



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF JAN-APRIL 2025 TRIMESTER EXAMINATIONS**

UNIT CODE: PHT 327 UNIT NAME: Neuro rehabilitation II

DATE: 12TH August 2025

TIME: TWO HOURS

START: 6PM STOP : 8PM

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. Attempt all the questions.

1. You are evaluating an individual with incomplete cervical SCI. What upper extremity muscle groups must have good strength in order for the individual to manually propel a wheel chair?
 - A. Deltoids
 - B. Elbow extensors
 - C. Finger extensors
 - D. Erector spinae
2. An individual with a spinal cord injury has intact anal sensation and the following ASIA motor findings: C5: Right 5/5, Left 5/5, C6: Right 5/5, Left 5/5, C7: Right 4/5, Left 4/5, C8: Right 3/5, Left 3/5, T1: Right 1/5, Left 1/5, T2: Right 1/5, Left 1/5, L2: Right 1/5, Left 1/5, L3-S1: Right 0/5, Left 0/5. Based upon the findings, the zone of partial preservation is
 - A. Right and left C7, C8, T1, and L2
 - B. The zone of partial preservation does not apply to this case
 - C. Right and left C8, T1, and L2
 - D. Right and left T1 and L2
3. The clear cause of Multiple sclerosis (MS) is unknown, but which of the following factors are believed to be most important for the development of MS?
 - A. Environment, viruses, and genetics
 - B. Ethnicity, diet, and antibiotic resistance
 - C. Exercise, blood pressure, and sunlight
 - D. Emotional health, diet, and smoking
4. Which assessment is commonly used to determine the clearance of post-traumatic amnesia?
 - A. Braintree Scale of Neurologic Stages of Recovery from Brain Injury
 - B. Galveston Orientation and Amnesia Test
 - C. JFK Coma Recovery Scale
 - D. Ranchos Los Amigos Cognitive Recovery Scale
5. For an episode of neurological symptoms to be called an MS relapse or exacerbation, the duration of symptoms and the time between the first and second episodes must be:
 - A. 6 hours duration and 10 days separation
 - B. 12 hours duration and 20 days separation
 - C. 24 hours duration and 30 days separation
 - D. 48 hours duration and 60 days separation
6. For impulsivity which of the following is an appropriate intervention?
 - A. Use a written list of steps to be followed for each activity
 - B. Encourage task completion without rehearsal
 - C. Do not leave the client unsupervised
 - D. Provide calendars of daily activities

7. Your client who has CVA is having difficulty rolling from supine to side-lying. In order to work on this activity and improve his motor control and strength for the activity it would be advisable to:
 - A. Assist him to roll by placing your hands under his shoulder and hip and push him over into side-lying
 - B. Cross his leg over the other leg in the direction he is rolling, then instruct him to use his arm and head to develop momentum and then roll over by flinging them to the side he is rolling onto
 - C. Place a pillow between the legs to position them in abduction prior to initiating rolling
 - D. Raise the foot of the bed and have him fling his arm and head side to side to develop momentum to move into the roll
8. At which Ranchos LOC can you begin to expect explicit learning with carryover?
 - A. IV
 - B. V
 - C. VI
 - D. VII
9. Gait training for individuals with complete SCI at T6 will most likely require:
 - A. A reciprocal gait orthosis
 - B. A hip, knee, ankle orthosis
 - C. An ankle foot orthosis
 - D. A supra-malleolar orthosis
10. A patient has a 10-year history of Parkinson's disease and has been on levodopa (Carbidopa) for the past 6 years. The patient has fallen three times in the past month, resulting in a Colles' fracture. The therapist decides to try postural biofeedback training using a platform balance training device. Which of the following is the BEST choice for a training protocol?
 - A. Increase the limits of stability and improve anterior weight displacement.
 - B. Decrease the limits of stability and anterior weight displacement.
 - C. Increase the limits of stability and improve center of pressure alignment.
 - D. Decrease the limits of stability and improve posterior weight displacement.
11. In dealing with a client who is agitated which of the following is appropriate?
 - A. Restrain the individual to prevent self-harm and harm to others
 - B. Medication improves time to recovery from agitation and confusion
 - C. Be sure to bring at least three staff into the room to ensure that you can control the individual
 - D. Try to figure out what is causing them to be agitated and modify the environment and agitation can be decreased
12. In the late stage of multiple sclerosis which therapeutic programs are beneficial?
 - A. Balance training with an emphasis on narrowing the base of support
 - B. Resistance training to improve walking
 - C. Respiratory resistance training twice a day
 - D. Robot-assisted gait training

13. The most prominent symptom of bilateral vestibular loss is:
- A. Nystagmus
 - B. Vertigo
 - C. Nausea
 - D. Postural imbalance
14. What does geotropic nystagmus lasting less than 60 seconds indicate?
- A. Anterior Canal Dysfunction
 - B. Horizontal Canal Cupulolithiasis
 - C. Horizontal Canal Canalithiasis
 - D. Posterior Canal Dysfunction
15. Posterior Canal Dysfunction In an individual with elevated intracranial pressure the head of the bed should be in what position?
- A. Flat
 - B. Elevated to 10 degrees
 - C. Elevated to 30 degrees
 - D. In 5 degrees of Trendelenburg
16. An individual with a T8 SCI and upper motor neuron signs below the injury would be most at risk for which bowel dysfunction:
- A. Fecal incontinence
 - B. An areflexic bowel
 - C. Fecal retention
 - D. Poor motility
17. When performing finger to examiner's finger testing, your client exhibits jerky movements and his finger goes past the examiner's finger and sometimes stops short of the examiner's finger. This type of movement would be called:
- A. Dysdiadochokinesia
 - B. Dysmetria
 - C. Tremor
 - D. Asthenia
18. A sensation of motion which is associated with various vestibular disorders in which the person experiences a sensation that he/she is spinning or the person's surroundings are spinning is called:
- A. Lightheadedness
 - B. Oscillopsia
 - C. Disequilibrium
 - D. Vertigo
19. Which of the following neuropathological findings is characteristic of Huntington's Disease?
- A. Degeneration of olfactory bulb neurons
 - B. Atrophy of the caudate nucleus
 - C. Demyelinating plaques surrounding lateral ventricles
 - D. Lewy bodies in striatal neurons

