



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 327 **UNIT NAME: NEUROREHABILITATION 2**
DATE: MONDAY/ 12TH / AUGUST
TIME: TWO HOURS
START: 6 PM **STOP: 8 PM**

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

1. Brain injury often results in patients exhibiting aggressive or disruptive behaviors. Which of the following is the better intervention when this is occurring?
 - A) Command the patient to stop, using a loud voice.
 - B) Force the patient to perform the desired physiotherapy task.
 - C) Physically restrain the disruptive patient.
 - D) Redirect the patient's attention to a different task.

2. Which of the following is NOT part of the 4-S's to address freezing of gait in individuals with Parkinson's disease?
 - A) Stand Tall
 - B) Step
 - C) Stop
 - D) Swing Leg

3. Which of the following outcome measures was designed for an immediate on-field assessment for concussion?
 - A) Disability Rating Scale (DRS)
 - B) Post-Concussion Symptom Scale (PCSS)
 - C) Sports Concussion Assessment Tool – 5th Ed (SCAT5)
 - D) Quality of Life After Brain Injury (QoLiBrI)

4. A 19-year-old male was involved one year ago in a rollover MVA, unrestrained, resulting in a traumatic brain injury. The current intervention plan includes balance training addressing reaction time with reactive postural adjustments, and gait training to increase his skill level and independence. Which of the following techniques targets neuroplastic change as part of this treatment plan?
 - A) Aerobic training for 20 minutes prior to balance and gait training
 - B) Aquatic therapy stationary bike exercise twice a week for strengthening/conditioning
 - C) Progressive resistive open chain exercises with cuff weights
 - D) Seated reaching exercises to increase trunk stability

5. A cyclist was involved in a crash of 20 other athletes during a race. He fell and hit his head but got back on the bike and continued riding. When he finished the race he

reported symptoms that suggested a concussion. Which of the following is NOT a sign/symptom of a potential concussion in this case?

- A) The cyclist did not remember crashing with the 20 other riders
 - B) The cyclist joined his other teammates on the course to cheer for the remaining riders for the next 3 hours
 - C) The cyclist stated he was very sleepy and needed to take a nap in the team bus
 - D) The cyclist went to the team tent and immediately covered his head with a blanket to get out of the sunlight
6. A 34-year-old male sustained a traumatic brain injury in a head-on collision where he was ejected from the vehicle. During the initial evaluation, he withdraws from noxious stimulation applied to the distal extremities, and he turns his head in the direction of auditory stimulation. What Rancho Los Amigos Scale of Cognitive Functioning level represents the findings in this case?
- A) Level I – No Response
 - B) Level II – Generalized Response
 - C) Level III – Localized Response
 - D) Level IV – Confused & Agitated
7. Which of the following guidelines is appropriate for a person during the acute post-surgical management following brain tumor removal?
- A) Encourage bedrest
 - B) Keep head in a down position while in bed
 - C) Monitor intracranial pressure (ICP)
 - D) Recommend Valsalva maneuver (bearing down while holding breath) if constipated
8. Which of the following is the most useful intervention to promote arousal for a person in a persistent vegetative state?
- A. Place them in an upright or supported sitting position.
 - B. Play only classical orchestra music as it is soothing.
 - C. Provide gentle PROM in supine.
9. A 25-year-old female was referred to physical therapy for right knee pain. During the examination she also reports having headaches on the right side of her head that are worse in the morning that cause her to vomit. She also reports having periodic diplopia. Based on this information, what health condition might be suspected and needs referral to neurology?
- A. BPPV
 - B. CNS Tumor
 - C. Migraine Headache
 - D. Multiple Sclerosis
10. . When a person with a brain injury is in the acute stage of recovery, which of the following is best practice during the physiotherapy intervention?

