3716

BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2012

DAEI—SIXTH SEMESTER EXAMINATION

BIOMEDICAL INSTRUMENTATION

Time : 3 hours] [*Total Marks* : 80

PART—A

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.

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1. Draw the equivalent circuit of electrodes.
2. List the diagnostic medical equipments.
3. List the applications of EEG.
4. State the merits and demerits of direct blood pressure measurement.
5. State the need of pacemakers.
6. Define prosthesis.
7. List the applications of MRI.
8. State the significance of grids in X-ray machine.
9. Define microshock and macroshock.
10. Explain the computer application in medicine.

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PART—B

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

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

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

11. *(a)* Define resting and action potentials. 3

(b) Explain sodium pump and transmission of impulses with neat waveform. 7

12. *(a)* Explain the building block of an electrocardiograph (ECG) with neat diagram. 7

(b) List various lead configurations used in ECG recording. 3

13. *(a)* Explain the bioelectric potentials associated with the muscle activity. 5

(b) List the types of electrodes used and their arrangement while monitoring EEG. 5

14. *(a)* Describe indirect blood pressure measurement with a neat diagram. 6

(b) Draw the block diagram of LASER Doppler blood flowmeter. 4

15. *(a)* Compare the advantages of the implantable pacemaker over the external pacemakers. 4

(b) Explain the capacitive discharge DC defibrillators with the circuit diagram. 6

16. *(a)* Explain the function of dialysis machine. 5

(b) List the advantages of CT imaging over X-ray imaging. 5

17. Describe the construction and operation of an X-ray machine with a block diagram.

18. Explain patient monitoring in ICU and draw the system of arrangement.

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