



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF MAY-AUGUST 2024 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 311 UNIT NAME: CLINICAL REASONING (FRESH ENTRY)

**DATE: WEDNESDAY/ 14TH / AUGUST
TIME: TWO HOURS
START: 11:15AM STOP : 1:15PM**

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. Attempt all the questions (30 Marks)

1. Which of the following BEST describes clinical reasoning?
 - A. The ability to memorize large amounts of medical data
 - B. It is a complex cognitive process leading to meaningful interpretation of patients' problems and formulation of an effective management plan.
 - C. The act of following pre-defined treatment plans for common illnesses
 - D. The way a therapist clinically reasons their findings has got no influence how the case is interpreted
2. Which of the following is NOT a domain of clinical reasoning?
 - A. Clinical reasoning concepts
 - B. Evidence based history and examination
 - C. Shared decision making
 - D. Disregarding diagnostic test for patients' assessments
3. Which of the following biases accords the physiotherapist the tendency to give weight to the events that has happened recently regardless of the risk factor during the clinical reasoning process.
 - A. Availability bias
 - B. Recency bias
 - C. Premature closure bias
 - D. Confirmation bias
4. Which of the following is NOT a benefit for hypothetical-deductive reasoning in clinical reasoning?
 - A. It leads to more individualized treatment to patients' specific needs and responses
 - B. Improves diagnostic accuracy by guiding data collection, ensuring a thorough evaluation
 - C. It constantly generates and test new hypotheses over and over which can be time consuming
 - D. The ability to continuously refine hypotheses allows the physiotherapist to adjust the treatment as needed, leading to better outcomes

5. A physiotherapist is evaluating a patient with knee pain. They initially form a hypothesis about the cause based on the patient's symptoms. What is a potential disadvantage of relying solely on a hypothetico-deductive approach in this scenario?
 - A. It may overlook unexpected or rare causes of knee pain.
 - B. It requires a significant amount of time to formulate a hypothesis.
 - C. It can be emotionally taxing for the physiotherapist.
 - D. It is not effective for diagnosing chronic pain.

6. A 52-year-old woman walks into a physiotherapy clinic complaining of sharp pain in her right knee, particularly when going down stairs. She reports no recent injuries but has a history of working as a mail carrier for 20 years. The physiotherapist observes the woman's gait and notices a slight limp favoring the right leg. Based on pattern recognition, the physiotherapist develops several initial hypotheses about the woman's knee pain. Which of the following is LEAST likely on the physiotherapist's initial list of hypotheses?
 - A. Patellofemoral Pain Syndrome
 - B. Osteoarthritis of the knee
 - C. Ligament sprain in the knee
 - D. Plantar fasciitis

7. What is one of the disadvantages of pattern recognition systems?
 - A. Pattern recognition can be fooled by very similar but not identical patterns.
 - B. It is a system often require a large amount of data to function accurately.
 - C. It is a system cannot explain their reasoning behind identifying a pattern.
 - D. All the above

8. Which of the following is not a component of collaborative reasoning?
 - A. Shared knowledge
 - B. Closed communication
 - C. Goal setting
 - D. Treatment negotiations

9. The following steps in no specific order are used when making initial diagnosis using the hypothetical- deductive reasoning approach. Which one is NOT?
 - A. Observation and Initial Hypothesis
 - B. Deduction and Prediction
 - C. Referral of the patient to other personnel

D. Testing the Hypothesis

10. Narrative model of clinical reasoning has several strategies. Which one of the following is NOT one of those strategies?
- A. Active listening
 - B. Statistical reasoning
 - C. Reflection
 - D. Open-ended questions
11. Which of the following best defines the term, hypothesis in clinical reasoning in physiotherapy?
- A. A definitive diagnosis based on subjective assessment.
 - B. A standardized treatment plan for a specific condition.
 - C. A tentative explanation for a phenomenon that is based on clinical observation and assessment and that can be tested
 - D. A summary of information collected during the objective assessment.
12. A 25-year-old female patient presents with chronic low back pain for the past 6 months. The pain is worse with prolonged sitting and improves with walking. She denies any history of trauma or falls. Examination reveals, patient has decreased lumbar spine range of motion (flexion and extension), tenderness to palpation on the left paraspinal muscles and positive straight leg raise test on the left side at 60 degrees. From the above history, the physiotherapist develops two hypothesis;
- a) Lumbar disc herniation (LDH): Probability estimated at 30% based on presentation.
 - b) Lumbar facet joint dysfunction: Probability estimated at 50% based on presentation.

