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C09–AEI–603

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BOARD DIPLOMA EXAMINATION, (C–09)

OCT/NOV—2015

DAEI—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. Draw the structure of the cell and label all parts.

2. List the three applications of EMG.

3. Mention the frequency and amplitudes of electromyogram signal.

4. Compare direct and indirect blood pressure measurement.

5. Define prosthesis.

6. State any three merits and demerits of AC defibrillator over DC defibrillator.

7. List any three applications of X-ray machine.

8. List the advantages of MRI.

9. State the difference between micro-shock and macro-shock.

10. State earth-free patient monitoring.

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 the effects of electricity, electromagnetic radiations and magnetism in the human body.

12. Explain the working principle of an electroencephalogram machine with block diagram.

13. Explain ECG waveform, indicate its amplitude, duration and state its importance.

14. Explain the principle of operation of LASER doppler blood flow-meter with a diagram.

15. Explain the principle of operation of asynchronous pacemakers with a legible diagram.

16. Explain the production of X-ray with diagram.

17. Explain patient monitoring in ICU with a diagram.

18. *(a)* Explain the circuit diagram of AC defibrillators.

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

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