



**BACHELOR OF SCIENCE IN PHYSIOTHERAPY (DIRECT)
SUPPLEMENTARY**

COURSE CODE: PHT 327

COURSE TITLE: NEUROREHABILITATION II

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

Answer All Questions

Section A: Multiple Choice Questions (MCQ)

30 Marks.

Section B: Short Answer Questions (SAQ)

20 Marks.

Section C: Long Answer Question (LAQ)

20 Marks

TIME: 2 Hours

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQ) 20 MARKS

1. A therapist wishes to use behavior modification techniques as part of a plan of care to help shape the behavioral responses of a patient recovering from traumatic brain injury (TBI). What intervention is the BEST to use?
 - A. Use frequent reinforcements for all desired behaviors.
 - B. Encourage the staff to tell the patient which behaviors are correct, and which are not.
 - C. Reprimand the patient every time an undesirable behavior occurs.
 - D. Allow the patient enough time for self-correction of the behavior.
2. A patient incurred a right CVA 1 month ago and demonstrates moderate spasticity in the left upper extremity (predominantly increased flexor tone). The major problem currently is a lack of voluntary movement control. There is minimal active movement, with 1/4 inch subluxation of the shoulder. What initial treatment activity is the BEST choice for this patient?
 - A. Sitting, left active shoulder protraction with extended elbow and shoulder flexed to 90°.
 - B. Sitting, weight bearing on extended left upper extremity, weight shifting.
 - C. Quadruped, rocking from side to side.
 - D. PNF D2 flexion pattern, left upper extremity.
3. A patient is recovering from stroke and, at 4 months, is ambulating with a straight cane for household distances. During outpatient physical therapy, the therapist has the patient practice walking with no assistive device. Recurvatum is observed that worsens with continued walking. What is the therapist's BEST choice for intervention?
 - A. Give the patient a small-based quad cane to improve stability and have him/her practice AROM in supine.
 - B. Exercise the quadriceps using isokinetic resistance at higher loads and increasing speeds.
 - C. Practice isolated small-range quadriceps eccentric control work in standing and continue with the straight cane.
 - D. Give the patient a KAFO to control the hyperextension and a hemi walker.
4. What intervention BEST illustrates selective stretching when working with a patient with a spinal cord injury (CG complete)?
 - A. Long finger flexors are fully ranged into extension with wrist extension.
 - B. Hamstrings are fully ranged to 110 degrees in supine.
 - C. Low back extensors are fully ranged in long sitting.
 - D. Hamstrings are fully ranged in long sitting.
5. A patient with a complete tetraplegia (ASIA A) at the CG level is initially instructed to transfer using a transfer board. With shoulders externally rotated, how should the remaining upper extremity (UE) joints be positioned?
 - A. Forearms pronated with wrists and fingers extended.
 - B. Forearms supinated with wrists extended and fingers flexed.
 - C. Forearms pronated with wrists and fingers flexed.

