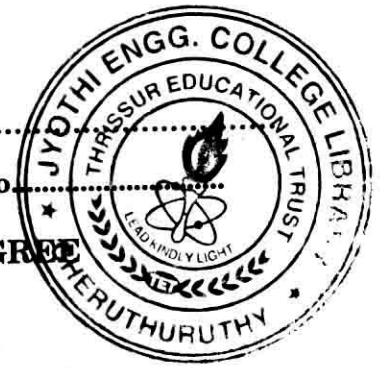


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Name.....

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 designing 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

Turn over

- (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)