movement responses represents a clinical reasoning pitfall by ignoring which component?
- A. The physiological functions and central nervous system interactions of the movement system.
 - B. The isolated pathoanatomic tissue-level structural failure.
 - C. The environmental and ergonomic constraints of the locomotive task.
 - D. The pre-test probability of a non-musculoskeletal referral.

18. During an active range of motion assessment of the lower extremity, the therapist observes that when the patient extends their knee in a seated position, their pelvis automatically tilts posteriorly. This specific movement quality finding is an explicit demonstration of:
- A. Normal lumbopelvic rhythm during open-kinetic chain tasks.
 - B. Poor dissociation of the knee from the pelvis.
 - C. An aberrant movement deviation out of the primary cardinal plane.
 - D. Decreased tissue sustainability due to localized vascular transport failure.
19. When assessing joint accessory mobility, the physical therapist applies overpressure to simulate arthrokinematics. The therapist finds that the tissue barrier comes on much earlier than anticipated, and the sensation imparted to the examiner's hands is significantly firmer than normal. Which grade of end feel should be documented?
- A. Hypermobility
 - B. Normal springy
 - C. Empty
 - D. Hypomobility
20. During an initial evaluation, a patient states, "I just want to be able to walk to my mailbox and back without severe left buttock pain." The therapist notes this down as a Patient Identified Problem (PIP). Why is it critical for the therapist to explicitly link their subsequent Nonpatient Identified Problems and interventions back to this specific complaint?
- A. To fulfill the legal requirements of the thorough care checklist
 - B. To ensure the treatment focuses solely on subjective complaints rather than objective impairments
 - C. To secure patient buy-in for the plan of care by keeping interventions visibly relevant to the patient's goals
 - D. To establish a statistically reliable test-retest construct for joint specificity
21. Which of the following examples best demonstrates a correctly formulated and well-constructed Nonpatient Identified Problem?
- A. Impaired motor control of the lumbar spine during transitional movements
 - B. Hypomobility L4-L5 left facet joint with closing maneuvers
 - C. Stiff lower back joints secondary to age-related degenerative disc disease
 - D. Patient is unable to walk upstairs due to fear-avoidance behaviors
22. A clinician identifies four distinct Nonpatient Identified Problems (NPIPs) during an objective exam. What three factors should guide the therapist when organizing these NPIPs into a prioritized order?

- A. Chronological order of onset, tissue healing timelines, and modalities available
 - B. Severity of the precipitating event, patient's age, and the thorough care checklist column definitions
 - C. Most important contributors to the condition, alignment with patient perspective/context, and therapist confidence to impact them
 - D. Insurance coverage limits, anatomical depth of the tissue, and diagnostic reliability coefficients
23. A physical therapist decides that a patient with a prioritized NPIP would benefit from practicing safe ergonomics and performing functional movements like bending and lifting. Under which broad genre of intervention—or "strategy"—does this fall?
- A. Therapeutic exercise
 - B. Neuromuscular re-education
 - C. Therapeutic activity
 - D. Manual therapy
24. A patient demonstrates poor coordination and altered muscle firing patterns during a functional squatting progression. The therapist decides to utilize manual and verbal cueing for muscle activation and inhibition during the movement. Which strategy from the clinical reasoning framework is being applied?
- A. Therapeutic exercise
 - B. Neuromuscular re-education
 - C. Therapeutic activity
 - D. Education
25. A therapist is reviewing the documentation of a colleague who wrote the following intervention plan: "Strategy: Therapeutic Exercise. Tactic: Lower trunk rotations." Based on the clinical reasoning principles for documenting tactics, what vital information is missing?
- A. The specific anatomical tissue targeted and its relative diagnostic value
 - B. The specific technique, the position administered, and the exact dosage
 - C. The patient's subjective response and the corresponding billing code
 - D. The classification of the movement as either an active or passive strategy
26. If a patient is not making progress or resolving their NPIP after an intervention has been delivered, what should the clinician do first before completely abandoning the chosen tactic for a brand new one?
- A. Change the overarching clinical strategy entirely (e.g., switch from Therapeutic Exercise to Modalities)

