



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF HEALTH SCIENCES
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF TRIMESTER EXAMINATIONS

UNIT CODE: PHT 313

UNIT NAME: NEUROREHABILITATION (Fresh entry)

DATE: 17th APRIL 2024

TIME:9AM-11AM

INSTRUCTIONS

- 1. All students will have two (2) hours to complete the examination**
- 2. 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 9 including the cover.**
- 6. Read through the paper quickly before you start.**

SECTION A: MULTIPLE CHOICE QUESTIONS (30 Marks)

1. Assessing the patient's memory:

- A. Involves only asking about recent events such as the weather yesterday
- B. Involves the investigation of recent and remote portions of memory
- C. Isn't of primary importance to the PTA because the patient will be seen by the physician first
- D. Is not necessary to perform during an initial evaluation

2. A physical therapist conducts a sensory assessment on numerous areas of a patient's face.

The cranial nerve MOST likely assessed using this type of testing is:

- A. Facial nerve
- B. Oculomotor nerve
- C. Trigeminal nerve
- D. Trochlear nerve

3. If a therapist is testing for stereognosis, he/she would:

- A. Bend the big toe of the patient and ask the patient to state the direction/position of the toe
- B. Have the patient close his eyes, cross his arms, place his feet close together. Observe the degree of postural sway
- C. With the patient eyes closed, place an object in his hand. Have the patient name the object
- D. Using two pins in various opposing positions, ask the patient to tell you when he feels one pin rather than two

4. A patient presenting with motor weakness of the right triceps, and diminished deep tendon reflex (DTR) of the right triceps in comparison to the left. The patient is MOST likely experiencing:

- A. A central cord compression
- B. A lower motor neuron problem
- C. A upper motor neuron problem
- D. A median nerve problem

5. During the examination, the physical therapist assistant identifies significant sensory deficits in the anterolateral spinothalamic system. The MOST affected sensation would be:

- A. Barognosis
- B. Kinesthesia
- C. Graphesthesia
- D. Temperature

6. The physical therapist assistant passively dorsiflexes the ankle of a patient briskly and maintains the foot in that position. A rhythmic oscillation/contraction occurs and continues for five beats. This MOST likely indicates that the patient may have:

- A. Peripheral neuropathy
- B. A myopathic disorder
- C. A basal ganglia disorder
- D. An upper motor neuron lesion

7. If there is a lesion on one side of the spinal cord _____.
- A. There is a decrease in touch on the same side of the lesion and a decrease in pain sensation on the opposite side of the lesion
 - B. There is a decrease in sensation to touch on the same side of the lesion and decrease in pain sensation on the same side of the lesion
 - C. There is a decrease in sensation to touch on the opposite side of the lesion and a decrease in pain on the opposite side of the lesion
 - D. There is a decrease in touch on the opposite side of the lesion and a decrease in pain sensation on the same side of the lesion
8. Which of the following is NOT an appropriate technique when checking the patient's mental status?
- A. Memory for recent and past events
 - B. General behavior and appearance
 - C. Intense questioning about personal beliefs and values
 - D. Orientation to person, place and time
9. A patient examined for sensation to the posterior-lateral aspect of the right forearm, is unable to tell the therapist is touching using a cotton swab. The therapist determines that there is impaired function in the:
- A. Dorsal column/lemniscal pathways and somatosensory cortex
 - B. Anterior spinothalamic tract and somatosensory cortex
 - C. Lateral cortical spinal tract and thalamus
 - D. Spinotectal tract and somatosensory cortex

10. A physical therapist assistant strokes the plantar surface of a patient's foot, and notes rapid toe extension. This indicates that the patient may have:

- A. Peripheral neuropathy
- B. An upper motor neuron lesion
- C. A myopathic disorder
- D. A basal ganglia disorder

11. Individuals with _____ tetraplegia lack the motor function needed to propel a manual wheelchair, and clearly require power wheelchairs.

- A. C7
- B. C6
- C. C5
- D. C4 and higher

12. A physical therapist prepares to transfer a SCI patient from a wheelchair to a treatment table. The patient requires assistance, but tolerates weight through the lower extremities.

The MOST appropriate transfer technique is

- A. Moderate assist transfer
- B. Hydraulic lift
- C. Dependent squat pivot
- D. Two-person lift

3. A patient exhibits pain and sensory loss in the posterior thigh, lateral calf and dorsal foot. Extension of the Great toe is poor; the knee extension strength is normal. The MOST likely spinal level involved:

- A. L4
- B. L5
- C. S1
- D. S2

14. In preparation for home discharge, a patient SCI ASIA A C6 with sacral skin breakdown problems requires pressure relief. What type of W/C cushion would be the MOST appropriate for pressure relief?

