C 61465 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, APRIL 2014

AI 09 603—BIOMEDICAL INSTRUMENTATION

(2009 Scheme)

[Regular/Supplementary/Improvement]

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*
Each question carries 2 *marks.*

1. List any *four* factors to be considered while desinging a medical instrumentation system.
2. Differentiate between ERG and EOG.
3. What do you mean by plethysmography ?
4. What is mean by the term dyspnea ?
5. State Beer's law.

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*
Each question carries 5 *marks.*

6. Explain cardiovascular system.
7. State and explain Nernst equation.
8. Draw and explain Einthoven's triangle.
9. Explain neuronal communication.
10. What are the advantages and limitations of MRI ?
11. Explain the different methods used for accident prevention.

(4 × 5 = 20 marks)

Part C

Answer **either** *section (a)* **or** *section (b) from each module.*
Each question carries 10 *marks.*

Module I

12. (a) With equivalent circuit, explain how biopotentials are measured with two electrodes.

Or

(b) With schematic explain :

(i) pH electrode.

(ii) Micro electrode.

Module II

13. (a) With schematic explain oscillometric method of blood pressure measurement.

Or

(b) Explain the different lead systems used for ECG measurement.

Module III

14. (a) With block diagram, explain the operation of EEG machine.

Or

(b) Explain the principle of operation of a cardiac defibrillator with the help of block diagram.

Module IV

15. (a) With block diagram, explain the working of X-ray machine.

Or

(b) With schematic describe the principle of operation of blood cell counter.

(4 × 10 = 40 marks)