

# 17672

16117

**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) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (6) 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) List the possible faults of ventilator and give their possible solution.
  - (ii) Difference between internal and external pacemaker (any four points).
  - (iii) List any four technical specifications of DC defibrillator.
  - (iv) Draw neat labelled diagram of pacemaker leads:
    - (i) endocardial
    - (ii) myocardial
    - (iii) unipolar
    - (iv) bipolar

P.T.O.

- b) **Attempt any ONE of the following:** **6**
- (i) Draw the block diagram of cardioverter. State the function of each block.
  - (ii) State the need of following machine and draw block diagram:
    - (i) baby incubator
    - (ii) artificial kidney
2. **Attempt any FOUR of the following:** **16**
- a) Draw block diagram of internal pacemaker and list any four technical specifications.
  - b) List type of dialyzers. Draw neat sketch of any two dialyzer.
  - c) Draw block diagram of nebulizer. List any four technical specifications.
  - d) Explain the concept of unipolar of bipolar lead.
  - e) List the technical specification of central monitor system (any six).
  - f) Draw block diagram of hemodialysis machine and describe its working.
3. **Attempt any FOUR of the following:** **16**
- a) Describe synchronous pacemaker with suitable diagram.
  - b) A defibrillator delivers a square pulse of 5 K volts with duration of 3 m sec. The internal resistance of defibrillator is about  $15\ \Omega$ . The skin electrode resistance is 50 ohm and thorax resistance is 30 ohm ( $30\ \Omega$ ) compute the energy deliver to the patient thorax and total energy available from the defibrillator.
  - c) Draw neat diagram of suction apparatus and describe it.
  - d) Draw block diagram of central monitor and state need of it.
  - e) Draw circuit diagram used in baby incubator to control temperature and describe it.

- 4. a) Attempt any THREE of the following:** **12**
- (i) Compare fixed and demand type of pacemaker (any four points).
  - (ii) Draw block diagram of anesthesia apparatus and state the need of it.
  - (iii) State the causes for the following faults of bedside monitor:
    - 1) ECG waveform not display proper.
    - 2) Sp<sub>o</sub><sub>2</sub> or pulse not displayed
    - 3) Temp varies frequently
  - (iv) Draw a neat labelled diagram of ventilator.
- b) Attempt any ONE of the following:** **6**
- (i) List any four possible faults and its solution in defibrillator. Also give maintenance procedure for defibrillator.
  - (ii) Draw block diagram and principle of operation of heart lung bypass machine.
- 5. Attempt any FOUR of the following:** **16**
- a) State the need of cardiac pacemaker and define:
    - (i) heart block
    - (ii) cardiac arrhythmias
  - b) State the concept of:
    - (i) respiration
    - (ii) apnea
  - c) Draw block diagram of programmable microprocessor based infusion pump.
  - d) Compare AC and DC defibrillator (any four points).
  - e) Write different types of oxygenator and give its importance in hearts lung machine. State its need.
  - f) List any four specification of suction apparatus.

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

- a) List different modes of ventilator and explain it.
  - b) List evolution levels in the control of drug delivery system and draw diagram of its.
  - c) Draw block diagram of synchronous rate responsive pacemaker and describe it.
  - d) List any six technical specification of baby incubator.
  - e) Draw block diagram of programmable pacemaker and describe it. List any two technical specification.
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