

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Seventh Semester

Electrical and Electronics Engineering

OMR353 - Sensors

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>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	List out the importance of static and dynamic calibrations.	RE	1	2
2.	Classify the various types of sensors.	UN	1	2
3.	What are the principles used in Capacitive Transducer?	RE	2	2
4.	Define Encoder.	RE	2	2
5.	Mention the types of errors that occur in inclinometer.	UN	3	2
6.	Define gauge factor of a strain gauge.	RE	3	2
7.	Compare the working principle of thermistor and thermocouple.	AN	4	2
8.	List out the advantages of fiber optic sensors.	RE	4	2
9.	Define data acquisition system.	RE	5	2
10.	What is the need for signal conditioning?	RE	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

<i>Q. No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Discover the different types of errors in measurement system and explain the methods of correcting those errors.	AN	1	13
	Or			
	b i Discover in detail about the classification of sensors.	AN	1	8
	ii Classify the signal types and signal outputs of sensors.	AN	1	5
12.	a Discover the working principle and types of optical encoders with neat sketch.	AN	2	13

Or

	b	Examine the working of ultrasonic range sensors with relevant diagrams. Also discuss their applications.	AN	2	13
13.	a	Identify the various types of force and torque measurement.	AP	3	13
Or					
	b	Develop the concept, properties, working principle, types and applications of Gyroscope.	AP	3	13
14.	a i	Explain the various types of photo conductive cell and its working principle.	RE	4	7
	ii	Give the brief explanation about the fiber optic sensors and analyse the functions of block diagram.	RE	4	6
Or					
	b i	Define Piezoelectric effect. Write the theory and mode of piezoelectric transducer.	RE	4	7
	ii	Mention the name of the materials exhibiting in Piezoelectric transducer.	RE	4	6
15.	a	Draw the block diagram of instrumentation amplifier and deduce the expression for Gain /Amplification factor.	AP	5	13
Or					
	b i	Identify the need for signal conditioning and also explain its types.	AP	5	7
	ii	Develop the functional blocks of AC and DC signal conditioning.	AP	5	6

*PART – C (Marks 1*15 = 15)*

<i>Q. No</i>		<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
16.	a	Choose the strategies used in construction and wiring arrangements of RTD.	AP	4	15
Or					
	b	Develop the model of a single channel data acquisition system with necessary functional block diagram.	AP	5	15