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**Examination: Mid Term Subject: Therapeutic Exercise**

**ANSWERS:**

**Ans:1(a) Therapeutic Exercise:**

**Definition:**

 The goal of therapeutic exercise is to return an injured patient to a fully functioning, pain-free state.

**Aims of Therapeutic Exercise:**

* Enable ambulation
* Release contracted soft tissues
* Mobilise joints
* Improve circulation
* Improve respiratory capacity
* Decrease stiffness
* Improve muscle strength
* Improve endurance
* Improve coordination
* Promote confidence and well being
* Improve balance
* Promote relaxation

**Ans:1(b) Range of Motion(ROM):**

 **Definition:**

 It is the measurement of movement around a specific joint or body part.

 **(OR)**

The full movement potential of a joint, usually its range of flexion and extention.

For example, a knee might lack 10 degrees of full extention due to an injury.

**Why we use ROM?**

 It is the basic technique for movement examination.

* It is a technique used for initiating or incorporating (include) movement into a therapeutic intervention program.
* They also strengthen bones and cartilage and improve fitness level.
* Warming up the joints helps to prepare the body for the movements.
* Start with small joints and small movements and progress into large joints and large movements.
* Full ROM: It is from 0 degree up to the end range.
* Functional ROM: It is in the middle range in which we perform daily activities.

**Ans:2) Aquatic Exercise:**

 **Definition:**

 It is a multi depth immersion pool or tank that facilitates the application of various established therapeutic interventions, including stretching, strengthening, joint mobilization, balance and gait training and endurance training.

**Properties of Water:**

* **Buoyancy:**

 It is a upward force that work opposite to gravity.

**Clinical Significance:**

* Relative weightlessness and joint unloading
* Active motion with increased
* Three-dimensional access to the patient
* **Hydrostatic Pressure:**

 It is a pressure exerted on immersed object.

**Clinical Significance:**

* Reduces or limit effusion.
* Centralizes peripheral blood flow.
* Assists venous return, avoid DVT.
* The proportionality of depth and pressure allows patient to perform exercise more easily when closer to the surface.
* **Viscosity:**

 It is the friction occuring between molecules of liquid resulting in resistance to flow.

**Clinical Significance:**

* Creates resistance with all active movements.
* Increasing the surface area moving through water increases resistance.
* **Surface Tension:**

 The surface of fluid act as membrane under tension.

**Ans:3) Maitland Joint Mobilization Grading Scale:**

 It is the grading based on amplitude of movement and where within available ROM the force is applied.

Grade:1

Grade:2

Grade:3

Grade:4

Grade:5

**Grade:1)** SARO(Small Amplitude Rhythmic Oscillation) at the beginning of range of movement

* Manage pain and spasm.

**Grade:2)** LARO(Large Amplitude Rhythmic Oscillation) within midrange of movement. Not reaching the limit.

* Manage pain and spasm.

**Grade 1 and 2**- often used before and after treatment with **grades 3 and 4.**

**Grade:3)** LARO up to point of limit of the available motion and are stressed into the tissue resistance.

* Used to gain motion within the joint.
* Stretches capsule and CT structures.

**Grade:4)** SARO at very end range of movement.

* Used to gain motion within the joint.
* Used when resistance limits movement in absence of pain.

**Grade:5)** (Thrust technique)-(Manipulation)

* Small amplitude, quick thrust at end of range
* Accompanied by popping sound (manipulation)
* Requires training

**Grade 1 and 2**:

* Primarily used for pain.
* Pain must be treated prior to stiffness.
* Painful conditions can be treated daily.
* Small amplitude oscillations stimulate mechanoreceptors-limit pain perception.

**Grade 3 and 4:**

* Primarily used to increase motion.