Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Eighth semester B.Tech degree examinations, September 2020

Course Code: EC482

Course Name: Biomedical Engineering

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

			Marks
1	a)	Explain the generation of bioelectric potential in cells with illustration. Write the Nernst equation for resting membrane potential.	(7)
	b)	Describe the working of heart and circulatory system with suitable diagrams.	(8)
2	a)	Explain the working of an isolation amplifier with illustration	(7)
	b)	With the help of a block diagram explain the working of an ECG machine.	(8)
3	a)	Explain auscultatory method for blood pressure measurement with diagrams.	(6)
	b)	Demonstrate any two methods used to measure blood flow in blood vessels.	(9)

PART B

Answer any two full questions, each carries 15 marks.

4	a)	Illustrate and describe 10-20 system of electrode placement to perform EEG analysis. Also write the classification of EEG frequency bands.	(9)
	b)	Explain an instrumentation system for EMG recording with suitable diagrams.	(6)
5	a)	List any four respiratory parameters with definition. Describe the working principle of spirometer for respiratory volume measurement.	(8)
	b)	With the help of a block schematic explain the working of cardiac pacemaker.	(7)
6	a)	What is artificial ventilation? Explain modern ventilator with illustration.	(7)
	b)	Describe heart-lung machine with its block diagram.	(8)

PART C

Answer any two full questions, each carries 20 marks.

7	a)	Explain the working of X ray machine with illustration. List the applications of X-ray imaging.	(10)
	b)	Describe the principle of Computed Tomography (CT) scan system with neat block diagram.	(10)
8	a)	Explain the principle of Ultrasonic Imaging with suitable diagrams. Also list its applications.	(10)
	b)	What is the principle behind MRI imaging? Explain the explain the various components of MRI system with necessary illustration.	(10)
9	a)	Explain the basic components of biotelemetry system with its block diagram. Also write its applications	(10)
	b)	Describe Macro and Micro shock hazards.	(10)

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