



C14-AEI-605

4709

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH/APRIL—2018**  
**DAEIE—SIXTH SEMESTER EXAMINATION**  
**BIO-MEDICAL 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. List the effects of electromagnetic radiations in the human body.
3. List the applications of ECG.
4. Compare the bipolar and unipolar leads.
5. Draw the diagram of electromagnetic blood flowmeter.
6. State the merits and demerits of direct blood pressure measurement.
7. State the need of pacemaker.
8. Compare between AC defibrillators and DC defibrillators.
9. List the applications of X-ray imaging.
10. List the limitations of X-ray imaging.

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**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.** (a) Draw and explain electrical activity of heart. 2+3  
(b) Explain the different types of electrode used for ECG. 5
- 12.** (a) Draw the block diagram of electrocardiograph. 5  
(b) Draw the block diagram setup of EMG recording. 5
- 13.** Explain with block diagram, the working principle of an EEG machine. 10
- 14.** Explain the principle of operation of LASER Doppler blood flow-meter with a block diagram. 2+8
- 15.** (a) Explain the working of sphygmomanometer with a diagram. 2+3  
(b) Explain the working principle of ultrasonic blood flow-meter. 5
- 16.** (a) List the functions of dialysis machine. 5  
(b) Compare the advantages of implantable pacemakers over external pacemakers. 5
- 17.** Draw the block diagram of ventricular synchronous demand pacemaker and explain its operation. 3+7
- 18.** (a) Describe the construction and operation of an X-ray machine with a block diagram. 5  
(b) List the advantages of CAT imaging over X-ray imagine. 5

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