- B. Refer the patient immediately to an emergency department for urgent medical screening
 - C. Modify the position or the dosage of the currently applied tactic
 - D. Transition the NPIP into a Patient Identified Problem (PIP) to reset expectations
27. The clinical reasoning framework emphasizes establishing a post-test (or test-retest) after administering a tactic. Ideally, who should be able to observe these reassessment measures, and why?
- A. Only the physical therapist, to maintain clinical objectivity and reduce bias
 - B. The patient, so the therapist and patient can jointly assess progress and celebrate success
 - C. An independent third-party reviewer, to ensure proper utilization of the thorough care checklist
 - D. The referring physician, to justify the administration of passive modalities
28. A physical therapist determines that a patient's lumbar condition requires diagnostic imaging and potential medical intervention in conjunction with physical therapy. Which strategy should be explicitly selected on the clinical reasoning form?
- A. External Support
 - B. Modalities
 - C. Referral
 - D. Education
29. During a 90-minute treatment session, you have your patient perform 12 minutes of true cardiovascular exercise. To properly screen for abnormal cardiovascular status and observe the physiological response to exercise, when should blood pressure be measured?
- A. Immediately before the 90-minute session begins and immediately after the final mobility work.
 - B. Midway through the cardiovascular exercise and 5 minutes after it is completed.
 - C. Immediately prior to starting the cardio and immediately upon completing the cardio, before transitioning to core exercises.
 - D. Only after the patient reports experiencing fatigue or discomfort during the session.
30. During a manual therapy intervention for a patient with shoulder impingement, the patient feels mild discomfort. what clinical finding indicates that the current dosage is appropriate and the tissue is not overly irritable?
- A. The symptoms completely resolve within 30 seconds following the completion of the intervention.
 - B. The symptoms disappear immediately when the therapist changes the technique.

- C. The symptoms remain stable for up to 5 minutes post-intervention before gradually fading.
- D. The patient experiences zero symptoms during the application of the manual technique.
31. A patient returns for treatment 48 hours after a session where the therapist aggressively loaded their patellar tendon. The patient reports that their knee pain has been significantly elevated for the last 36 hours but is finally starting to return to baseline today. What is the correct clinical interpretation based on the soreness rules?
- A. The tissue's absolute load tolerance was exceeded, and the dosage must be drastically reduced.
- B. The dosage successfully tested the edges of the optimal loading zone, and slightly increased symptoms for 24 to 36 hours are an acceptable part of the process.
- C. The tissue is highly irritable, and the therapist should prematurely abandon the current treatment strategy.
- D. The intervention was underdosed because the symptoms did not persist for a full 48 hours.
32. A therapist administers posterior pelvic tilts to improve lumbar mobility, but the post-test shows no improvement. Following the Hypothesis-Oriented Algorithm for Clinicians (HOAC) framework, what is the very first step the therapist must take?
- A. Increase the dosage by adding more repetitions to ensure the tissue wasn't under dosed.
- B. Transition to a motor-control strategy using neuromuscular re-education.
- C. Critically evaluate their own technique and determine if it was applied perfectly or needs modification.
- D. Reject the primary clinical hypothesis and formulate an entirely new plan of care.X
- ANSWER:
33. A therapist is treating a patient in the late stages of rehabilitation for a chronic ankle instability condition. The tissue irritability is low. How does this affect the patient's "optimal loading zone" and the therapist's tactical goals?
- A. The optimal loading zone is narrow, meaning the therapist must drastically reduce the frequency of visits.
- B. The optimal loading zone narrows, requiring the therapist to strictly focus on symptom control.
- C. The optimal loading zone is wider and taller, allowing the therapist to stress the system and tissue harder without crossing into overload.