- D. Forearms supinated with wrists and fingers extended.
6. A patient experienced a cerebrovascular accident (right CVA) 2 weeks ago. The patient has motor and sensory impairments primarily in the left lower extremity; the left upper extremity shows only mild impairment. There is some confusion and perseveration. Based on these findings, what type of stroke syndrome does this patient present with?
- A. Posterior cerebral artery stroke.
 - B. Internal carotid syndrome.
 - C. Anterior cerebral artery syndrome.
 - D. Middle cerebral artery syndrome.
7. Which of the following TBIs is not considered primary brain injury?
- A. Diffuse axonal injury
 - B. Focal injury
 - C. Hypoxic-ischemia injury
 - D. Coup-contrecoup injury
8. A 16-year-old patient is referred to you for treatment of neck pain from a whiplash injury. This injury occurred during a car accident in which the patient lost consciousness for 12 hours. Which of the following neurological dysfunctions is most likely the cause of her loss of consciousness, and what symptoms might you see?
- A. A diffuse axonal injury, in which the patient will have complete memory loss.
 - B. A focal injury in which there was a laceration. The patient will have difficulty with her memory until the edema/hemorrhaging from the laceration has dissipated.
 - C. An electrolyte imbalance is secondary to damage to the thalamus, resulting in a mass release of damaging neurotransmitters. Pt will have difficulty with voluntary muscle control.
 - D. A classic concussion. PT may or may not have retrograde amnesia and posttraumatic amnesia.
9. A PT is treating a 56-year-old with a TBI secondary to a burst brain aneurysm. The referral papers read that the patient is a level V on the Rancho Los Amigos Level of Cognitive Function scale. Which of the following treatment options would best fit into your plan of care for this patient.
- A. Maintaining respiratory status and prevention of respiratory complications by the use of postural drainage, percussion, and suction.
 - B. Allow the pt to increase independence by moving activities from closed environments to open environments.
 - C. Encourage the pt to carry on an active lifestyle that improves cardiovascular endurance. Discuss with the family the importance of keeping the patient active.
 - D. Promote early return to ADLs by positioning the patient in proper body alignment and sitting them upright
 - E. Promote and emphasize safety and behavioral management techniques in a structured, low stimulating environment.
10. A pt who recently was diagnosed with a C7 complete spinal cord injury, secondary to MVA, has asked her physical therapist what complications come along with being a

- spinal cord injured person. Which of the following answers is NOT a correct response to the pt's question?
- Discuss with the patient the change in vital capacity, as the pt at first will initially only have 30% of what she had before, but with hard work, she will be able to return to 90-100%.
 - Describe to the patient what ulcers are and discuss the importance of performing pressure relief 3-4 times an hour and how a turning program will help eliminate that risk.
 - Educate the patient on deep vein thrombosis' and explain that these are common during the first 3 months of recovery and can be prevented by a regular turning program, PROM, elastic stockings, and proper positioning of the lower extremity.
 - Discuss with the patient how temperature internally and externally will now affect her. At first, the pt will have difficulty with hypothermia, and then eventually, that will change to hyperthermia. This is all due to a lack of control over sweat glands and initial difficulties with vasodilation.
 - Educate the patient about the importance of daily exercise not only to improve function but also to prevent heterotopic bone formation.
11. A patient recovering from an incomplete spinal cord injury at the L3 level (ASIA scale D) ambulates with bilateral Lofstrand crutches. The patient reports great difficulty going down ramps with unsteady, wobbly knees. What is the BEST intervention to use with this patient?
- Prolonged icing to reduce hamstring pain.
 - Stretching using a posterior resting splint for tight plantar flexors.
 - Progressive resistance training for the quadriceps.
 - Biofeedback training to reduce knee extensor spasticity.
12. Inability to perform rapid alternating movements is called
- Dysdiadochokinesia
 - Dysmetria
 - Dyssynergia
 - None of the above
13. You have been asked to start rehabilitation for a patient who had traumatic brain injury due to a fall one week ago. Before you commence the session, you notice the patient has increased systolic blood pressure, reduced respiratory rate, and reduced pulse. What would be your next course of action?
- Teach relaxation exercises to the patient
 - Stop the session and immediately inform the nurse the patient could have increased ICP
 - Elevate patients' lower extremity
 - Immediately start diaphragmatic breathing exercises
14. John had a brain injury 2 weeks ago and he can now turn his head to your direction when you call him. What level of cognition would you grade him in the ranchos Los Amigos scale?
- Level III

