314332

12526

3 Hours / 70 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. Attempt any FIVE of the following : **10**

a) State beers and lamberts law.

b) Suggest the use of digital stethoscope.

c) State the working principle of spirometer.

d) Suggest significance of hearing aid.

e) Draw labelled ECG waveform.

f) List four transducers used in audiometry.

g) Draw preamplifier circuit of EMG.

P.T.O.

Marks

2. Attempt any THREE of the following : **12**

a) Define the term blood pressure. Draw block diagram of sphygmomanometer.

b) Explain the following respiratory parameters.

i) The residual volume

ii) Expiratory capacity

iii) Inspiratory reserve volume

iv) Vital capacity

c) List four technical specifications of EEG machine.

d) Suggest the technical specification for digital temperature meter. (Any four)

3. Attempt any THREE of the following : **12**

a) Draw block diagram of phonocardiograph.

b) Differentiate between direct and indirect blood pressure measurement.

c) Explain block diagram of ultrasonic FHR meter with sketch.

d) Mention four possible faults which can occur in EEG machine and write remedies fot it.

4. Attempt any THREE of the following : **12**

a) Draw blood pressure waveform and explain it.

b) Calculate the heart rate by beat to beat method for R-R interval of 0.2 seconds and name the other two methods for heart rate calculation.

c) List four technical specifications of respiration rate meter.

d) Describe the concept of vectocardiography.

e) List four applications of audiometer.

Marks

5. Attempt any TWO of the following : **12**

a) Draw and explain block diagram of EEG machine.

b) Draw block diagram and explain principle operation of GSR meter.

c) Describe unipolar and bipolar limb lead configuration of ECG with labelled diagram.

6. Attempt any TWO of the following : **12**

a) State three possible faults and their solutions for EMG machine. List maintenance steps of EMG machine.

b) Differentiate between ECG and PCG. (Any six points)

c) Explain 10-20 electrode system with labelled diagram.
