

Total number of printed pages: 002 Programme (UG)/ 4th Semester/UIE402
2024

SENSORS AND TRANSDUCERS

Full Marks: 100

Time: Three hours

The figures in the margin indicate full marks for the questions.

Answer any five questions.

1	a)	Explain hall Effect with equation and diagram.	06
	b)	Write the equation of gauge factor and explain.	04
	c)	Write short notes on Optical radiation pyrometer.	06
	d)	What is piezoelectric transducer?	04
2	a)	Draw 4 wires RTD using whetstone bridge circuit.	06
	b)	Draw diagram type strain-gauge pressure pickup.	04
	c)	Write a note on Elastic type pressure sensor.	06
	d)	Write the features AD590 IC temperature sensor.	04
3	a)	If visible light violet has wavelength 450nm, what will be its frequency?	06
	b)	Draw a Resistance thermometer (Pirani) gauge.	04
	c)	Describe the five Thermocouple laws.	06
	d)	What is the need of cold junction compensation?	04
4.	a)	Draw complete LVDT circuit with phase sensitive demodulation.	06
	b)	Write a short note on IC temperature sensor.	04
	c)	A strain gauge has a gauge factor of 2.15. If it is stretches from 30cm to 32cm, what is the % change in resistance?	06
	d)	Draw the essential parts of a Bourdon tube pressure gauge.	04
5.	a)	Explain the the calibration using Dead weight or piston gauge.	06
	b)	How A.C tacho generators work?	04
	c)	How to measure power using hall sensor. Explain with diagram.	06

	d)	What is ultrasonic transducer? what are its appli	04
6.	a)	How drug cup tacho generators work?	06
	b)	Draw and explain working principle of LED.	04
	c)	Explain the principle difference between photo diode, photo transistor and photo voltaic cell.	06
	d)	Write the equation of RTD and explain	04
7.	a)	Write short notes on Stroboscope.	06
	b)	Draw a incline mamometer.	04
	c)	Draw and Explain vacuum pressure measurement using Mclead Gauge.	10

*****End of UIE402*****