On further examination, the physiotherapist determines that the patient has limited nerve conduction in the left leg, suggesting possible nerve root compression. How should this new information influence the physiotherapist's initial probability estimates for the two hypotheses?

- A. Increase the probability of LDH to 80% and decrease the probability of facet joint dysfunction to 20%.
- B. Increase the probability of both LDH and facet joint dysfunction by 10% each.

- C. Decrease the probability of LDH to 10% and increase the probability of facet joint dysfunction to 90%
- D. The probabilities of LDH and facet joint dysfunction remain unchanged (30% and 50%, respectively).
13. Which of the following best describes how a hypothesis is developed through establishing cause-effect relationships?
- A. Randomly guessing at an explanation for an observation.
- B. Identifying a correlation between two variables and assuming one causes the other.
- C. Systematically observing events, then proposing a testable explanation for how one event influences another.
- D. Relying solely on existing knowledge without considering new evidence.
14. Which of the following best describes tolerable examinations and intervention strategies in a physiotherapist's clinical reasoning?
- A. Techniques that are most effective regardless of patient pain tolerance.
- B. Interventions and assessments chosen to minimize discomfort while still providing necessary information.
- C. Examinations that focus solely on identifying the source of pain.
- D. Strategies that prioritize speed over patient comfort.
15. Which of the following is NOT true about the SCRIPT tool used by physiotherapists?
- A. SCRIPT is a diagnostic tool that can definitively identify a patient's condition.
- B. SCRIPT is a tool designed to guide physical therapists through the process of clinical reasoning.
- C. SCRIPT can be used by mentors to assess a trainee's clinical decision-making skills.
- D. It stands for Systematic Clinical Reasoning in Physical Therapy
16. A diagnostic error in the diagnostic process can encompass the following the scenarios EXCEPT?
- A. Missed diagnosis
- B. Incorrect diagnosis
- C. Delayed diagnosis
- D. Misplaced diagnosis
17. which of the following is NOT true about critical thinking?

- A. Critical thinking is the foundation for defining a patient's problem in clinical reasoning.
 - B. It's the analytical process used by healthcare professionals to gather information, assess its validity, and arrive at a sound understanding of the client's situation.
 - C. Critical thinking is essential aspect of studying clinical reasoning in an academic setting.
 - D. It is a process that is stimulated by integrating the essential knowledge, experiences, and clinical reasoning that support professional practice.
18. Which of the following is NOT a skill of critical thinking in clinical reasoning?
- A. Open-mindedness and Reflection
 - B. Problem Identification
 - C. Identification of relevant protocols
 - D. Evaluation and appraising evidence
19. Which of the following is NOT included in a patient's problem list for critical thinking in clinical reasoning?
- A. Diagnosis
 - B. Irrelevant social history
 - C. Symptoms
 - D. Functional limitations
20. Which of the following is an advantage of a patient's problem list in clinical reasoning in physiotherapy?
- A. It guides the development of a comprehensive treatment plan that addresses each active problem.
 - B. It highlights the patient's current medications.
 - C. It allows for faster documentation completion.
 - D. It includes detailed notes from previous physiotherapy sessions and other medical records making them available for future reference
21. A 32-year-old female accountant presents to physiotherapy complaining of right lower back pain for the past 6 weeks. The pain started gradually after a long day of sitting at her desk. It is a dull ache that worsens with prolonged sitting, bending forward, and lifting heavy objects. The pain improves slightly with walking and lying down. She denies any radiating pain, numbness, or weakness in her legs. She has no history of injuries or falls.

