17672

11920

3 Hours / 100 Marks Seat No. | | | | | | | | |

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) Assume suitable data, if necessary.

(6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. (A) Attempt any THREE : **12**

(a) List the four types of leads used in pacemaker and explain any two of them.

(b) Define ventricular fibrillation and differentiate between AC and DC defibrillator on the following points :

(i) Circuit diagram

(ii) Waveform generated.

(c) List any two possible faults of ventilator and give their possible solution.

(d) Draw the neat label block diagram of programmable microprocesser based infusion pump.

(B) Attempt any ONE : **6**

(a) Name the apparatus used to maintain environmental condition suitable for newborn baby. Draw and explain block diagram for the apparatus.

(b) Draw the circuit diagram of charging and discharging sections of DC defibrillator and explain both the sections.

2. Attempt any FOUR : **16**

(a) Draw block diagram of internal pacemaker and list any two technical specification.

(b) Draw a neat diagram of heart, lung machine. State its application.

(c) Draw block diagram of Nebulizer. List any two technical specifications.

(d) State the purpose of Bedside monitoring and central monitoring system.

(e) Draw block diagram of haemodialysis machine and describe its working.

(f) Explain the concept of unipolar and bipolar lead.

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

(a) Draw and explain ventricular synchronous demand pacemaker.

(b) A defibrillator delivers a square pulse of 5 k volts with duration of 3 ms. The internal resistance of defibrillator is about 15 Ω. The skin electrode resistance is 50 Ω and thorax resistance is 30 ohm. Compute the energy deliver to patient thorax and total energy available from defibrillator.

(c) Draw neat diagram of suction apparatus and describe it.

(d) In which condition central monitor is used ? Describe with diagram.

(e) Draw and explain any two types of dialyzers.

4. (A) Attempt any THREE : **12**

(a) Give application area of following electrodes :

(i) Endocardial leads

(ii) Myocardial leads

(iii) Unipolar leads

(iv) Bipolar leads

(b) Draw block diagram of anaesthesia apparatus and state the need of it.

(c) State the causes for the following facts of bedside monitor :

(i) ECG waveform not display proper

(ii) Pulse not displayed.

(d) Differentiate between demand and fixed rate pacemaker (any two points of each).

(B) Attempt any ONE : **6**

(a) Draw the fault finding tree for defibrillator.

(b) State the need of artificial kidney. List any two possible faults of Haemodialysis machine. Give their possible solution.

5. Attempt any FOUR : **4 × 4 = 16**

(a) Name the fig. B. Identify the missing block A. Give the importance of Block A.

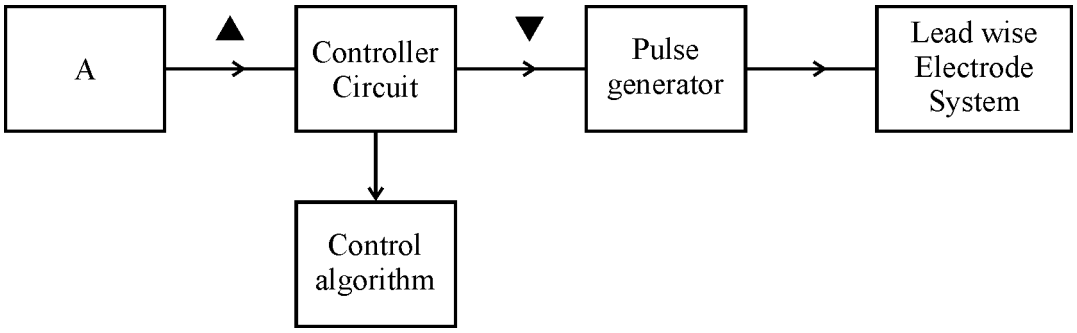

Fig. B

(b) State the concept of (i) respiration (ii) crpnea.

(c) State the principle of (i) infusion pump (ii) balloon pump.

(d) Write the different types of oxygenator and give its importance in heart lung machine.

(e) State the need of following apparatus :
   (i) Ventilator
   (ii) Anaesthesia machine
   (iii) Suction machine
   (iv) Nebulizer

(f) List technical specification of DC defibrillator. (any four)

6. Attempt any FOUR : **16**

(a) Draw the block diagram of conventional method and closed loop control method for drug delivery system.

(b) Draw block diagram of programmable pacemaker and describe it.

(c) Draw a neat diagram of boils apparatus.

(d) A patient is required pacemaker for a short time while operating him. Suggest the type of pacemaker required for patient. And draw the block diagram of pacemaker.

(e) Draw the circuit diagram of temperature controlled system used in baby incubator.
