

**EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION
MAY 2011**

EC 04 804 (E)—BIOMEDICAL INSTRUMENTATION

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all the questions.

- I. (a) What are Non-Polarisable and Non Polarisable electrodes?
(b) Draw and explain the action potential of a Nerve cell and Cardiac cell.
(c) What is the basic difference between PCG and ECG ? Discuss the different types of heart sounds.
(d) Write short notes on Photoplethysmography.
(e) List out the applications of Lasers in Therapeutic uses.
(f) Write short notes on Ventilators.
(g) Write short notes on Micro and Macro Shocks.
(h) List out the Physiological effects of electricity at lower frequency Levels.

(8 × 5 = 40 marks)

Part B

Answer either (a) or (b) in each question.

- II. (a) Explain in detail about the 12 Lead Configuration system for picking up an ECG signal with Relevant diagrams.
(b) What is Bio-potential ? How it can be picked up? List out the different types of electrodes and explain in detail.
- III. (a) Discuss any two direct methods to measure the blood pressure.
(b) Explain in detail about the Electromagnetic Blood flow meter with diagram.
- IV. (a) What is a Pacemaker? What are the different types of pacemakers available? Explain any one of them in detail.
(b) (i) Explain in detail about Infant Incubators. (8 marks)
(ii) Write short notes on Lithotripsy. (7 marks)
- V. (a) Explain in detail about the electrical safety analyzer.
(b) (i) Write short notes on the protective methods against electrical shock. (7 marks)
(ii) Write short notes on the measurement of pH of a given solution. (8 marks)

(4 × 15 = 60 marks)