- Which of the following is NOT found in the therapist's problem list
- A. Dull ache that gets worse with sitting and bending forward
 - B. Right lower back pain
 - C. Radiating pain, numbness or weakness in her legs
 - D. Intervertebral disc herniation
22. 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 examination
 - D. After the trial/initial treatment
23. A patient has a 20 year-year history of knee osteoarthritis and comes to your physiotherapy practice with complaints of a painful knee after participating in a 10Km charity walk in their community which was 3 days ago. How would you classify the stage of their condition?
- A. Acute
 - B. Sub-Acute
 - C. Acute on Chronic
 - D. Chronic
24. Which of the following is the PRIMARY function of a patient problem list during the clinical reasoning process?
- A. To provide a definitive diagnosis for each patient's presenting concerns
 - B. To prioritize the order in which diagnostic tests should be conducted
 - C. To organize and summarize the key clinical findings from the patient's history, physical exam, and diagnostic tests
 - D. To establish a treatment plan for each problem on the list
25. When using SCRIPT tool to develop the hypothesis of the patient, SINSS is used to determine the extent and vigor of the examination and treatment that are likely to be well-tolerated. Which of the following is NOT part of SINSS?
- A. Severity
 - B. Symptoms
 - C. Irritability
 - D. Nature

26. A 38-year-old patient reports experiencing low back pain that radiates down the right leg, along with weakness when trying to lift their toes. Which of the following is the least possible hypothesis?
- A. Lumbar Herniated Disc
 - B. Lumbar Spinal Stenosis
 - C. Piriformis Syndrome:
 - D. Sprained lumbar muscles
27. Which of the following is NOT an advantage of dialectical reasoning?
- A. Allows physiotherapists to move beyond a one-size-fits-all approach.
 - B. Leads to improved patient outcomes by addressing various contributing factors
 - C. Leads to more comprehensive understanding of the patient's situation.
 - D. Allows for development of various treatment plans from which a physiotherapist can choose the most appropriate one for the patient
28. Illness script is one of the main areas of clinical reasoning. Which of the following BEST describes illness script in clinical reasoning?
- A. It is an in-depth analysis of a specific patient's medical history.
 - B. It is a generalized mental model of a disease with its features and course.
 - C. It is a standardized set of diagnostic tests for a particular condition.
 - D. It is a collection of treatment options for different illnesses.
29. Which of the following is NOT a benefit of diagnostic reasoning?
- A. Enhanced patient empowerment
 - B. Accurate diagnosis
 - C. Reduced treatment times
 - D. Improved patient outcome
30. Which of the following does not assist the physiotherapist to test the hypothesis that they have developed?
- A. Doing a thorough subjective examination
 - B. Doing a thorough objective examination
 - C. Obtaining previous diagnostic information
 - D. Outlining short- and long-term goals to the patient

Section B- Short answer question (20 Marks)

1. Discuss what is the difference between Hypothetico-deductive reasoning and diagnostic reasoning? (4 Marks)
2. Explain what is collaborative reasoning. (3 Marks)
3. John is a 70-year-old man who has been suffering from insidious onset of low back pain. He comes to the physiotherapist clinic and gives you and history of experiencing low back pain for the past two weeks. The pain started gradually and has been worsening with prolonged sitting and bending activities. He denies any recent falls or injuries. John is a retired construction worker and admits to having had occasional back pain throughout his life, particularly after lifting heavy objects. List three hypothesis that the physiotherapist might be considering after doing this subjective examination? (3 Marks)
4. Mary, a 65-year-old woman, presents to a physiotherapist with complaints of feeling unsteady on her feet, especially when turning or walking on uneven surfaces. She reports a fear of falling and has limited her activities due to this concern. The physiotherapist carries out the following Tests
 - Postural assessment where the physiotherapists notes some excessive sway in her trunk or a tendency to lean on one side.
 - Gait analysis where the physiotherapist observes that Mary has a slightly wider stance gait
 - Mary has a positive Romberg test
 - Timed Up and Go (TUG) test is slower than the normative numbers
 - Oxford manual muscle testing show quadricep muscles are at grade 4

From the above objective test carried out by the physiotherapist. State 3 possible hypothesis that can be developed from this scenario? (3 Marks)

Section C Long Structured question. Choose either question 1 or 2 (20 Marks)

- 1.a) SINSS is a framework that is used in the SCRIPT tool to aid in determining the extent and vigor of the examination and how the interventions are likely to be well-tolerated by the patient. State what each letter stands for and give a brief explanation of each one of them. (10 Marks).
- b) Discuss the process by which the SCRIPT tool is utilized by a novice or mentee physiotherapist in the generation of hypothesis and differential diagnosis. (10 Marks)

2. Research has shown that most people will experience at least one diagnostic error in their lifetime. In some occasions, these diagnostic errors have a devastating consequence. Discuss 5 ways through which these diagnostic errors can be reduced or improved. (20 Marks)

AMMU