

Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025

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)*

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	Define the dynamic characteristics of a measurement system.	L1	1	2
2.	What is calibration?	L1	1	2
3.	State the gauge factor of a strain gauge.	L2	2	2
4.	List two materials used in RTDs.	L2	2	2
5.	Differentiate between a photovoltaic cell and a photoconductive cell.	L2	3	2
6.	What is meant by piezoelectric effect?	L1	3	2
7.	Recall the need for signal conditioning.	L1	4	2
8.	Mention two functions of a multimeter.	L2	4	2
9.	List the main parts of DSO.	L1	5	2
10.	Write the applications of a magnetic tape recorder.	L2	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Discuss in detail the static characteristics of instruments. Or	L2	1	16
	b Explain in detail about different types of errors.	L2	1	16
12.	a With a neat diagram, explain the construction and working of LVDT. List its merits and demerits. Or	L3	2	16
	b Explain the construction, working principle, and characteristics of a thermocouple. Discuss its applications.	L3	2	16
13.	a Explain the principle and operation of optical displacement sensors with examples. Or	L2	3	16
	b Explain the principle, construction, and working of a piezoelectric transducer. Draw its equivalent circuit and discuss its characteristics.	L2	3	16

14.	a	Derive the condition for balance of a Wheatstone bridge. Explain its applications.	L4	4	16
		Or			
	b	With a block diagram, explain the working of a digital voltmeter.	L4	4	16
15.	a	With a neat block diagram, explain the construction and working of CRO.	L3	5	16
		Or			
	b	Explain the principle, transduction mechanism, and classification of biosensors.	L3	5	16