



17545

11718

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**.*

Marks

1. A) Attempt **any three** : **12**
- a) Give technical specifications of digital blood pressure meter.
 - b) Draw a block diagram of digital temperature meter and describe it.
 - c) Draw a block diagram of Ultrasonic FHR meter.
 - d) Describe the generation of ECG signal.
- B) Attempt **any one** : **6**
- a) Draw right leg drive circuit and Wilson's network used in ECG machine and explain it in detail.
 - b) Write steps for maintenance of EEG machine (any six).
2. Attempt **any four** : **16**
- a) Describe Sphygmomanometer with suitable diagram.
 - b) Describe various methods used for calculation of heart rate.
 - c) Suggest a biomedical equipment used to measure skin resistance. Draw and describe its block diagram.
 - d) Draw and explain preamplifier circuit used in ECG machine.
 - e) Describe the concept of sensory nerve conduction with suitable diagram.
 - f) Give any four technical specifications of PCG machine.
3. Attempt **any four** : **16**
- a) Draw and explain blood pressure waveform.
 - b) Give any four technical specifications of Heart Rate Meter.
 - c) Describe various recording techniques of EEG
 - d) Show the relationship between ECG, PCG and arterial B.P. with neat waveforms.
 - e) Draw block diagram of ECG machine and explain it in detail.

P.T.O.

**Marks****4. A) Attempt any three :****12**

- a) Describe working principle of spirometer with suitable diagram.
- b) Draw block diagram of Pure Tone Audiometer and explain its each block.
- c) Draw unipolar and bipolar lead configurations for ECG.
- d) Explain block diagram of EMG Machine.

B) Attempt any one :**6**

- a) State the steps for maintenance of ECG Machine (any six).
- b) i) Mention any four possible faults which can occur in EEG machine and give its solution to rectify it.
ii) Give any two technical specifications of EEG Machine.

5. Attempt any four :**16**

- a) List technical specifications of Pulse Oximeter. (any four).
- b) Describe working principle of respiration rate meter.
- c) Draw block diagram of Hearing aid and describe it.
- d) Compare ECG with PCG.
- e) Define any four respiratory parameters.
- f) Describe generation of EMG Signal.

6. Attempt any four :**16**

- a) Mention any four possible faults which can occur in ECG Machine and give its solution to rectify it.
 - b) List technical specifications of pure tone audiometer. (Any four)
 - c) Draw and explain block diagram of pulse oximeter.
 - d) Draw and explain preamplifier circuit of EMG Machine.
 - e) Describe the concept of air and bone conduction.
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