

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– III EXAMINATION – SUMMER 2026

Subject Code:3134103

Date:17-06-2026

Subject Name:Sensor and Instrumentation

Time:02:30 PM TO 05:00 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) Explain calibration technique.	03
	(b) Why electronic instruments are more preferable than mechanical and electrical instruments?	04
	(c) Explain Classification of Error in instrumentation	07
Q.2	(a) Give sensor classification.	03
	(b) Explain pyroelectric effect.	04
	(c) Explain optical Encoder with its types.	07
	OR	
	(c) Explain motion Sensor with its types. Also give applications.	07
Q.3	(a) Define Accuracy with its types.	03
	(b) Explain RVDT.	04
	(c) Define Insulating material. Also explain its type with temperature stability.	07
	OR	
Q.3	(a) Explain hall effect.	03
	(b) Explain piezoelectric effect.	04
	(c) Explain thermocouple construction and also give advantages, limitations of it.	07
Q.4	(a) Give advantages and limitations of thermistors.	03
	(b) Explain types of strain gauges.	04
	(c) Explain motion Sensor with its types. Also give applications.	07
	OR	
Q.4	(a) What is compass sensor? Give the application.	03
	(b) How magnetic sensor work?	04
	(c) Explain characteristics of a data logger.	07
Q.5	(a) Explain orifice meter for flow measurement	03
	(b) Give characteristics of Interface electronics circuits.	04
	(c) Explain Analog and Digital Converters.	07
	OR	
Q.5	(a) Define: Amplifiers	03
	(b) Explain single channel data acquisition system.	04
	(c) Explain types of Batteries for use in low power sensors.	07
