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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S5 (S, FE) / S5 (PT) (S, FE) Examination December 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) Differentiate between bioelectric resting and action potentials. (5)

b) Enumerate the different types of isolation amplifiers in clinical laboratories. Explain their working. (10)

2 a) What is a microelectrode? Explain with a suitable diagram. List the applications of microelectrode (9)

b) Describe ECG lead configurations. (6)

3 a) Compare between electromagnetic & ultrasonic blood flow-velocity meters. Provide necessary illustrations. (10)

b) With illustrations, explain how the auscultatory method is used to measure blood pressure. (5)

PART B

Answer any two full questions, each carries 15 marks.

4 a) What is electroencephalography? List and describe the different EEG electrodes. (8)

b) What is body plethysmography? Explain its principle. (7)

5 a) Explain the working of spectrophotometers. (7)

b) Explain the working of an implantable cardiac defibrillator with necessary figures. (8)

6 a) What is a pacemaker? Explain the working with an illustration. (8)

b) Explain the working of a Heart-Lung machine with relevant figures. (7)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Describe the construction of a rotating-anode X-ray tube with a suitable diagram. (10)

b) Explain the working principle of computed tomography (CT) with suitable diagrams. (10)

8	a)	What are the different modes of Ultrasonic imaging? Describe	(10)
	b)	Explain leakage currents in medical devices. How are they classified?	(10)
9	a)	With illustrations, explain the NMR imaging system. State the advantages of NMR system.	(10)
	b)	Draw the block diagram and explain the single-channel telemetry system for ECG and temperature.	(10)

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