

Code: 9A10802

B.Tech IV Year I Semester (R09) Supplementary Examinations June 2017

BIO-MEDICAL INSTRUMENTATION
(Electronics & Communication Engineering)

Time: 3 hours

Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Discuss various bio-signals and their characteristics.
(b) Explain the components of a medical instrumentation system with a neat block diagram.
- 2 (a) Explain the generation and propagation of action potential with necessary diagrams.
(b) Derive Nernst equation making necessary assumptions as required.
- 3 Compare and contrast the working of internal electrodes, external electrodes and biochemical electrodes.
- 4 (a) Explain the mechanical function of the heart.
(b) Discuss the relation between electrical and mechanical activities of the heart.
- 5 (a) What is meant by defibrillation and explain the working of a defibrillator?
(b) Explain the measurement of blood flow in detail with a neat diagram.
- 6 (a) Give the specifications of EEG machines.
(b) Discuss the electrodes used for EMG recording.
- 7 (a) Explain the operation of ventilator with a neat diagram.
(b) Discuss the mechanism of respiratory system.
- 8 (a) Discuss the hazards encountered in operation rooms.
(b) Describe the safety measures implemented with regard to patient electrical safety.
