REV-01
BPT/112/37/42

2025/11

SET B

BACHELOR OF PHYSIOTHERAPY
THIRD SEMESTER
ELECTROTHERAPY-II
BPT – 302

[USE OMR SHEET FOR OBJECTIVE PART]

Duration: 3 hrs. **Full Marks: 70**

(Objective)

Time: 30 min. **Marks: 20**

Choose the correct answer from the following: ***1×20=20***

1. The near infrared region is most effective for?
   a. Deep tissue heating
   b. Muscle stimulation
   c. Superficial wound drying
   d. Antibacterial action

2. The principle of SWD is based on:
   a. Infrared radiation
   b. Conversion of electromagnetic energy to heat
   c. Conduction of heat through tissues
   d. Reflection of sound waves

3. The energy transfer in ultrasound therapy occurs by?
   a. Radiation
   b. Convection
   c. Conversion
   d. Conduction

4. Longwave diathermy is mainly used for:
   a. Deep muscle injuries and joint pain
   b. Skin conditions
   c. Wound healing
   d. Eye disorders

5. The main therapeutic effect of PEMF is?
   a. Deep muscle stimulation
   b. Muscle strengthening
   c. Bone and soft tissue healing
   d. Skin desensitization

6. The heating effect of infrared radiation is mainly due to?
   a. Reflection
   b. Absorption by the skin
   c. Refraction
   d. Transmission through muscles

7. Which of the following tissues absorbs microwave energy most effectively?
   a. Fat
   b. Bone
   c. Skin and superficial muscles
   d. Deep muscles

8. Which of the following is a contraindication for PEMF therapy?
   a. Fracture healing
   b. Pacemaker
   c. Acute inflammation
   d. Soft tissue injury

9. IRR mainly produces which physiological effect?
   a. Muscle contraction
   b. Deep heating
   c. Surface heating
   d. Nerve stimulation

10. The main indication for UVR therapy is
    a. Muscle spasm
    b. Neuralgia
    c. Joint stiffness
    d. Psoriasis and acne

11. Compared to shortwave diathermy, microwave diathermy:
    a. Penetrates deeper
    b. Penetrates less deeply
    c. Produces more uniform heating
    d. Heats bone more efficiently

12. The penetration depth of longwave diathermy is approximately:
    a. 1–2 mm
    b. 1–2 cm
    c. 4–6 cm
    d. 10 cm or more

13. The wavelength corresponding to 2450 MHz is approximately:
    a. 11 meters
    b. 12 cm
    c. 1 meter
    d. 3 meters

14. The depth of penetration of shortwave diathermy is approximately:
    a. 1–2 mm
    b. 1–2 cm
    c. 3–5 cm
    d. 5–10 cm

15. UVR lies between which two regions of the electromagnetic spectrum?
    a. Infrared and visible light
    b. Radio waves and infrared
    c. X-rays and visible light
    d. Gamma rays and X-rays

16. The therapeutic frequency used for pain relief in IFT is generally?
    a. 1- 10Hz
    b. 150- 500 Hz
    c. 10- 150 Hz
    d. 500- 1000Hz

17. Microwave diathermy uses which form of energy?
    a. Sound energy
    b. Electromagnetic energy
    c. Infrared radiation
    d. Electrical current

18. The carrier frequency of the Russian current is typically?
    a. 500Hz
    b. 2500Hz
    c. 200Hz
    d. 5000Hz

19. The frequency of shortwave diathermy commonly used in physiotherapy is:
    a. 13.56 MHz
    b. 27.12 MHz
    c. 40.68 MHz
    d. 50 MHz

20. The beat frequency in IFT responsible for?
    a. Deep heating
    b. Skin desensitization
    c. Surface stimulation
    d. Muscle contraction and pain relief

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Descriptive

Time: 2 hrs 30 min **Marks: 50**

[Answer question no.1 & any four (4) from the rest]

1. Define SWD. Mention its circuit diagram and explain it briefly. **4+6=10**

2. Define interferential therapy. Describe its production, types and basic parameters? **2+4+2+2 =10**

3. Describe the physiological effects of infrared radiation? Discuss its effects on circulation, metabolism, pain relief and tissue healing? **10**

4. Explain in detail about LASER. **10**

5. Discuss the safety measures and precautions in the use of ultraviolet therapy to prevent burns, eye damage, and long-term risks? **10**

6. Write about acute and chronic pain. Mention three modalities used for both acute and chronic cases and their physiology of pain reduction. **2+8=10**

7. Define the Electromagnetic spectrum and give examples of the source of light that falls under it. Why is the spectrum essential in physiotherapy? **5+5=10**

8. Define Pulsed Electromagnetic Energy? Explain its physical characteristics and waveform on biological tissues? **5+5=10**

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