- A) Apply high intensity exercise for 30 minutes at a time.
 - B) Initiate whole practice to master a complex task.
 - C) Use a distributed practice schedule to avoid fatigue.
11. . A person with brain injury may have impaired cognitive processing speed. Which of the following activities is best suited to address this issue?
- A) Gait training at a constant, slow speed.
 - B) Gait training up and down a quiet hallway.
 - C) Gait training while applying rhythmic perturbations to challenge balance.
 - D) Gait training while asking the patient to navigate the path according to directional signs.
12. For a person who is in RLASCF Level 5, which of the following is a better treatment principle?
- A) Avoid reminding the patient of home and family to keep them from becoming emotional.
 - B) Challenge the patient with complex, multi-step commands.
 - C) Engage the patient by having their whole family in the room.
 - D) Repeat instructions as often as needed since memory may be impaired.
13. A 30-year-old male sustained a TBI in a motor vehicle accident two months ago. He has slightly impaired dynamic standing balance and can only walk short distances secondary to hip pain. The physical examination reveals limited hip AROM in all planes, and there is warmth, redness and swelling in the area of the hip. Based on this information, what is the most likely cause of the problem?
- A) Contracture formation
 - B) Degenerative joint disease
 - C) Heterotopic ossification
 - D) Neuropathy
14. A patient comes into your clinic for an evaluation, and you determine that she has cervical radiculopathy, onset 2 days ago (acute). Patient states she has shooting pain down her right arm at rest but worsens with rotation to the right. Rotation ROM to right is 40 deg. What would be an appropriate way to decrease the nerve entrapment?
- A) Muscle unloading either manually or with taping
 - B) Nerve tensioner for median nerve
 - C) Nerve tensioner for ulnar nerve
 - D) Nerve slider for radial nerve
15. A patient comes into your clinic for an evaluation and you determine she has TOS. With palpation, you note that she has tightness and reproduction of symptoms with scalene palpation. Which TOS special test will most commonly bring on the pain due to possible entrapment of the scalene bundle?
- A) Costoclavicular test
 - B) Hyperabduction test
 - C) Adson's test
 - D) Cyriax release test
16. What is the most appropriate nerve test for mid back pain with radiating pain?
- A) Slump test

- B) ULTT median nerve
 - C) ULTT ulnar nerve
 - D) ULTT radial nerve
17. A patient arrives for an evaluation with you and you determine that he has a sprain of his left costovertebral joint at segment T8. When testing ROM, what direction is likely to be painful?
- A) Side flexion to the left
 - B) Rotation to the left
 - C) Extension
 - D) Side flexion to the right
18. A patient arrives at your clinic with left CS pain with radiating pain down their left arm. During your exam the patient has 45 deg CS rotation to the left with reproduction of arm pain, 70 deg CS rotation to the right, (+) median nerve ULNT on the left side, and relief of arm pain with distraction of CS. What diagnosis could you confirm with these tests?
- A) CS Whiplash
 - B) CS radiculopathy
 - C) It is not enough to determine because it is missing spurling's test
 - D) It is not enough to determine because we do not know the angle of the median nerve ULNT.
19. What is the positioning of the Crank test?
- A) Patient is prone, passively move shoulder into 160 deg scaption and 90 deg elbow flexion, place hand on distal humerus and load the labrum with an axial compression and move the arm in external and internal rotation.
 - B) Patient is supine, passively move shoulder into 160 deg scaption and 90 deg elbow flexion, place hand on distal humerus and load the labrum with an axial compression and move the arm in external and internal rotation.
 - C) Patient is supine, passively move shoulder into 120 deg scaption and 90 deg elbow flexion, place hand on distal humerus and load the labrum with an axial compression and move the arm in external and internal rotation.
 - D) Patient is supine, passively move shoulder into 120 deg scaption and 90 deg elbow flexion, place hand on distal humerus and load the labrum with an axial compression and move the arm in external and internal rotation.
20. A patient arrives to an evaluation with pain medially from elbow down to hand, specifically fingers 4 and 5. Pain type is burning and aching and worsens when sleeping face down and arms tucked under his chest in elbow flexion. What is the likely diagnosis for this patient?

