

- Q.28 Write a short note on blood pressure measurement by direct method.
- Q.29 Explain central monitoring system.
- Q.30 Write a note on Brain waves.
- Q.31 Explain different body potential & explain generation of bio-potential in body.
- Q.32 Explain Biomedical simulator.
- Q.33 Explain Effects of artifacts in ECG tracing. Also discuss general instructions in ECG procedure.
- Q.34 Write a short note on noise in medical instrumentation.
- Q.35 Explain bed side monitor with diagram.

#### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain EEG & its measurement with diagram.
- Q.37 Explain Heart lung machine with diagram.
- Q.38 Write note on following:

- a) Mechanics of Respiration
- b) Lithotripter

No. of Printed Pages : 4

Roll No. ....

183233/123233/033233

**3rd Sem / Branch : Medical Electronics  
Subject:- Bio-Medical Instrumentation (BMI)-I/  
Bio-Med.Instr/Basic of Instr**

Time : 3Hrs.

M.M. : 100

#### SECTION-A

**Note:** Multiple choice questions. All questions are compulsory (10x1=10)

- Q.1 What is the frequency range of ECG Signal?  
a) 70-120 Hz      b) 0.05-100 Hz  
c) 5-120 Hz      d) 12-200 Hz
- Q.2 EEG Electrodes are placed on  
a) Forehead      b) Cheek  
c) Ears      d) Scalp
- Q.3 Recording of Electrical activity of Muscles is called  
a) ERG      b) EEG  
c) EMG      d) EOG
- Q.4 Which is not a blood component  
a) RBC      b) Platelets  
c) Neuron      d) Plasma
- Q.5 Heart rate of a healthy person in resting state should be

- a) 90 Beats/Minute      b) 72 Beats/Minute
- c) 120 Beats/Minute      d) 45 Beats/Minute

Q.6 What is the signal amplitude of ECG Signal?

- a) 2-5 mv      b) 0.5-1 mv
- c) 0-10 mv      d) 0-20 mv

Q.7 Letter T in EEG measurement denotes

- a) Temporal Lobe      b) Tympanic membrane
- c) Trace      d) Temper

Q.8 The material used in limb surface electrode is

- a) Gold      b) Copper
- c) Platinum      d) German silver

Q.9 Which instrument is used for listening heart sounds?

- a) Stethoscope      b) Endoscope
- c) Colonscope      d) Protoscope

Q.10 Which is called Natural Pacemaker?

- a) Aorta      b) SA Node
- c) AV Node      d) Bundle of HIS

## SECTION-B

**Note:** Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Expand EMG

Q.12 Electrode

Q.13 Systole

Q.14 Expand NIBP

Q.15 What is Respiration Rate

Q.16 Expand CNS

Q.17 What is Normal Glucose level in fasting stage of a healthy person?

Q.18 What is called Natural Pacemaker of body?

Q.19 What do you mean by  $\text{SPO}_2$ ?

Q.20 What is Tidal Volume?

## SECTION-C

**Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Discuss any two biomedical signals and their generation.

Q.22 Write a short note on perspective of Biomedical Engineering.

Q.23 Explain various ECG Electrodes

Q.24 Explain Einthoven's Triangle with diagram.

Q.25 Explain EMG with block diagram.

Q.26 Write a note on muscular system & its functions.

Q.27 Explain various electrodes used in EEG measurements.