

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026****Third Semester****Biomedical 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	BTL	CO	Marks
1.	What are the basic functional elements of an instruments.	L1	1	2
2.	What is meant by precision index.	L1	1	2
3.	Write the desired properties of thermocouple metals.	L1	2	2
4.	Compare RTD and thermistor.	L2	2	2
5.	State the principle of piezoelectric transducer and name any two piezoelectric material.	L2	3	2
6.	What is optical encoder?	L1	3	2
7.	Write the principle of dc potentiometer.	L2	4	2
8.	Identify the limitations of Maxwell's bridge.	L2	4	2
9.	Classify the different types of magnetic recording.	L1	5	2
10.	What is electronic noise?	L2	5	2

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

Q.No	Questions	BTL	CO	Marks
11. a i	What are the different types of errors? Explain how to eliminate errors in instruments.	L2	1	8
ii	Write short note on active and passive transducer.	L2	1	8
Or				
b i	Explain the classification of standards in detail.	L2	1	8
ii	Discuss the significance of calibration.	L2	1	8
12. a	Derive the expression for gauge factor. Explain bonded and unbonded strain gauge.	L3	2	16
Or				
b	Analyze the principle of operation of LVDT in detail. Write the advantages and disadvantages.	L3	2	16
13. a	Explain the construction and operation of photo multiplier tube and photo conductive cell.	L2	3	16
Or				
b	Discuss in detail about optical displacement sensor with neat diagram.	L2	3	16
14. a i	Describe how low resistance is measured accurately by Kelvin's double bridge	L3	4	8
ii	Draw and explain the balanced condition of Wheatstone bridge	L3	4	8

Or

	b	Explain the principle of operation of digital voltmeter.	L3	4	16
15	a	Explain the principle and working of CRT display with neat diagram	L4	5	16
		Or			
	b	With neat diagram of servo recorder and magnetic tape recorder.	L4	5	16