



C20-AEI-502

7607

BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DAEI – FIFTH SEMESTER EXAMINATION

BIOMEDICAL INSTRUMENTATION

Time : 3 Hours]

[Total Marks : 80

PART—A

3×10=30

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

1. Define resting and action potential.
2. Define the term 'electrode'.
3. List any three bipolar leads used for ECG measurement.
4. List any three applications of EEG.
5. List the types of direct blood pressure measurement.
6. List different types of pacemakers.
7. List the properties of X-rays.
8. List the applications of M.R.I.
9. Define micro shock.
10. List any three safety requirements of electro medical equipment issued by Bureau of Indian Standards.

- Instructions :** (1) Answer **all** questions.
(2) Each question carries **eight** marks.
(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. (a) Explain electrical activity of brain.

(OR)

(b) Explain the bio-electrical potentials associated with muscle activity.

12. (a) Draw the electrocardiogram. Indicate its amplitude and duration and state their importance.

(OR)

(b) Explain the principle of EEG machine with block diagram.

13. (a) Explain indirect blood pressure measurement using sphygmomanometer and stethoscope.

(OR)

(b) Explain the operation of LASER doppler blood flowmeter with block diagram.

14. (a) Explain the circuit diagram of AC defibrillators with diagram.

(OR)

(b) Draw the block diagram of a ventricular synchronous demand pacemaker and explain its operation.

15. (a) Explain the operation of an X-ray machine with block diagram.

(OR)

(b) Explain the working of M.R.I with block diagram.

PART—C

10×1=10

- Instructions :** (1) Answer the following question.
(2) The question carries **ten** marks.
(3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 16.** Analyze the EEG waveform and explain the principle of ECG machine with block diagram.

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