- B. Level IV
 - C. Level V
 - D. Level II
15. Physical therapy treatment for patients with Parkinson disease includes
- A. teaching the individual to turn en bloc
 - B. training the individual not to focus on foot position
 - C. shortening step length to prevent freezing
 - D. using verbal and visual cueing
16. According to the American Spinal Injury Association (ASIA) International Standards for Neurological Classification of Spinal Cord Injury, testing of a key muscle should begin in which grade position?
- A. 1
 - B. 2
 - C. 3
 - D. 4
17. A patient with a T10 paraplegia (ASIA A) resulting from a spinal cord injury is ready to begin community wheelchair training. The therapist's goal is to teach the patient how to do a wheelie in order to manage curbs. What is the BEST training strategy to instruct the patient in performing a wheelie?
- A. Place a hand on the top of the handrims to steady the chair while throwing the head and trunk forward.
 - B. Throw the head and trunk backward to rise up on the large wheels.
 - C. Lean backward while moving the hands slowly backward on the rims.
 - D. Grasp the handrims posteriorly, and pull them forward abruptly and forcefully.
18. Which intervention is BEST to improve left-sided neglect in a patient with left hemiplegia?
- A. Hook-lying, holding, light resistance to both hip abductors.
 - B. Rolling, supine to side-lying on right, using a PNF lift pattern.
 - C. Sitting, with both arms extended, hands resting on support surface, active holding.
 - D. Bridging with both arms positioned in extension at the sides.
19. Which of the following factors is likely to contribute to subluxation and shoulder pain in hemiplegia?
- A. Spastic paralysis of the biceps.
 - B. Traction acting on a depressed, downwardly rotated scapula.
 - C. PROM with normal scapulohumeral rhythm.
 - D. Spastic retraction with elevation of scapula.
20. What is the MOST appropriate intervention to correct for the problem of a forward festinating gait in a patient with Parkinson's disease?
- A. Use of a heel wedge.
 - B. Use of a toe wedge.
 - C. Increase stride length using floor markers.
 - D. Increase cadence using a metronome.

21. A patient with a spinal cord injury is having difficulty learning how to transfer from mat to wheelchair. The patient just cannot seem to get the idea of how to coordinate this movement. In this case, what is the MOST effective use of feedback during early motor learning?
- Focus on knowledge of performance and proprioceptive inputs.
 - Focus on guided movement and proprioceptive inputs.
 - Provide feedback only after a brief (5-sec) delay.
 - Focus on knowledge of results and visual inputs.
22. A patient with a left sided CVA exhibits right hemiparesis and strong and dominant hemiplegic synergies in the lower extremity. Which activity would be BEST to break up these synergies?
- Foot tapping in a sitting position.
 - Supine, PNF D2F with knee flexing and D2E with knee extending.
 - Supine-lying, hip extension with adduction.
 - Bridging, pelvic elevation.
23. A therapist is examining a patient with vestibular dysfunction. The patient is asked to assume a long sitting position with the head turned to the left side. The therapist then quickly moves the patient backward so that the head is extended over the end of the table approximately 30° below horizontal. This maneuver causes severe dizziness and vertigo. A repeat test with the head turned to the right produces no symptoms. What is the BEST way to document these results?
- Positive left Hallpike-Dix test.
 - Positive sharpened Romberg's test.
 - Positive right positional test.
 - Positive positional test.
24. A patient demonstrates some out-of-synergy movements in the right upper extremity indicative of stage 4 recovery after a left cerebrovascular accident (CVA). Which proprioceptive neuromuscular facilitation (PNF) pattern represents the BEST choice to promote continued recovery of the right upper extremity?
- Bilateral symmetrical D2F and D2E, elbows straight.
 - Chop, reverse chop with right arm leading.
 - Lift, reverse lift with right arm leading.
 - Bilateral symmetrical D1 thrust and reverse thrust.
25. A patient presents with an acute onset of vertigo overnight. Symptoms worsen with rapid change in head position. If the head is held still, symptoms subside usually within 30-60 seconds. What is the MOST likely cause of these symptoms?
- Meniere's disease.
 - Benign paroxysmal positional vertigo (BPPV).
 - Bilateral vestibular neuritis.
 - Acoustic neuroma.
26. A patient is 2 days, post-left CVA and has just been moved from the intensive care unit to a stroke unit. When beginning the examination, the therapist finds the patient's speech slow and hesitant. The patient is limited to one- and two-word productions, and

