**IQRA NATIONAL UNIVERSITY**

**DEPARTMENT OF ALLIED HEALTH SCIENCES**

**Final-Term Examination**

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### Q1. What is spinal cord injury? Write about complete and incomplete spinal cord injury?

A spinal cord injury — damage to any part of the spinal cord or nerves at the end of the spinal canal **(cauda equina)** it may causes permanent changes in strength, sensation and other body functions below the site of the injury

### SYMPTOMS OF INJURY THAT AGGREVATES:

Your ability to control your limbs after a spinal cord injury depends on two factors:

* The place of the injury along your spinal cord and the severity of injury to the spinal cord.
* The lowest normal part of your spinal cord is referred to as the neurological level of your injury.

The severity of the injury is often called "the completeness" and is classified as either of the following.

### CLASSIFICATION

### INCOMPLETE AND COMPLETE SPINAL CORD INJURY:

* **Complete.** If all feeling (sensory) and all ability to control movement (motor function) are lost below the spinal cord injury, your injury is called complete.
* **Incomplete.** If you have some motor or sensory function below the affected area, your injury is called incomplete. There are varying degrees of incomplete injury.

### REFERED TO AS:

Tetraplegia. Also known as quadriplegia, this means that your arms, hands, trunk, legs and pelvic organs are all affected by your spinal cord injury.

Paraplegia. This paralysis affects all or part of the trunk, legs and pelvic organs.

Your health care team will perform a series of tests to determine the neurological level and completeness of your injury.

### SYPMTOMS:

Spinal cord injuries of any kind may result in one or more of the following signs and symptoms:

1. Loss of movement
2. Loss or altered sensation, including the ability to feel heat, cold and touch
3. Loss of bowel or bladder control
4. Exaggerated reflex activities or spasms
5. Changes in sexual function, sexual sensitivity and fertility
6. Pain or an intense stinging sensation caused by damage to the nerve fibers in your spinal cord
7. Difficulty breathing, coughing or clearing secretions from your lungs

### DIAGNOSIS OF SCI:

* X ray
* Ct Scan
* MRI

### TREATMENT:

Unfortunately, there's no way to reverse damage to the spinal cord. But researchers are continually working on new treatments.

**EMERGENCY TREATMENTS AND FIRST AIDS CARE:**

* Medication
* Immobilization
* Surgery Etc.

### Q2: Explain the following?

### Central cord syndrome

### Anterior cord syndrome

### Brown sequards syndrome

### Cauda equaina syndrome.

### Central Cord Syndrome:

Central cord syndrome (CCS) is an incomplete traumatic injury to the cervical spinal cord – the portion of the spinal cord that runs through the bones of the neck.

* This injury results in weakness in the arms more so than the legs. The injury is considered “incomplete” because patients are usually not completely paralyzed.
* Pain and Temperature
* Motor weakness of upper limbs is more than lower limbs due to spatial
* Bladder and bowl involvement is early

### Clinical Manifestation

* Occurs due to hyperextension of C-spine
* Disproportional greater UL weakness
* Sensory loss
* Recovery is possible

### Anterior Cord Syndrome :

Anterior spinal artery syndrome (also known as "anterior spinal cord syndrome") is syndrome caused by ischemia of the anterior spinal artery resulting in loss of function of the anterior two-thirds of the spinal cord. The region affected includes the descending corticospinal tract, ascending spinothalamic tract, and autonomic fibers. It is characterized by a corresponding loss of motor function, loss of pain and temperature sensation, and hypotension.

Anterior spinal artery syndrome is the most common form of spinal cord infarction. The anterior spinal cord is at increased risk for infarction because it is supplied by the single anterior spinal artery, which has few collateral unlike the posterior spinal cord which is supplied by two posterior spinal arteries.

Motor function is lost bilaterally

Pain and temperature sensation is lost bilaterally in ANTERIOR SPINAL CORD SYNDROME.

### Brown sequard syndrome:

Incomplete transection cord injury:

Brown-Sequard syndrome (BSS) is a rare neurological condition characterized by a lesion in the spinal cord which results in weakness or paralysis ( hemi paraplegia ) on one side of the body and a loss of sensation (hemi anesthesia) on the opposite side.

Ipsilateral sensory and motor loss occurs

### Cauda equine syndrome:

Cauda equina syndrome (CES) is a condition that occurs when the bundle of [nerves](https://en.wikipedia.org/wiki/Nerves) below the end of the [spinal cord](https://en.wikipedia.org/wiki/Spinal_cord) known as the [cauda equina](https://en.wikipedia.org/wiki/Cauda_equina) is damaged.

Acute onset is marked by a rapid development of symptoms that often includes severe low back pain and significant loss of bladder and bowel function. In an acute onset, sensory and motor deficits in the lower body typically develop within 24 hours.

Gradual onset can develop over progressively, and symptoms may come and go over the course of several weeks or months. Gradual onset usually typically includes partial or intermittent loss of bowel and bladder function, as well as recurring low back pain in combination with muscle weakness and numbness and bladder and/or bowel dysfunction. Sciatica may also occur in one or both legs.

### CLINICAL MENIFISTATION:

* Neurological symptoms in the lower body**.** Weakness, tingling, or numbness in the legs, and/or feet on one or both sides of the body is a common symptom. Lower body weakness or numbness may make it difficult to walk or stand.
* Altered sensation in the “saddle region,” or saddle anesthesia. The saddle region is the area of the body that would be in contact with a saddle when sitting on a horse. This region includes the groin, the buttocks and genitals, and the upper inner thighs. With cauda equina syndrome, all or parts of this region may have neurological symptoms of numbness, tingling, and/or weakness.

