Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

Third Semester

Bio Medical Engineering

BM3301 - Sensors and Measurements

Regulations - 2021

Duration : 3 Hrs ***Maximum : 100 Marks***

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Define measurements.	L1	1	2
2.	List any four calibration methods.	L1	1	2
3.	Give any four materials used in Strain gauge with their types.	L2	2	2
4.	How a capacitive transducer is used as a pressure sensor.	L1	2	2
5.	What is photovoltaic cell?	L1	3	2
6.	What is the principle of piezoelectric transducer?	L1	3	2
7.	What do you understand by impedance matching circuits?	L1	4	2
8.	What are the components of digital multimeter?	L1	4	2
9.	Compare CRO and DSO.	L2	5	2
10.	State the criteria used to select the paper speed in recorders for recording a biosignal.	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	What are the classifications of instrument errors? Explain about the causes and remedies for each error in detail	L2	1	16
		Or			
	b	Classify the standards and give example for each level of standard.	L2	1	16
12.	a	Draw the schematic diagram of LVDT and explain the principle of operation with characteristics.	L2	2	16
		Or			
	b	Classify the methods by which capacitive transducers are used for the measurement of linear and angular displacement.	L2	2	16
13.	a	Explain the working principle of Photo diodes and Photo voltaic cells.	L3	3	16
		Or			
	b	Explain the principle of operation of piezo electric transducer.	L3	3	16

14.	a	Construct a suitable bridge for low resistance measurement. Derive an expression for balanced condition.	L3	4	16
		Or			
	b	Explain the construction and working of a permanent magnetic moving coil instrument.	L3	4	16
15.	a	Draw the block diagram digital storage oscilloscope and explain the components.	L3	5	16
		Or			
	b	Analyze the construction and working of magnetic tape recorder with neat diagram.	L3	5	16