- expressions are awkward and arduous. However, the patient demonstrates good comprehension. What type of speech disorder is this patient exhibiting?
- A. Fluent aphasia.
 - B. Global aphasia.
 - C. Nonfluent aphasia.
 - D. Dysarthria.
27. A patient recovering from traumatic brain injury (TBI) is functioning at level IV on the Rancho Los Amigos Levels of Cognitive Functioning Scale (LOCF). During the therapist's initial examination, the patient becomes agitated and tries to bite the therapist. What is the therapist's BEST course of action?
- A. Postpone the examination for 1 week and then try again.
 - B. Restructure the formal examination so the therapist can complete it in three very short sessions.
 - C. Document the behaviors and engage in a calming activity.
 - D. Postpone the examination until later in the day when the patient calms down.
28. An elderly patient is recovering from a right CVA and demonstrates strong spasticity in the left upper extremity. The therapist wants to reduce the expected negative effects of spasticity in the left upper extremity while the patient is working on sitting control. What is the BEST position for the upper extremity?
- A. Left elbow flexed with arm resting on supporting pillow, positioned on the patient's lap.
 - B. Affected upper extremity extended and internally rotated with the hand at the side.
 - C. Left shoulder abducted and externally rotated with elbow extended and weight supported on the palm of the hand.
 - D. Left shoulder adducted and internal rotation with arm extended and hand resting on the thigh.
29. To examine a patient with a suspected deficit in graphesthesia, what should the therapist ask the patient to identify with eyes closed?
- A. Different objects placed in the hand and manipulated.
 - B. The vibrations of a tuning fork when placed on a bony prominence.
 - C. A series of letters traced on the hand.
 - D. Differently weighted, identically shaped cylinders placed in the hand.
30. A therapist suspects lower brain stem involvement in a patient with amyotrophic lateral sclerosis (ALS). Examination findings reveal motor impairments of the tongue with ipsilateral wasting and deviation on protrusion. These findings confirm involvement of which cranial nerve?
- A. Hypoglossal.
 - B. Glossopharyngeal.
 - C. Vagus.
 - D. Spinal accessory.

SECTION B: SHORT ANSWER QUESTIONS (SAQ)**20 MARKS****ANSWER ALL QUESTIONS. Each question is 5 marks**

1. Describe the staging of Parkinson's Disease using the Hoehn and Yahr Classification system (5 marks)
2. Discuss the benefits of hand-over-hand modeling for patients with decreased cognitive functioning (5 marks)
3. Describe the gait training sequence for patients after acute CVA (5 marks)
4. What environmental factors must be considered when preparing a patient with CVA for discharge to home? (5 marks)

SECTION C: LONG ANSWER QUESTIONS (LAQS)**20 MARKS****ANSWER TWO QUESTIONS EACH ONE IS 10 MARKS**

1. Define the ten stages within the Rancho Los Amigos Scale of Cognitive Functioning, stating the behaviors exhibited in each stage. (10 marks)
2. A 45-year-old man who suffered an incomplete disruption of C3/4 following a motorbike accident was recently discharged home, ventilated and has a 24-hour package of care provided by a dedicated nursing team who all undertook an extensive training package at the regional spinal unit once. He contracted a chest infection 2/52 ago and has had a full course of antibiotics. Nursing staff report difficulties in achieving a good sitting posture in the powered wheelchair since chest infection. This has prevented participation in social activities. On assessment, there is increased tone at knees into extensor, increased tone at both ankles, held in plantarflexion and inversion. Unable to achieve neutral position at ankles to place feet onto footplates
 - i Why does this patient require full ventilatory support? (2 marks)
 - ii Detailed assessment had to be postponed due to concerns with increasing blood pressure. Why is this a concern for this patient? (2 Marks)
 - iii What implication does autonomic dysreflexia have for planning treatment interventions? (2 marks)
 - iv Why is this patient experiencing an increase in tone at the present time? (2 marks)
 - v What would your goals for treatment be? (2 marks)