- A) Cubital Tunnel Syndrome
 - B) Medial Epicondylalgia
 - C) Supinator Syndrome
 - D) Pronator Teres Syndrome
21. Upon your exam you notice that the left costovertebral sprain at segment T8 is causing the rib to be anteriorly glided. Which muscle would you want to contract in order to improve this (which MET)?
- A) Resist the patient punching forward to work the serratus anterior and anteriorly glide the rib
 - B) Isometric Transversus Abdominis contraction to reset the ribs
 - C) Take a deep breath to stretch intercostal Myofascia to anteriorly glide the rib
 - D) Resist patient horizontal Adduction to work the pectoralis musculature and anteriorly glide the rib
22. In what Scenario would you decide to perform Sharp Pursers or Alar Ligament Tests?
- A) Any patient with pain in their cervical spine
 - B) If they have chronic Cervical spine pain worsening over the past few years
 - C) Motor Vehicle Accident, or traumatic injury to the head or neck
 - D) Mobility deficit to the left more than the right
23. A patient comes into your clinic with pain in her cervical spine. Onset of pain was 10 days ago with insidious onset. Patient states “I think I might have slept wrong.” Patient denies symptoms distal to the shoulder, Decreased CS extension to 20 deg. Would it be appropriate to perform a thoracic spine manipulation for this patient according to the Clinical Prediction Rule (CPR)?
- A) No, they would only benefit from a CS manipulation since their pain is in their neck
 - B) No, they wouldn’t because their CS extension ROM is too limited
 - C) There is not enough information to determine, the patient needs to meet more categories.
 - D) Yes, if this is all true it will fit the CPR for thoracic spine manipulation for Cervical Spine pain
24. Acquired brain injury due to a heart attack or a near-drowning event typically leads to which of the following types of brain damage?
- A) Concussion
 - B) Contusion
 - C) Hematoma
 - D) Hypoxia
25. An elevated intracranial pressure (ICP) can be dangerous, and it is important to recognize associated signs and symptoms. What are the 3 primary signs of “Cushing’s Triad” that indicate increased ICP?
- A) Decreased pulse, respiration, and systolic BP.

- B) Decreased pulse and respiration and increased systolic BP.
 - C) Decreased pulse, and increased respiration and systolic BP.
 - D) Increased pulse and respiration, and decreased systolic BP.
26. A patient has been evaluated for a head injury following a motor vehicle accident, and a score of 13 is determined for the Glasgow Coma Scale. How severe is this?
- A) Mild
 - B) Moderate
 - C) Severe
27. A week after the motor vehicle accident, the patient is demonstrating some bizarre behavior, seems easily upset, and periodically becomes hostile. What is the level of cognitive function on the Rancho Los Amigos Scale?
- A) Level II
 - B) Level IV
 - C) Level VI
 - D) Level VIII
28. Which of the following is a shortcoming of the Glasgow Coma Scale when assessing mild traumatic brain injury?
- A) Persons with a mild brain injury may score as a severe brain injury on this scale.
 - B) Responses associated with brain injury are not measured by the GCS.
 - C) Someone with a perfect GCS score may still develop an intracranial hematoma.
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- A) Apply high intensity exercise for 30 minutes at a time.
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31. A person with brain injury may have impaired cognitive processing speed. Which of the following activities is best suited to address this issue?
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 - B) Gait training up and down a quiet hallway.
 - C) Gait training while applying rhythmic perturbations to challenge balance.

