

17666

16117

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Assume suitable data, if necessary.
(5) 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 the block diagram of Man -Instrument system. State functions of its component.
 - (ii) Describe D. C. defibrillator working with neat diagram.
 - (iii) What is ‘Demand Pacemaker’? When it is used?
 - (iv) Describe working of blood pressure measuring instrument ‘Sphygmomanometer’ with neat diagram.
- b) **Attempt any ONE of the following:** **6**
- (i) Draw neat labelled diagram of human heart structure. Describe its working with blood circulation in different parts of human body.
 - (ii) Draw the neat block diagram of Electroencephalogram. Explain its working. Enlist any two specifications of it.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) Describe function of Kidney in human body with neat diagram.
 - b) Define the term:
 - (i) Action potential
 - (ii) Resting potential
 - c) Describe the working of respiration rate measuring instrument spirometer with neat diagram.
 - d) Draw the neat diagram of CAT machine. State functions of its component.
 - e) State function of following laboratory equipments. (any two of each)
 - (i) Incubator
 - (ii) Autoclave
- 3. Attempt any FOUR of the following:** **16**
- a) Describe the working of nervous system in human body with neat diagram.
 - b) Draw the neat diagram of external pacemaker. Explain its working.
 - c) Describe the working of ultrasonic method of blood flow measurement with neat diagram.
 - d) Enlist technical specifications of X-ray machine. (any four)
 - e) Describe electrode electrolyte interface with neat diagram.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Define the following:
 - 1) Plethysmograph
 - 2) Phonocardiograph
 - 3) Pacemaker
 - 4) Defibrillator
 - (ii) Draw the different waveforms of EEG. Describe the various stage of sleep from it.

- (iii) Explain microshock and macroshock with patient safety in brief.
- (iv) List different blood pressure measurement methods. List standard values of:
- 1) Systolic pressure
 - 2) Diastolic pressure
- b) **Attempt any ONE of the following:** **6**
- (i) Describe the working of dialysis machine with neat diagram.
 - (ii) Draw the neat diagram of EMG. State functions of its component.
5. **Attempt any TWO of the following:** **16**
- a) Draw neat labelled diagram of human brain structure. Describe its working in detail.
 - b) Draw neat labelled diagram of ECG system. State function of its different component.
 - c) Describe working of ultra sonography imaging technique of human body with neat diagram. Enlist its technical specification. (any four)
6. **Attempt any FOUR of the following:** **16**
- a) Explain the meaning of different heart sound generated in human body.
 - b) Compare internal and external pacemaker. (any four points)
 - c) List precautions to be taken to minimise electric shock hazard and leakage current in hospitals. (any eight)
 - d) Draw neat waveforms indicating lung volume and capacities. Explain their meaning in brief.
 - e) Draw neat diagram of X – ray machine. Describe its working.
 - f) Enlist technical specification of defibrillator. (any four)
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