**IQRA NATIONAL UNIVERSITY**

**DEPARTMENT OF ALLIED HEALTH SCIENCES**

**Final-Term Examination (Spring-20) (DPT 6TH)**

**Course Title: Physical Agents and Electrotherapy-ll Instructor: Ms. Maria Feroze**

 **Time: 6 hours Max Marks: 50**

**Note:**

* **This paper has two sections, sec A and sec B. Attempt both sections.**

**SECTION-A: MULTIPLE CHOICE QUESTIONS (MCQs)**

1. Romans used baths for:
	1. Immersion

B= Hygiene

C= Pleasure

D=None of the above

1. The goal of hydrotherapy is to improve the circulation and quality of blood, for getting this goal one needs?
	1. Proper circulation
	2. Cold water

C=Hot water

D=Food on time

1. Regarding the physical properties of water moving water can transfer heat by\_\_\_\_\_\_\_\_\_\_\_\_
2. Water cannot transfer heat
3. Conduction

C=Convection

D=Radiation

1. The thermal conductivity of water is approximately \_\_\_\_\_\_\_\_\_\_\_\_that of air
2. 4 times
3. 16 times
4. 2.5 times

D=25 times

1. \_\_\_\_\_\_\_\_\_\_\_ is the upward force generated by the volume of water being displaced.
2. Resistance
3. Hydrotherapy

C=Buoyancy

D=Torque

1. Kevin, a 34 years old football player, comes to your clinic with an acute sprain injury. Your clinical supervisor tells you to control the swelling and pain with ice, on the basis of the evidence (studies) you have what will be the right application of ice?
2. WSingle 20-minute

**B=**Two repetitions of 10 minutes off and 10 minutes on

C=Four repetitions

D=I will refer this patient to medical doctor

1. Infrared rays are electromagnetic waves with wavelengths of?
2. 75 nm- 4000 nm
3. 7.5 nm- 4000 nm

C=750 nm- 400000 nm

D=600 nm- 400000 nm

1. Non- luminous generator provide \_\_\_\_\_\_\_\_\_\_

A=Infra-red rays

B=UV rays

C=Visible light

D=All of the above

1. If you need both infra-red and UV rays the best option to use is?

A=Luminous generator

B =Non- luminous generator

C=Both can be used

D=Direct current

1. Specific gravity of a person increases when?
2. Bone mass is decreased
3. Muscle mass is decreased
4. Increase in adipose tissue

d=None of the above

1. The distance of Infra-red lamp from the patient should be measured. It is usually\_\_\_\_\_\_\_\_\_\_\_ according to the output of the generator.
2. 5-17 cm
3. 50-555 cm
4. 5.0-7.5 cm

D=50-75 cm

1. The human body has a specific gravity of\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. 8 – 0.9
3. 00.80 – 00.90

C=0.87 – 0.97

D=0.40 – 0.90

1. Regarding the duration of infrared treatment for acute inflammation or recent injuries and for the treatment of wounds, an exposure of \_\_\_\_\_\_\_\_\_\_\_\_\_is adequate.
2. 1-2 days
3. 1-2 weeks
4. 1-2 months

D=10-15 minutes

1. All of the following are the therapeutic effect of local tissue heating Except?
2. Healing
3. Control of infection
4. Relief of pain
5. Both A and B

E=None of them

1. When a body part immersed in fluid is at rest, the fluid will exert equal pressure on all surface areas at a given depth. This is \_\_\_\_\_\_\_
2. Buoyancy
3. Archimede’s Principle

C=Pascal’s law

D=Force law

1. Any condition in which increased metabolic rate, cell activity and local blood flow are beneficial could be appropriately treated by\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Cold water
3. Ice

C=Mild heating

D=Increased heating

1. The stimulation of sensory heat receptors may activate the\_\_\_\_\_\_\_\_\_\_\_ for the relief of pain.
2. Muscles contractures
3. Ligands gate mechanism
4. Primitive reflexes

D=Pain gate mechanism

1. \_\_\_\_\_\_\_\_\_\_is a water bath in which the water is agitated by the electric turbine
2. Hubbard tank
3. Heating tank

C=Whirlpool

D=Hot bath

E=Both B and C

1. Fungal infections which are difficult to control are sometimes treated with regular heat; what seems to be the effective factors of heating?
2. Thorough drying of the skin surface
3. Local vasodilatation
4. Systemic vasoconstriction

D=Both A and B

1. Regarding shortwave, the electrodes are placed on the same side of the part to treat more superficial structure. This is called \_\_\_\_\_\_\_\_
2. Contra-planar

B=Coplanar

C=Cross-fire

D=Longitudinal

1. Viscosity is temperature dependent so raising the temperature in liquids will?

A= Increase fluid movement

1. Decrease fluid movement
2. Increase viscosity
3. Both A and C
4. Ultra-violet lies between \_\_\_\_\_\_\_\_\_\_\_\_\_\_and X-ray in the electromagnetic spectrum

A=Visible light

B=Infra-red

C=Microwave

D=Ultraviolet

1. Shortwave goes deep, its penetration is up to?
2. 4cm

B=5cm

C=6cm

D=8cm

1. A physical therapist assistant is discussing a topic with the students of DPT, giving the instructions that it may penetrate as far as the capillary loops in the dermis, what he is talking about?
2. UV-C
3. UV-B