- D) Gait training while asking the patient to navigate the path according to directional signs.
32. At what RLASCF Level is it appropriate to start suggesting the patient write things down to aid memory?
- A) Level 4
 - B) Level 5
 - C) Level 6
 - D) Level 7
33. Which of the following is an example of a motor-motor task useful as an intervention to promote cognition in cases of impaired divided attention?
- A) Backward walking while spelling
 - B) Balancing on foam while subtracting backward from 100 by 3s
 - C) Climbing stairs while naming as many animals as possible
 - D) Walking in an obstacle course while carrying a laundry basket
34. Which of the following is MOST indicative of central nervous system impairment in the case of an individual with traumatic brain injury?
- A) Inability to focus on an object 9 inches in front of the nose
 - B) Inability to keep eyes on a target during head turns
 - C) Inability to reliably name the current day of the week
 - D) Inability to turn head to track a moving target
35. Which of the following is most appropriate for an individual classified as RLASCF Level IX or X versus an individual at Level V?
- A) Engage in multi-tasking activities
 - B) Limit social engagement to close family/friends in the room
 - C) Practice orienting to person, place and time frequently
 - D) Provide frequent repetition of instructions
36. Which of the following cases has the BEST prognosis for achieving a Dietz Classification 2 (Restorative)?
- A) 4-year-old male with a Grade III Medulloblastoma
 - B) 20-year-old male with a Grade IV Glioblastoma
 - C) 35-year-old female with a Grade II Pilocytic Astrocytoma
 - D) 60-year-old male with a Grade II Vestibular Schwannoma
37. . A 25-year-old female was referred to physical therapy for right knee pain. During the examination she also reports having headaches on the right side of her head that are worse in the morning that cause her to vomit. She also reports having periodic diplopia. Based on this information, what health condition might be suspected and needs referral to neurology?
- A) BPPV
 - B) CNS Tumor
 - C) Migraine Headache
 - D) Multiple Sclerosis

38. Which of the following types of tumors is most likely to cause a relatively rapid progression of sensorineural hearing loss?
- A) Astrocytoma
 - B) Meningioma
 - C) Vestibular Schwannoma
39. What impairment can be specifically identified with the finger to nose test for a person with multiple sclerosis?
- A) Abnormal Tone
 - B) Dysdiadochokinesis
 - C) Impaired check reflex
 - D) Intention Tremor
40. Which of the following is NOT a cardinal sign of Parkinson's disease?
- A) Akinesia/bradykinesia
 - B) Intention tremor
 - C) Postural Instability
 - D) Rigidity
41. A 30-year-old male sustained a TBI in a motor vehicle accident two months ago. He has slightly impaired dynamic standing balance and can only walk short distances secondary to hip pain. The physical examination reveals limited hip AROM in all planes, and there is warmth, redness and swelling in the area of the hip. Based on this information, what is the most likely cause of the problem?
- A) Contracture formation
 - B) Degenerative joint disease
 - C) Heterotopic ossification
 - D) Neuropathy
42. Which of the following conditions will present with symptoms related to both upper motor neuron and lower motor neuron damage?
- A) Amyotrophic lateral sclerosis
 - B) Charcot-Marie-Tooth
 - C) Guillain-Barre Syndrome
43. In the Head-Shaking Test, the patient's head is held at about 30 degrees of flexion and turned side to side for 20 reps, after which the examiner observes the patient's eyes for nystagmus with the head held stable. Which of the following results indicates a hypofunction on the right side (right unilateral vestibular hypofunction)?
- A) No nystagmus
 - B) Nystagmus fast phase toward the left side
 - C) Nystagmus fast phase toward the right side

44. Which mechanism of vestibular recovery do gaze stability exercises represent?
- A) Adaptation
 - B) Habituation
 - C) Substitution
45. . Which of the following is a recovery mechanism commonly selected for stable bilateral deficits and non-vestibular deficits and can be used across all vestibular diagnoses?
- A) Adaptation
 - B) Habituation
 - C) Substitution
46. Which of the following is a liberatory maneuver used for a postural canal cupulolithiasis?
- A) BBQ Roll
 - B) Epley
 - C) Gufoni
 - D) Semont
47. Which of the following muscle groups are NOT available to a person with a C6 complete spinal cord injury?
- A) Biceps brachii
 - B) Deltoid
 - C) Serratus anterior
 - D) Triceps brachii
48. Which of the following symptoms is NOT typical for amyotrophic lateral sclerosis?
- A) Bulbar symptoms (dysarthria, dysphagia)
 - B) Delayed motor milestones
 - C) Hyper-reflexia
 - D) Muscle atrophy
49. What is one effect of impaired autonomic nervous system function following spinal cord injury?
- A) Extremity weakness
 - B) Lack of sensation
 - C) Orthostatic hypotension
50. Which of the four types of spinal muscular atrophy has a typical onset at birth to 6 months of age and is usually fatal within 2 years?
- A) SMA Type I
 - B) SMA Type II
 - C) SMA Type III
 - D) SMA Type IV