- A. The most expensive type
- B. 4" ROHO air cushion
- C. Foam cushion
- D. None of the above

15. A patient classified (ASIA A) C5 receives physical therapy services in a rehabilitation hospital. The patient has made good progress in therapy and scheduled for discharge in one week. During a treatment session, the patient informs the physical therapist that one day in the future he will walk again. The MOST appropriate therapist response is:

- A. Your level of injury makes walking unrealistic
- B. Future advances in spinal cord research may someday make our goal a reality
- C. You can have a rewarding life even if confined to a wheelchair
- D. Completing your exercises on a regular basis will help you to walk

16. A physical therapist instructs a patient diagnosed with C6 tetraplegia in functional activities. Which of the following activities would be LEAST appropriate?

- A. Independent weight shifting in W/C for skin protection
- B. Manual wheelchair propulsion
- C. Assisted to independent transfers with a sliding board
- D. Independent W/C righting, after a fall

17. A patient with paraplegia is interested in learning how to perform a wheelie to assist with community mobility. The patient is independent with basic wheelchair propulsion. When instructing the patient to perform a wheelie, the physical therapist first should teach the patient to:

- A. Make small adjustments (forward and backward) after placed in wheelie position
- B. Glide while in the wheelie position
- C. Perform turns while holding the wheelie position
- D. Curb negotiation

18. A physical therapist assistant moves a patient with SCI from side lying to supine after the patient was unable to maintain the manual muscle test position for the hip abductors.

Assuming the patient is able to complete full range of motion in the horizontal plane, the MOST appropriate muscle grade is:

- A. Fair
- B. Fair minus
- C. Poor
- D. Poor minus

19. A patient with C4 tetraplegia requires a custom wheelchair upon discharge from the hospital. The MOST appropriate recommendation for proper mobility is:

- A. Lightweight manual wheelchair, upright frame, seat and back cushions
- B. Tilt in space power wheelchair, seat and back cushions
- C. Non-folding reclining wheelchair, underslung tray for a ventilator
- D. Upright power wheelchair, joystick hand control, seat cushion

20. A physical therapist attends an in-service on incomplete spinal cord injuries. As part of the in-service, the speaker describes several frequently observed syndromes of neurological involvement. Which syndrome does NOT include an alteration in motor function?

- A. Central cord syndrome
- B. Posterior cord syndrome
- C. Brown-Sequard's syndrome
- D. Anterior cord syndrome

21. Your patient sustained an incomplete spinal cord injury at the T10 level. He is trying to learn to go up a curb in his wheelchair. The MOST critical skill would be:

- A. Have good timing and good command of the wheelie skill
- B. Have exceptional UE strength and normal UE motor control
- C. Be able to use his preserved LE function enough to at least assist during the technique
- D. Have a specially designed, state of the art wheelchair to allow him to complete this maneuver

22. The strongest indication that the SCI lesion is complete, would be:

- A. Segment of the spinal cord with normal sensory and motor function on both sides of the body
- B. An absence of sensory and motor function in the lowest sacral segment (S4-S5)
- C. Full innervation supplied to the level of lesion
- D. An absence of sensory and motor function below the level of the injury

23. The purpose of setting functional goals with a patient with a SCI is to offer the greatest opportunity for an individual to achieve maximal independence. The MOST important functional expectation for every SCI patient is:

- A. The person will tolerate sitting upright for 8-12 hours
- B. That a caregiver will be independent in all aspects of care for the individual
- C. That the person is able to maintain intact skin integrity
- D. That the person is able to verbalize any skill that he/she is not independent

24. For the ASIA classification system, key muscles tested for upper limb muscle strength include all except:

- A. Elbow flexors
- B. Elbow extensors
- C. Finger flexors
- D. Wrist flexors

25. For the ASIA classification system, key muscles tested for lower limb muscle strength include all except:

- A. Ankle dorsiflexors
- B. Hip flexors
- C. Knee flexors
- D. Ankle plantarflexors

SECTION B (SHORT STRUCTURED QUESTIONS) (20 marks)

1. Explain the primary purpose of proprioceptive neuromuscular facilitation (PNF) techniques in rehabilitation? (5 marks)
2. Name some common indication for neuromuscular re-education in physiotherapy rehabilitation? (5 marks)
3. Describe 4 types of cerebral palsy (5 marks)
4. Describe 5 types of neurodevelopmental reflexes (5 marks)

SECTION C: LONG ANSWER QUESTIONS (20 marks)

1. The patient is a 63-year-old male diagnosed 3 months ago with a right-side ischemic cerebellar stroke. The patient is right hand dominant. He currently smokes and prior to the stroke he had a history of hypertension. He was a retired assembly line factory worker prior to the accident. He lives at home in a bungalow with his spouse. The patient was referred to outpatient physiotherapy from a local rehabilitation hospital following discharge to improve independence, mobility, and performing activities of daily living.
 - a. Identify any standardized tools that can be used to assess this patient (3 marks)
 - b. Discuss the clinical assessments that can be done to the patient (7 marks)
 - c. Discuss different types of physical therapy that can be administered to the patients (10 marks)