



NI-9007

Seat No. _____

Second Year B. Physiotherapy Examination

January - 2017

Electrotherapy - I

Time : 3 Hours]

[Total Marks : 100

- Instructions :**
- (1) The answers should be specific to the questions asked.
 - (2) Each section should be in a separate answer booklets.
 - (3) Draw neat labeled diagrams wherever necessary.
 - (4) Answer all the questions.

SECTION - I

- 1 Answer any two : 10×2=20**
1. Discuss the different methods of application of short wave diathermy. Explain the dangers and contraindications of short wave diathermy.
 2. Define Ultra violet radiation. Explain the various types of generators and its production.
 3. Define Ultra sound. Explain the Treatment parameters and Physiological effects of ultrasound.
- 2 Answer any two : 5×2=10**
1. Techniques of application in phonophoresis.
 2. Magnetron its M.W.D.
 3. Whirlpool bath.
- 3 Answer any five : 2×5=10**
1. RICE.
 2. Cavitation
 3. Convection and radiation
 4. Electrostatic field.
 5. Buoyancy
 6. Inverse square law.

- 4 M.C.Q. : 1×10=10
1. A patient with a cardiac pace maker suffers from shoulder pain and stiffness which of the following modality would not be indicated
(A) Hot pack (B) S.W.D.
(C) Ultrasound (D) None of the above
 2. The depth of penetration of M.W.D.
(A) greater than IR lesser than S.W.D.
(B) lesser than IR and greater than S.W.D.
(C) Equal to S.W.D.
(D) None of the above
 3. The term Diathermy means
(A) superficial heating
(B) deep heating
(C) through to through heating
(D) none of the above
 4. The commonly used therapeutic frequency of S.W.D. is
(A) 29.17 MHZ (B) 27.12 MHZ
(C) 30.12 MHZ (D) 20.19 MHZ
 5. The law that states about the absorption of electromagnetic waves in the tissue to have an effect is
(A) Joule's law (B) Grotthu's law
(C) Snell's law (D) Sherrington's law
 6. The cable method of S.W.D. is called as
(A) pulsed S.W.D.
(B) inductothermy
(C) contra planar method
(D) cross fire method
 7. The Homan's sign positive denotes
(A) D.V.T. (B) UMN lesion
(C) LMN lesion (D) all the above
 8. What treatment should not be used immediately after an injury like ankle sprain?
(A) Rest (B) Ice
(C) Heat (D) Compression
 9. The reflection of ultrasound wave from bone produce heating effect leading to
(A) vasodilatation (B) erythema
(C) swelling (D) periosteal pain
 10. In ultrasound for a acute musculoskeletal condition were superficial effect is to be attained by using
(A) Pulsed 3 MHZ (B) Continuous 1 MHZ
(C) Continuous 3 MHZ (D) Pulsed 1 MHZ

SECTION - II

- 1 Answer any **two** : **10×2=20**
1. Explain in detail about the technique of application of "Laser" and its effects in pain relief, wound healing and in musculoskeletal condition.
 2. Define heat and explain in detail about physical effects and transmission of heat. Add a note on apparatus, indications and contra indications, technique of application of liquid paraffin wax bath.
 3. Define cryotherapy. Explain the methods of application and its therapeutic effects.
- 2 Answer any **two** : **5×2=10**
1. Dangers of microwave therapy
 2. Laws governing radiation
 3. Electromagnetic spectrum.
- 3 Answer any **five** : **2×5=10**
1. Spacing.
 2. Laws of reflection and refraction.
 3. PUVA therapy.
 4. Reverse piezo electric effect.
 5. Contrast bath.
 6. Cosine Law.
- 4 M.C.Q. : **1×10=10**
1. Pain that is experienced in one area when the actual or threatened tissue damage is in another area is called as
(A) Referred pain (B) Hyperalgesia
(C) Synapse (D) None of the above
 2. Pain in response to stimuli that do not usually produce pain
(A) Acute pain (B) Chronic pain
(C) Allodynia (D) Analgesia
 3. The application of ultrasound with a topical drug to facilitate transdermal drug delivery
(A) Ionotoporesis (B) Phonophoresis
(C) TENS (D) Pulsed ultrasound
 4. The first phase of healing after tissue damage
(A) Inflammatory phase
(B) Proliferative phase
(C) Maturation phase
(D) All the above

5. Electromagnetic radiation of wavelength of ranges <290 to 400 nm that lies between X ray and visible light that has non thermal effects when absorbed through skin
 - (A) Infrared rays
 - (B) Ultra violet rays
 - (C) Ultrasound
 - (D) SWD
 6. A technique that combines the use of cold and exercise
 - (A) cryokinetics
 - (B) plyometrics
 - (C) circuit training
 - (D) none of the above
 7. The vapocoolant sprays used for brief and rapid cutaneous cooling based on the principle
 - (A) Conduction
 - (B) Convection
 - (C) Conversion
 - (D) Evaporation
 8. An ultrasound beam travels through the energy contained with in it decreases with distance travelled this phenomenon is known as
 - (A) Absorption
 - (B) Attenuation
 - (C) Conduction
 - (D) None of the above
 9. The vibrating source of required to produce ultrasound is achieved by using
 - (A) Sodium citrate
 - (B) Barium titanate
 - (C) Silver nitrate
 - (D) Chromium oxide
 10. Pain and sensations are carried by
 - (A) Anterior spinothalamic tract
 - (B) Cortico spinal tract
 - (C) Lateral spino thalamic tract
 - (D) None of the above
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