

Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Fifth Semester B.Tech Degree (S,FE) Examination January 2023 (2015 scheme)

**Course Code: EC365****Course Name: BIOMEDICAL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A***Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) With the help of necessary diagrams explain resting and action potentials (8)
- b) Explain different types of Body-Surface Electrodes (7)
- 2 a) What are Korotkoff Sounds? Explain the different phases of Korotkoff Sounds (8)
- b) Explain the block diagram of ECG Machine (7)
- 3 a) Explain the block diagram of biomedical instrumentation system (8)
- b) With neat diagram, explain the working of Electromagnetic blood flow meters (7)

**PART B***Answer any two full questions, each carries 15 marks.*

- 4 a) What is EMG? Explain the EMG measurement using block diagram (8)
- b) Explain the working of Photoelectric plethysmograph (7)
- 5 a) Explain the working of Defibrillator Circuit (8)
- b) Explain the block diagram of positive pressure ventilator (7)
- 6 a) Explain the Coulter Method of Blood Cell Counting (8)
- b) Explain the block diagram of Surgical diathermy machine (7)

**PART C***Answer any two full questions, each carries 20 marks.*

- 7 a) Explain Computed Tomography. What are the advantages and disadvantages of Computed Tomography (10)
- b) Explain the block diagram of ultrasound scanner (10)
- 8 a) Explain the principle of magnetic resonance imaging. Give a detailed explanation on the main components of MRI? (12)
- b) Explain the block diagram of telemetry system for ECG and respiration (8)
- 9 a) Explain the block diagram of X-ray machine. What are the properties of X-ray? (10)
- b) What are the sources of electrical hazards in hospitals? (10)

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