- D. The optimal loading zone stays completely static, but the system capacity decreases due to environmental factors.
34. A patient recovering from an ACL reconstruction demonstrates proper form performing a single-leg squat. However, when asked why they are performing 3 sets of 10 repetitions, they state, "I just do what the printout says." Based on the self-efficacy criteria, what component of knowledge is missing?
- A. The technical skill required to modify the exercise if it becomes painful.
 - B. The understanding of how to use external tools to complete the home program.
 - C. The fundamental knowledge of why they are doing that specific number of repetitions.
 - D. The ability to achieve age- and gender-matched performance norms.
35. A physical therapist is reviewing a patient with knee osteoarthritis with a view to discharge them. To prove the patient is ready for discharge, the therapist must verify that the patient can do all of the following regarding their home exercises EXCEPT:
- A. Correctly administer and perform the required exercises.
 - B. Recognize exactly when an exercise needs to be modified.
 - C. Successfully modify the exercises as needed based on their symptoms.
 - D. Perform maximal volitional isometric testing independently without equipment.
36. A patient who has met all physical goals for a cervical strain mentions they are still highly anxious about re-injury when driving. Which domain must the therapist influence and consider before declaring the patient fully ready for discharge?
- A. Neuropathic risk factors
 - B. Social networks and practice promotion
 - C. Cognitive, emotional, and comorbid factors
 - D. Age- and gender-matched performance ratios
37. A physical therapist wants to ensure a patient has achieved full self-efficacy regarding symptom control before discharge. What three questions must the patient be able to answer correctly about their home management activities?
- A. What is my diagnosis, how long will it take to heal, and who should I call if it hurts?
 - B. Why am I doing this activity, why am I doing this many, and how will I know if it's working?
 - C. What are the age norms, what are the gender norms, and what was my baseline score?
 - D. How do I modify it, when do I stop it, and where do I buy the equipment?
38. A patient with lumbar radiculopathy is nearing the end of their plan of care. They have excellent mechanical range of motion but still struggle with intermittent burning pain due to persistent

nerve root hypersensitivity. Which of the following factor must the therapist ensure has been specifically managed prior to discharge?

- A. Volitional isometric adaptations
 - B. Aerobic capacity deficits via formal VO2 Max testing
 - C. Neuropathic factors
 - D. Promotion of the practice to co-workers.
39. A therapist is designing a home program for a patient with hip impingement. The patient demonstrates excellent skill in performing the exercises but states they do not know how to tell if the exercises are actually helping their condition. Which criteria from the Thorough Care Checklist has the therapist failed to establish?
- A. The transfer of knowledge regarding how the patient can know if the activity is working.
 - B. The assessment of reasonable anticipated problems.
 - C. The matching of age and gender norms for hip stability.
 - D. The consideration of environmental and comorbid factors.
40. A patient has achieved all functional goals but is highly likely to encounter heavy lifting demands at their new job next month. To ensure a robust discharge plan, the therapist addresses these future physical challenges. These actions represents which component of the text's discharge criteria?
- A. Transitioning the patient to a primary care physician
 - B. Assessing age- and gender-matched McGill-Cohr ratios
 - C. Addressing reasonable anticipated problems
 - D. Fulfilling the operational definitions of the social network
41. When should a therapist form the working hypothesis?
- A. Upon obtaining the patient history.
 - B. After hearing the patient's complaints.
 - C. After doing the exam.
 - D. After a trial treatment.
42. The patho-anatomic hypothesis describes:
- A. The diagnosis.
 - B. The tissue involved.
 - C. The direction of treatment.
 - D. The mechanism of injury
43. The irritability of symptoms refers to:
- A. Intensity of the symptoms.
 - B. The ease of increasing symptoms.
 - C. The extent of the injury.

D. The likelihood of recovery.

Question: Our goal is to increase ROM and increase weight bearing tolerance. To achieve this goal we choose a strategy of gentle manual therapy to improve posterior glide of the talus and standing mini squats to increase weightbearing tolerance and improve ROM. We ask for three sets of ten mini-squats

44. A good pre-test would be:
- A. MMT
 - B. Walking tolerance test
 - C. Goniometric measurements
 - D. Berg balance testing
45. Following the mini-squats patient reports increased pain and we do not see a change in ROM or strength. We should:
- A. Stop treatment and go back to rest.
 - B. Continue present program: no pain, no gain
 - C. Change our goal, patient not ready for increased ROM.
 - D. Change our tactics.
46. A patient describes hand pain on the hemiplegic side after a stroke. How would you classify the nature of their condition?
- A. Central
 - B. Neuro
 - C. Shear
 - D. Tension
47. A Patient has torn their MCL during a sporting event. How would you classify their patho-anatomic hypothesis?
- A. Contractile
 - B. Intra-articular
 - C. Compression
 - D. Non-Contractile
48. Which of the following describes a HIGH irritability condition?
- A. Pain with PROM prior to R1
Pain with PROM at R1
 - B. Pain with PROM after R1
49. Which of the following describes a LOW irritability condition?
- A. Chemically mediated symptoms
 - B. Mechanically mediated symptoms
 - C. Pain lingering for 1 minute after PROM
 - D. Limited ROM due to fear of pain

50. Which Phase of Treatment requires maximal tissue protection?

- A. Phase 1
- B. Phase 2
- C. Phase 3
- D. Phase 4

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