21718

17545

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

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** : **12**

a) Compare direct and indirect blood pressure measurement.
b) State the concept of systematic and skin temperature.
c) Explain any two methods of calculation of heart rate.
d) Describe the standard ECG waveform.

B) Attempt **any one** : **6**

a) Describe the different lead configurations used in ECG.
b) Draw the block diagram of an EEG machine and explain it in detail.

2. Attempt **any four** : **16**

a) Mention the method which is used for continuous blood pressure monitoring and explain it with neat diagram.
b) Explain the block diagram of ultrasonic fetal heart rate meter with neat diagram.
c) Write the significance of impedance audiometer.
d) Draw the Wilson's network and give its importance.
e) Draw the block diagram of EMG machine and explain its operation.
f) Describe origin of different heart sounds.

3. Attempt **any four** : **16**

a) List any four technical specification of digital blood pressure meter.
b) Draw the block diagram of heart rate meter.
c) Name the machine in which 10-20 electrode system is used and describe 10-20 electrode system.
d) State the importance of phonocardiography.
e) List the maintenance steps of ECG machine.

Marks

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

a) Define any two respiratory parameters and give their normal ranges for adult person.

b) Define air and bone conduction.

c) Draw the 1 mv calibration circuit for ECG machine and give its importance.

d) List any four faults and their possible causes of EMG machine.

B) Attempt **any one** : **6**

a) Mention the problems related to ECG machine and state the remedies to eliminate it. (any six).

b) Explain the bipolar and average recording techniques of EEG machine.

5. Attempt **any four** : **16**

a) List any four technical specification of digital temperature meter.

b) Draw the standard spirogram and label it with different respiratory parameters.

c) Explain the operation of GSR meter with neat diagram.

d) Compare ECG and PCG.

e) Describe the working of spirometer with neat diagram.

f) Explain sensory nerve conduction with neat diagram.

6. Attempt **any four** : **16**

a) Give the significance of vectorcardiography.

b) List any four technical specifications of audiometer.

c) Draw the block diagram of pulse oxymeter and state the application of it.

d) Draw the preamplifier circuit of EMG machine. Give its importance.

e) State the concept of speech audiometer.

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