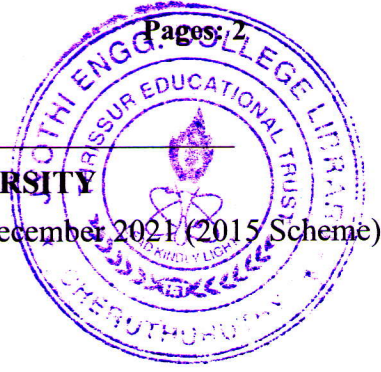


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Regular and Supplementary Examination December 2021 (2015 Scheme)

**Course Code: IC407****Course Name: BIOMEDICAL INSTRUMENTATION**

Max. Marks: 100

Duration: 3 Hours

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

Marks

- 1 Explain in detail about the structure of a neuron and how an action potential is transmitted through the nerve fiber with neat diagrams. (15)
- 2 a) Describe the following terms. (8)
 - (i) Stroke volume
 - (ii) Mean circulation time
- b) Write short notes on floating electrodes and pre gelled disposable electrodes. (7)
- 3 a) Explain the need of differential amplifiers in biomedical instrumentation with needed diagrams. (8)
- b) Differentiate the applications of needle electrode and surface electrode in EMG measurement. (7)

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

- 4 a) Explain the 10 – 20 montage system for EEG measurement with needed diagrams. (8)
- b) Explain the different types of ECG recorders. (7)
- 5 a) Elaborate the different methods of accident prevention in bio medical equipment. (8)
- b) Explain the direct method of blood pressure measurement. (7)
- 6 Discuss in detail about Plethysmography with required neat diagrams. (15)

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

- 7 a) Explain the working principle of Magnetic Resonance Imaging in detail. (10)
- b) With a neat block diagram, explain the principle of gamma camera. (10)

- 8 a) Explain the theory behind the generation of ionizing X rays with required figure. (10)
b) Explain the principle of surgical diathermy. (10)
- 9 a) Explain the pressure – time, flow – time, volume– time diagrams of ventilator. (10)
b) Explain the need of a defibrillator. Elaborate the working principle of DC defibrillator with diagrams. (10)