### DIAGNOSTIC FINDINGS:

* Severe low back pain
* Motor weakness, sensory loss, or pain in one, or more commonly both legs
* Saddle anesthesia (unable to feel anything in the body areas that sit on a saddle)
* Recent onset of bladder dysfunction (such as urinary retention or incontinence)
* Recent onset of bowel incontinence
* Sensory abnormalities in the bladder or rectum
* Recent onset of sexual dysfunction

### Q3: Name cranial nerves and write its functions. Also write effectiveness of MRP

### Cranial nerves:

Your cranial nerves are pairs of nerves that connect your BRAIN to different parts of your head, neck, and trunk. There are 12 of them, each named for their function or structure.

Each nerve also has a corresponding Roman numeral between I and XII.

Names are given below:

I. Olfactory nerve

II. Optic nerve

III. Oculomotor nerve

IV. Trochlear nerve

V. Trigeminal nerve

VI. Abducens nerve

VII. Facial nerve

VIII. Vestibulocochlear nerve

IX. Glossopharyngeal nerve

X. Vagus nerve

XI. Accessory nerve

XII. Hypoglossal nerve

### DISCUSSED ALONG WITH FUNCTIONS:

### 1: Olfactory nerve

The Olfactory nerve transmits sensory information to your brain regarding smells that you encounter.

### II. Optic nerve

The optic nerve is the sensory nerve that involves vision.

### III. **Oculomotor nerve**

The oculomotor nerve has two different motor functions: muscle function and pupil response

### IV. Trochlear nerve

The trochlear nerve controls your superior oblique muscle. This is the muscle that’s responsible for downward, outward, and inward eye movements.

### V. Trigeminal nerve

The trigeminal nerve is the largest of your cranial nerves and has both sensory and motor functions.

### VI. Abducens nerve

The abducens nerve controls another muscle that’s associated with eye movement, called the lateral rectus muscle . This muscle is involved in outward eye movement. For example, you would use it to look to the side.

### VII. Facial nerve

The Facial nerve provides both sensory and motor functions

### VIII. Vestibulocochlear nerve

Your vestibulocochlear nerve has sensory functions involving hearing and balance. It consists of two parts, the cochlear portion and vestibular portion:

### IX. Glossopharyngeal nerve

The glossopharyngeal nerve has both motor and sensory functions

### X. Vagus nerve

The Vagus nerve is a very diverse nerve. It has both sensory and motor functions,

### XI. Accessory nerve

Your Accessory nerve is a motor nerve that controls the muscles in your neck. These muscles allow you to rotate, flex, and extend your neck and shoulders.

### XII. Hypoglossal nerve

Your Hypoglossal nerve is the 12th cranial nerve which is responsible for the movement of most of the muscles in your tongue. It starts in the medulla oblongata and moves down into the jaw, where it reaches the tongue. Gag reflex

### EFECTIVENESS OF MOTOR RELEARNING PROGRAMME:

1. Recognition & analysis the problem
2. Select the most essential missing component
3. Explain clearly to the patient by speech & demonstration
4. Monitor the patients performance & give verbal feedback
5. Re-evaluate throughout in every session
6. Provide an enriched environment in which patient will be motivated towards recovery of mental & physical abilities

### Q4. Name balance and coordination tests. What is MRP?

Names of Balance and coordination test are given below :

1. Jebsen-Taylor Hand Function Test
2. The Minnesota Manual Dexterity Test
3. Hand Tool Dexterity Test
4. Equilibrium (Balance) test
5. Non Equilibrium test
6. Motor task requirements (Arrange in order )
7. Movement abilities
8. Balance test

### What is MPR?

* It is a task-oriented approach to improving motor control, focusing on the relearning of daily activities.
* Retraining of motor control basing on understanding of normal movement & analysis of motor dysfunction.
* Emphasis of MRP is on practice of specific activities, the training of cognitive control over muscles & movement.
* Components of activities & conscious elimination of unnecessary muscle activity.
* In rehabilitation programme involve real life activities included.

### Q5. Define PNF? Discuss the following

### Irradiation

### Slow reversal

### Rhythmic stabilization

### Contract and hold relax.

### INTRODUCTION TO PNF:

Proprioceptive: means receiving stimulation within the tissues of the body.

Neuromuscular: means pertaining to the nerves and muscles.

Facilitation: means the effect produced in nerve tissue by the passage of an impulse.

DEFINATION:

Stimulation of the proprioceptors for increasing demand on the neuromuscular mechanism to obtain and facilitate its response.

Developed by Dr Herman Kabat 1946 and 1951.

### IRRITATION:

* Spread of response to stimulus.
* Response to stimulus increase in intensity and duration
* Properly applied resistance leads to irradiation and reinforcement.
* Increase facilitation in the synergistic pattern of movement.
* No perfect rule because each patient react differently.
* For example hip flexion \_\_\_\_ abdomanlis
* Supinator/pronator\_\_rotators

### Slow reversal:

Isotonic contraction of the antagonist followed immediately by an isotonic contraction of agonist.

The initial contraction facilitate agonist contraction

### Slow reversal hold:

Isotonic contraction of agonist followed immediately by an isometric contraction, which hold command given at the end of each active movement.

Strength at specific point

### Rhtymetic Stabilization :

Isometric contraction of agonist followed by isometric contraction of antagonist to produce contraction and stability of the two opposing

Command is always hold.

### Contract and Hold Relax:

Stretching tech

Contracture, tightness and flexibility

Isotonic resistance to antagonist ms ,patient relax and passively moved into agonist pattern.

In Hold relax isometric contraction of antagonist against resistance followed by a concentric contraction of the agonist

### THE END..!!