

No. of Printed Pages: 3

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DEPARTMENT OF PHYSIOTHERAPY
SCHOOL OF NURSING SCIENCES & ALLIED HEALTH**

**BPT 1st YEAR, ANNUAL EXAMINATION, MAY 2024
BASIC PHYSICS AND PHYSICAL PRINCIPLES OF ELECTROTHERAPY (THEORY)
PAPER CODE: BPT – 168**

Time: 3 Hours

Maximum Marks: 75 Marks

(Write your Roll No. on top of the paper immediately)

All sections are compulsory. Draw diagrams wherever necessary. Give examples wherever necessary.

SECTION – A

Multiple Choice Questions (All are compulsory)

(15 × 1 Mark = 15 Marks)

- Q1.** In order to reach deeper structures with electrical stimulation, the electrodes should be placed:
a) close together c) on top of each other
b) far apart d) in parallel
- Q2.** Which transcutaneous electrical nerve stimulation (TENS) technique would utilize the shortest pulse duration?
a) Acupuncture-like b) Brief Intense c) Conventional d) Noxious
- Q3.** Which units of measure are necessary to determine electrical resistance?
a) time and rate b) voltage and current
b) voltage and time d) current and time
- Q4.** Modality of choice for the treatment of acne vulgaris is _____.
a) infrared radiation lamp c) iontophoresis
b) hot pack d) ultraviolet rays
- Q5.** Which of the following is not a fundamental property of LASER?
a) high degree of coherence c) produced with narrow line width
b) generated with low intensity d) produced with narrow beam width
- Q6.** _____ in the LASER do not occur when photon colliding with an exciting atom causes the stimulated emission of a second photon.
a) Attenuation
b) Dispersion
c) Population inversion
d) None of the above
- Q7.** What is the relation between electric field strength and distance of a charge from the source of the electric field?
a) directly proportional c) inversely proportional
b) directly proportional to square d) inversely proportional to square

Q8. _____ current produces muscle hypertrophy with gain in strength.
a) Direct b) Didynamic c) Russian d) Faradic

Q9. In a step-up transformer:
a) number of turns in secondary coil is more than primary
b) number of turns in primary & secondary coil is same
c) number of turns in primary coil is more than primary
d) inversely proportional to square

Q10. Which of the following is not a physiological effect of moist heat
a) relieve muscle spasm
b) decrease circulation
c) increase perspiration and metabolism
d) decrease in pain

Q11. Heat transfer occurs through _____ in Fluidotherapy.
a) Conduction c) both conduction & convection
b) Convection d) there is no heat transfer

Q12. Which of the following is a contraindication for cryotherapy?
a) Acute pain c) Muscle spasm
b) Skin anesthesia d) Acute ligament sprain

Q13. Arrange the first aid sequence in the correct manner:
1) restore breathing 2) stop severe bleeding
3) treat shock 4) call advanced medical help immediately
a) 2,4,3,1
b) 4,2,1,3
c) 4,3,2,1
d) 1,2,3,4

Q14. Which is not a physiological effect of Paraffin wax bath?
a) decrease in pain
b) increase range of motion
c) decreases pliability of skin
d) increase temperature of area

Q15. LASER stands for:
a) light amplification by emission of radiation
b) light amplification by emission of resistance
c) light a-quantification by stimulated emission of radiation
d) light amplification by stimulated emission of radiation

SECTION – B

Answer any **THREE** of the following:

(3 × 10 Marks = 30 Marks)

- Q1.** Discuss the first aid & initial management of electric shock.
- Q2.** Discuss about whirlpool bath & paraffin wax bath. Write their indications & therapeutic effects.
- Q3.** Explain types of therapeutic currents & their characteristics and features.
- Q4.** Explain Magnetism & properties of magnets. What are the types of rectifiers and their applications.

SECTION – C

Answer any **TWO** of the following:

(2 × 15 Marks = 30 Marks)

- Q1.** Explain the types of TENS & write its indications, contraindications, dangers & precautions. Discuss the pain gate theory in detail.
- Q2.** Explain in detail the physiological & therapeutic effects of ultraviolet radiation. Elaborate the dosimetry of UVR.
- Q3.** Write the properties of LASER. Explain the production, indications & contraindications of LASER.
