



RK-9007

Seat No. _____

**Second Year Bachelor of Physiotherapy
Examination**

February - 2019

Electrotherapy - I

Time : 3 Hours]

[Total Marks : 100

Instructions :

- (1) Answers should be brief and to the point.
- (2) Figures to the right indicate marks.
- (3) Illustrate answers with suitable diagrams.
- (4) Each section should be written in separate answer books.

SECTION - I (ELECTROTHERAPY - 1)

- 1** Long essay questions : (any two) **10×2=20**
 - (a) Define SWD. Explain its production and circuit diagram. Write its methods of application and contraindications in detail.
 - (b) What are the principles of Production and application of ultrasound and add note on indications of ultrasound ?
 - (c) Write in detail about physiological and therapeutic effects of ice therapy.

- 2** Short essay : (any two) **5×2=10**
 - (a) Luminous and non luminous generators.
 - (b) Methods of application of paraffin wax bath.
 - (c) Different degree of erythema, write the technique to find out the test dosage of UVR.

- 3** Write short answers : (any five) **2×5=10**
 - (a) Define Power density formula in laser application.
 - (b) Functions of the skin.
 - (c) Name any two non thermal effects of ultrasound.
 - (d) Define PUVA
 - (e) Vant's hoff Law
 - (f) Ideal Coupling Medium

4 Multiple Choice Questions :

1×10=10

- (1) The frequency of SWD-----
 - (A) 27.12 MHZ
 - (B) 25.12 MHZ
 - (C) 20.12 MHZ
 - (D) 12:27 MHZ
- (2) The therapeutic application of heat is known as
 - (A) Heliotherapy
 - (B) Thermotherapy
 - (C) Cryotherapy
 - (D) Short wave diathermy
- (3) The bellow given all are example of coupling media of ultrasound except....
 - (A) aquasonic gel
 - (B) glycerol
 - (C) distilled water
 - (D) Air
- (4) Infra red rays are electromagnetic waves with wavelength of :
 - (A) 1200 nm to 4,00,000 nm
 - (B) 1000 nm to 4,00,000 nm
 - (C) 750 nm to 4,00,000 nm
 - (D) all of the above . :
- (5) The melted wax need to be maintained at a temperature of _____.
 - (A) 50 degree to 55 degree Celsius
 - (B) 60 degree to 66# degree Celsius ,
 - (C) 40 degree to 44 degree Celsius
 - (D) All of the above
- (6) Semiconductors are elements whose conductivity is between _____.
 - (A) conductors and insulators
 - (B) conductors and thermistors
 - (C) conductors and non ohmic conductors
 - (D) all of the above
- (7) The joule's law of heating is given as _____.
 - (A) $Q=I^2Rt$
 - (B) $I = Q^2Rt$
 - (C) $R=I^2t$
 - (D) frequency resistance.
- (8) When Ultrasound is applied in pulsed mode the ratio of the time on to time off is :
 - (A) Space : Mark ratio
 - (B) Pulsed mark : Space ratio
 - (C) Mark : Space ratio
 - (D) Pulsed : ultrasound

- (9) Buoyancy is defined as _____.
- (A) downward force of water
 (B) upward force of water
 (C) all directional pressure
 (D) both (A) and (B)
- (10) To produce microwave the special type of thermionic valve is used which known as
- (A) Oscillator (B) Valve
 (C) Antenna (D) Magnetron

SECTION - II (ELECTROTHERAPY - 1)

- 5 Long essay : (any two) **10×2=20**
- (a) Write in detail about technique of applications of LASER and its indications, contraindications.
 (b) Write in detail about UVR Physiological effects and dangers.
 (c) Write in detail about production of MWD and therapeutic uses.
- 6 Short essay : (any two) **5×2=10**
- (a) Properties of water buoyancy.
 (b) Physical properties of laser.
 (c) Write any one method of production of UVR.
- 7 Write short notes : (any five) **2×5=10**
- (a) Inverse square law
 (b) Pulsed SWD
 (c) Whirlpool bath
 (d) Uses of filters in UVR
 (e) Write names of any 4 superficial heat modalities.
 (f) Therapeutic uses of paraffin wax bath.
- 8 Multiple Choice Questions : **1×10=10**
- (1) The natural sun light used for therapeutic purpose is known as _____.
- (A) SWD (B) heliotherapy
 (C) IRR (D) moist pack
- (2) High frequency currents are also called as _____.
- (A) electromagnetic waves
 (B) non thermal waves
 (C) micro current
 (D) all of the above

- (3) The inductothermy in SWD is also called as _____.
- (A) pulsed diathermy
 (B) condenser field method
 (C) cable method
 (D) none of the above
- (4) One the best treatment option of post traumatic joint stiffness is _____.
- (A) cold therapy (B) UVR
 (C) paraffin wax bath (D) all
- (5) Which one is indication for treatment of the UVR ?
- (A) pressure sores
 (B) cervical spondylosis
 (C) lumbar spondylosis
 (D) all of the above
- (6) When the current flows across the valve some electrons are caught on the _____ is known as.
- (A) GL (B) GRID LEAK
 (C) Both (A) and (B) (D) GRID
- (7) Which is a contraindication of infrared ?
- (A) Ulcers (B) Acute skin conditions
 (C) Superficial pain (D) Both (A) and (B)
- (8) Which one is indication for laser _____?
- (A) wound healing (B) pregnant uterus
 (C) eye disorder (D) cancer
- (9) E₂ dose of UVR is _____.
- (A) 2 × E₁ dose (B) 3 × E₁ dose
 (C) 2.5 × E₁ dose (D) 5 × E₁ dose
- (10) Laws of radiation is _____.
- (A) $\text{New dose} = \frac{\text{Old dose} \times (\text{New distance})^2}{(\text{Old distance})^2}$
 (B) $\text{New dose} = \frac{\text{Old dose} \times (\text{Old distance})}{(\text{New distance})}$
 (C) $\text{New dose} = \frac{\text{Old dose} \times (\text{New distance})}{\text{Old distance}}$
 (D) $\text{New dose} = \text{Old dose} \times (\text{New distance})^2$