20. Sally has MS and is complaining that she cannot make it through the day due to being tired. She is worried about her job and her ability to take care of her children after work. To objectively measure her fatigue you would use which of the following measures?
- A. Berg Balance Scale
 - B. 6-minute walk test
 - C. Modified Fatigue Impact Scale
 - D. Timed 25-foot walk
21. Sally who has MS has spasticity of the gastroc-soleus group. She should be prescribed stretching and which of the following exercises?
- A. Standing, go up on toes and slowly lower, repeat 10 times
 - B. Walk backwards at least 50 feet
 - C. Perform straight leg raises, repeat 20 times
 - D. Walk with toes up and weight on heels
22. Heterotopic ossification poses a major problem for individuals with SCI because:
- A. Joint range of motion becomes severely restricted and prevents dressing
 - B. Of low recurrence rates
 - C. Stem cells prevent autonomic dysreflexia
 - D. Frank bone loss occurs
23. An individual with a C5 complete SCI upon entry into inpatient rehabilitation will be expected to:
- A. Exhibit no further recovery and remain AIS A
 - B. Require a ventilator
 - C. Use a manual wheel chair
 - D. Have active shoulder muscles
24. What precaution in regards to exercise is specific to MS?
- A. Exercise can cause muscle atrophy in individuals with MS
 - B. Exercise is problematic due to breathing problems in individuals with MS
 - C. Exercise-induced increases in body temperature can cause temporary worsening or return of previously existing neurological symptoms
 - D. Exercise can induce emotional stress in individuals with MS
25. A return to sexual function is expected for all individuals following SCI. The role of the physical therapist will be to:
- A. Allow the nurse to discuss sexual function with the individual
 - B. Assume that sexual drive will be lost due to the SCI
 - C. Refer individuals who are bisexual or homosexual to the neuropsychologist
 - D. None of the above
26. Principles for designing exercise programs for individuals who have postpolio syndrome include:
- A. Working to the point of fatigue and mild muscle soreness
 - B. Strengthening exercises for muscles with fair or lower strength grades
 - C. High intensity, brief exercise
 - D. Rotating exercise types such as aerobic and strengthening

27. Which of the following is a method for examining remote memory?
 - A. Name three objects and have the client repeat them back to you
 - B. Name three objects and ask the client to repeat them back to you 5 minutes later
 - C. Ask the client to recall common historical events
 - D. Ask for a chronological recall of the client's current illness
28. When evaluating a patient with residual balance deficits from vestibular neuritis, you observe that the patient bends her hips and trunk when she experiences a small perturbation or weight shifts while standing on a firm surface. The exercise intervention that would retrain the patient to use a more normal balance strategy under these conditions is:
 - A. Tandem standing or walking
 - B. Balancing on a narrow beam or line
 - C. Standing on one leg
 - D. Small forward and backward sways
29. An individual with Huntington's disease who has motor impersistence will demonstrate which of the following on examination:
 - A. A fall when a backward pull is applied to the shoulders
 - B. Dance like involuntary movements
 - C. Inability to move the eye side to side to follow the examiner's finger
 - D. Inability to protrude the tongue and keep it there for several seconds
30. Thomas and Sally are planning to start a family but Sally has MS. Which of the following statements is true about family planning and MS?
 - A. The risk of relapses is higher during pregnancy
 - B. Certain methods of birth control are not effective for patients with MS
 - C. Fertility is unaffected in women with MS
 - D. Immunomodulatory drugs can be safely taken throughout pregnancy and postpartum

SECTION B: SHORT ANSWER QUESTIONS (SAQ) 20 MARKS

ANSWER ALL QUESTIONS. Each question is 5 marks

1. Describe two physiotherapy approaches in intervention of BPPV
2. Describe bedside assessment of higher cortical functions on a patient with traumatic brain injury
3. Describe prognostic indicators for recovery from a brain injury.
4. Differentiate between UMN and LMN impairments.

SECTION C: LONG ANSWER QUESTIONS (LAQS) 20 MARKS

ANSWER ALL QUESTIONS EACH ONE IS 10 MARKS

1. Explain the ASIA scale, steps in classification and its limitations (10 marks)
2. Paul Monari is a 68-year-old male recently discharged from the hospital (post-operative day 1). An 83-year-old gentleman was diagnosed with Parkinson's disease 10 years ago. Two months ago, he started experiencing difficulties with transfers, particularly sit to stand and getting out of bed. Wife is finding it difficult to cope and

they are both worried they may need to move into residential care. He can walk independently indoors with a festinating gait and slouched posture with freezing noted at doorways but requires wheelchair outside. He rarely leaves the house since there is no ramped access and wife cannot manage the wheelchair.

- i What treatment priorities would you establish? **(4 marks)**
- ii Why does he not experience difficulties when climbing stairs? **(4 marks)**
- iii What outcome measures may be appropriate to evaluate treatment intervention? **(2 marks)**

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