

17666

11819

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) 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** of the following : **12**
 - (a) Draw a labelled block diagram of man-instrument system and list it's component.
 - (b) Describe the meaning of bioelectric signal ? List any three bioelectric signals.
 - (c) List the methods used for measurement of blood flow.
 - (d) List application of autoclave. (Any four)
- (B) Attempt any **ONE** of the following : **6**
 - (a) Explain the resting and action potential with the help of schematic diagram.
 - (b) Explain basic principle of Ultrasonography. Explain A & M mode.
2. Attempt any **TWO** of the following : **16**
 - (a) Draw a neat labelled diagram of internal structure of heart and explain the importance of cardiac output.
 - (b) Explain Indirect method of blood pressure measurement using sphygmomanometer.
 - (c) Define fibrillation with neat and labelled diagram. Describe the working of DC defibrillator.

- 3. Attempt any FOUR of the following :** **16**
- (a) Explain the function of (a) medulla oblongata (b) mid brain.
 - (b) Explain effects of leakage current on human body.
 - (c) Explain Respiration Rate measurement method using spirometer.
 - (d) State and explain necessity of pacemaker.
 - (e) Draw a neat labelled diagram of X-ray machine.
- 4. (A) Attempt any THREE of the following :** **12**
- (a) Give significance of Image intensifier. State any two application of X-ray.
 - (b) Draw neat labelled diagram of kidney.
 - (c) Explain the breathing mechanism.
 - (d) List any two specification of CAT. State any two application of CAT.
- (B) Attempt any ONE of the following :** **6**
- (a) Explain how the blood flow is measured using plethysmo graph.
 - (b) List the types of pacemaker and explain any one type in detail.
- 5. Attempt any TWO of the following :** **16**
- (a) Describe in detail any four problems encountered in measuring important parameter of living system.
 - (b) Explain EEG system with neat block diagram.
 - (c) Draw and explain block schematic of CAT.
- 6. Attempt any FOUR of the following :** **16**
- (a) Define Electromyography. State any two specifications of EMG system.
 - (b) State and explain operating principle of centrifuge.
 - (c) Explain heart sound measurement using phonocardiogram.
 - (d) List the types of electrodes used for measuring :
 - (i) ECG
 - (ii) EEG
 - (iii) EMG
 - (e) State the need of dialysis machine. List any two specification of it.
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