

17671

15116

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Figures to the right indicate full marks.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. a) Attempt any THREE of the following:** **12**
- (i) Draw constructional sketch of Non-luminous generators of IR and explain its working.
 - (ii) Draw a labelled diagram of traction unit.
 - (iii) State the precautionary steps for ultrasound therapy unit for following conditions.
 - 1) During therapy reflection of ultrasound occurs.
 - 2) During therapy original intensity of ultrasound doesn't get transmitted to the patient.
 - 3) During therapy if transient cavitation occurs.
 - 4) If burn occurs; due to therapy.
 - (iv) With the help of graph explain 'Lewiss' hunting reaction.

P.T.O.

b) Attempt any ONE of the following:**06**

- (i) With the help of neat diagram explain the production procedure for ultrasound waves and also list out applications of ultrasound therapy. (any four)
- (ii) Draw a neat labelled block-diagram of solid-state electro-surgical unit and give function of each-block.

2. Attempt any FOUR of the following:**16**

- a) State the need of traction unit.
- b) Give the significance of using const-current impulses in electrotherapy.
- c) List different application techniques of ice-therapy and explain any one application for the same procedure for immersion technique.
- d) For following effect of electric current state the range of currents.
 - (i) Let - go current
 - (ii) Physical Injury and Pain.
 - (iii) Ventricular fibrillation
 - (iv) Heart - stops beating.
- e) State the maintenance steps carried out for electrosurgical unit.
- f) Explain the contraindications of cold therapy (any four)

3. Attempt any FOUR of the following:**16**

- a) Differentiate between UV and IR Lamp based on following points:
- (i) Wave-length
 - (ii) Constructional difference
 - (iii) Application area, where it is used.
 - (iv) Advantage, Disadvantage
- b) Draw a labelled diagram of ultrasound therapy machine and state technical specification for the same (any four)
- c) Enlist technical specifications for solid state cautery machine.
- d) Prepare the installation procedure for nerve-muscle stimulator.
- e) State the principle of working of cold therapy

4. a) Attempt any THREE of the following:**12**

- (i) Differentiate between short wave and microwave diathermy (any four points)
- (ii) Draw a neat labelled block diagram of nerve muscle stimulator.
- (iii) Give the significance of lasers in surgery.
- (iv) With the help of neat labelled diagram explain working principle of interference therapy.

b) Attempt any ONE of the following:**06**

- (i) 1) List and explain electro-surgery technique.
2) Draw cutting electrodes used in diathermy machine and label it.
- (ii) With a neat labelled diagram explain inductive field and capacitive field application techniques of short-wave diathermy machine.

- 5. Attempt any FOUR of the following: 16**
- a) Enlist precautions to minimize electric shock hazards (any four)
 - b) Draw and explain circuit diagram of microwave diathermy equipment.
 - c) Draw different current waveforms normally employed in electrotherapy and list their specific applications. (any four)
 - d) List applications of cold therapy (any four).
 - e) Classify the electric-shock and state significance of each type of shock.
 - f) Draw and explain block-diagram of leakage-current meter.
- 6. Attempt any FOUR of the following: 16**
- a) List down the steps carried out for installation of short wave diathermy.
 - b) Explain how stray capacitance generates the leakage current.
 - c) List medical application of LASER and explain any one in detail.
 - d) Explain the effects of electric current on human tissue.
 - e) Discuss the precautions to avoid shock hazards in electro surgery machine.
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