

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER- VI EXAMINATION – SUMMER 2026

Subject Code:3161008

Date:29-05-2026

Subject Name:Sensors and Transducers

Time:10:30 AM TO 01:00 PM

Total Marks:70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Distinguish Reproducibility and Repeatability.	03
	(b) Mention any four dynamic characteristics and define them.	04
	(c) Explain in detail Calibration techniques.	07
Q.2	(a) Mention features of Thermistors.	03
	(b) List advantages and disadvantages of Potentiometer.	04
	(c) Explain the basic structure of RVDT and its operation.	07
	OR	
	(c) Explain the construction and working of RTD.	07
Q.3	(a) List out different types of Strain Gauge.	03
	(b) List out advantages and disadvantages of LDR.	04
	(c) Explain construction and working of Fiber Optic Sensor.	07
	OR	
Q.3	(a) List out suitable material for Piezo Electric Sensor.	03
	(b) Explain Hall Effect Sensor and list out various types of Hall Effect Sensors.	04
	(c) Explain principle of Magneto Resistive Sensor. Write down its applications. List out its advantages.	07
Q.4	(a) What are the sources of errors in Wheat Stone bridge?	03
	(b) Give advantages and limitations of Maxwell's bridge.	04
	(c) Describe the circuit of Kelvin's double bridge.	07
	OR	
Q.4	(a) Explain Non Inverting amplifier using Op-Amp.	03
	(b) Explain Instrumentation Amplifier using Op-Amp.	04
	(c) Derive the bridge balance condition for Maxwell's bridge.	07
Q.5	(a) List out types of ADCs.	03
	(b) List applications of Inclinator.	04
	(c) Explain R-2R Ladder type DAC in detail.	07
	OR	
Q.5	(a) Compare weighted Resistor DAC and R-2R Ladder DAC.	03
	(b) Compare MEMS Sensors and Nano Sensors.	04
	(c) Describe in detail the Successive Approximation method of ADC.	07