C=UV-A

D=UV-D

1. Which of the following is not included in diathermy family?
2. Microwave
3. Ultrasound
4. Shortwave

D=Infrared

1. Direct penetration of the HeNe laser at 1mW is said to be about approximately \_\_\_\_\_\_\_\_
2. 0.2mm
3. 0.5mm

C=0.8mm

D=12mm

1. Being a physical therapist if you are using UV light for a condition, what will be the optimum course of treatment?
2. 4 weeks
3. 6 Weeks
4. 4 months

D=Depends on the condition

1. All of the following are the Indications for Spinal Traction Except?
2. Disk herniation
3. Muscle strain

C=Osteoporosis

D=Degenerative joint diseases

1. Process of drawing or pulling apart of a body segment is?

A=Traction

B=Spinal traction

C=Compression

D=Spinal compression

1. \_\_\_\_\_\_\_\_\_\_\_waves have been reported to penetrate as deep as 4-6 cm into the tissues
2. Infra-Red
3. Micro
4. Ultrasound

D=None of them

1. To treat an infected Ulcer with UV-radiations, which one will be the best treatment option?
2. UV-D
3. UV-A

C=UV-B

D=UV-C

1. As a physical therapist you have much more knowledge about skin receptors, the following will reflect it, which one is true statement regarding skin receptors?
2. Warm receptors are several times more numerous than cold receptors

B=Cold receptors are several times more numerous than warm receptors

C=Cold and warm receptors are equal in quantity

D=Cold receptors sometimes work as warm receptors

1. When cold is applied in an appropriate way on the skin, it increases the excitatory bias around the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Posterior horn cell

B=Anterior horn cell

C=Lateral horn cell

D=Basically around the ganglion

1. Regarding treatment of jaundice in babies with UV light, how long will it take to correct jaundice?
2. 24-48 hours
3. 24-72 hours

C=24-48 hours

D=72 hours only

1. In general use of UV light treatment, a target distance of skin from lamp is\_\_\_\_\_\_\_\_\_\_\_\_ assuming an angle of incidence of 90°.
2. 24-48 inches
3. 24-72 inches
4. 2-4 cm

D=None of the above

1. A patient presented to you after an hour of acute sprain injury; while your first goal is to decrease pain and swelling via cold therapy what will you use for the referenced therapy?

A=Ice

B=Cold water

C=Hot packs

D=All of the above can be used

**SECTION – B**

Q1. Briefly explain how hydrotherapy produces:

* 1. Musculoskeletal effects
	2. Cardiovascular effects
	3. Respiratory effects

Ans= **Hydrotherapy**

The use of water in any form for treatment of disease

It has been used to treat for injuries and so many other conditions

It improve circulation and blood nutrition

**Musculoskeletal effects**

The buoyanc and resistance property of water effects the musculoskeletal condition

**Definition**

Upward force generated by the volume of water displaced force ,opposite to gravity

**Conditions**

It is useful infor treatment of sprain and strain ,spondolysthesis,low back pain ,muscles tears ,osteoarthritis and other conditions

**Mechanism**

It work on buoyancy effect which reduce the weight of joint, bone and muscle .

It give support for rehabilitation of muscle and joint injury

It also useful for obese person which are not able to perform exercise

In musculoskeletal injury we work on to restored Function so our work will be toward

Decrease pain,increased strength ,increased flexibility and confidant.

Due to resistance exercise in water strength will be increased .due to water resistance exercise are perform easily which is helpful in musculoskeletal

Pain are reduced if we appy heating effect due to which blood flow increase and swelling and pain are reduced

Due to buoyancy the gravity wiil be which is helpfull in gait training by changing the depth of water

The buoyancy will reduced weight on joint sobthey eeasily move joint and perform moments and exercise it also decrease the strees and compression on joints and ligament and muscle

 **Cardiovascular effect**

Hydrotherapy is beneficial in cardiovascular .it facilitates cardiovascular function

**Mechanism**

Hydrostatic property of water facilitates the circulatory function

**Definition**

Pressure exerted by water on immersed body

**Mechanism**

**Water** cause relaxation of muscle and increased blod flow to periphery

Cardiac output are increased

Pressure will be exerted equally on both side .when we increased the pressure the swelling will be reduced

**The hydrostatic pressure**

It will be placed on out side of body cause decrease in bp of peripheral and increased in bp in surrounding of heart which can also cause problems for chronic heart failure etc .more effect will produce if depth and pressure will keep decrease

It is useful for cardiac fitness

Cardiac output and will increased

 Due to increased in diastolic filling the Heart rate wiil be decrease and cause increased in stroke volume

Systolic blood pressure will decrease

Vessels

If we perform exercise in cold water the vessel become construst and blood flow will be toward organ but if exercise are perform in hot the vessel becom dialate and it wiil cause blood toward muscle etc

**Respiratory effects**

 60 percent of respiratory work increased due to hydrostatic pressure of water

It increased blood volume of chest and result resistance in the expansion of lung

Due to immersed the blood goes to periphery and increased in cheat cavity which cause difficulty for lung expasion and decrease in lungs volume

It cancel effects of gravity Hydrotherapy wiill give for a short period of time to a patient respiratory problems

Walking in water cause higher activity of muscle and cardiorespiratory response

Heating effect will reduce muscle spasm of respiratory muscle

Buoyancy force reduced weight bearing exercise so shortness of breath will not cause

Hydrotherapy will be improve tolerance ,strengthening respiratory muscle and and decrease dyspepsia