C14–AEI–605

4709

BOARD DIPLOMA EXAMINATION, (C–14)
SEPTEMBER/OCTOBER - 2020
DAEIE—SIXTH 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. Write the effects of electromagnetic radiations on the human body.

2. Name any three electrodes of EMG recording.

3. Classify the EEG frequency bands.

4. List three applications of ECG.

5. State the principle of LASER Doppler blood flow meter.

6. Write the need of pacemakers.

7. Write the significance of grids in X-ray imaging.

8. Draw the diagram of electromagnetic blood flow meter.

9. List any three functions of dialysis machine.

10. Write any three advantages of CAT imaging over X-ray imaging.

PART—B

10×5=50

Instructions **:** (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. Explain electrical activity of heart with waveforms and state its significance.

12. Explain the importance of placement of electrodes while monitoring ECG waveforms.

13. Explain the block diagram and working principle of an EEG machine.

14. Explain the working principle of ultrasonic blood flow meter based on transit time with diagram.

15. Explain the indirect blood pressure measurement using a sphygmomanometer and a stethoscope.

16. Explain the operation of ventricular synchronous demand pacemaker with a block diagram.

17. *(a)* Explain the need of defibrillators. 5

(b) Compare a.c. defibrillators and d.c. defibrillators. 5

18. Explain the construction of X-ray machine with a block diagram.

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