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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth Semester B.Tech Degree (S,FE) Examination January 2022 (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)	Draw and explain the block diagram of a medical instrumentation system.	(10)
	b)	Explain the basic concept of ultrasonic blood flow meter.	(5)
2	a)	Explain Einthoven lead system used to record ECG.	(10)
	b)	Explain formation of potential in half cell .	(5)
3	a)	With neat diagram of the Korotkoff sounds explain how auscultatory method is used to measure blood pressure.	(10)
	b)	Write short note on (i) ECG (ii) EMG	(5)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Draw and explain the block diagram of an EEG machine.	(10)
	b)	Explain the basic working of spirometer.	(5)
5	a)	What is oximetry. Explain the working principle of pulse oximeter.	(10)
	b)	Describe the working of positive pressure ventilator.	(5)
6	a)	What are pacemakers? How are they classified? Explain the types of implanted pacemaker depending on the pacing modes.	(10)
	b)	Explain the working principle of flame photometer.	(5)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain the working principle of computed tomography (CT). With an example explain how images are reconstructed in CT.	(10)
	b)	How can we minimize electric shock hazards caused to human body?	(3)
	c)	Describe the image acquisition and reconstruction techniques in MRI.	(7)

8	a)	What are the biological effects and advantages of NMR imaging system?	(10)
	b)	Compare A-mode, B-mode and M-mode displays in ultrasonic imaging system with any one application for each.	(10)
9	a)	Draw the block diagram and explain the single channel telemetry system for ECG and temperature.	(10)
	b)	What are leakage currents? How are they classified?	(10)