

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-VII EXAMINATION – WINTER 2025****Subject Code:3170208****Date:26-11-2025****Subject Name:Measurement, Instrumentation and Control in Automobile****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) Define: (1) Threshold, (2) Hysteresis (3) Sensitivity.	03
	(b) Explain pressure sensors in detail.	04
	(c) List out mechanical measurements used in automobile and explain in brief about any one of them.	07
Q.2	(a) Write definition of Readability and Reproducibility.	03
	(b) Write the principal and operation of the actuators.	04
	(c) Explain with neat sketch Exhaust gas recirculation actuators.	07
	OR	
	(c) Differentiate accuracy and precision with suitable example.	07
Q.3	(a) Write short note on Antilock braking system (ABS).	03
	(b) Describe static and dynamic measurement system.	04
	(c) Compare antilock braking system with conventional braking system.	07
	OR	
Q.3	(a) Explain in detail solenoid-operated valve.	03
	(b) Explain electronic transmission control for automotive vehicles.	04
	(c) Write different types variable resistance type sensors and explain any one in detail.	07
Q.4	(a) Discuss need for signal analysis. Describe use of FFT analyzer.	03
	(b) Discuss important factors affecting Selection and Requirement of Measuring instrument.	04
	(c) Write a short note with a block diagram of general-purpose cathode ray Oscilloscope.	07
	OR	
Q.4	(a) Compare any two different temperature measurement instruments for suitability to measure coolant temperature.	03
	(b) Explain stroboscopes.	04
	(c) Describe instrumentation required for testing of IC Engine.	07
Q.5	(a) Explain comfort system for automobile system.	03
	(b) Discuss about data acquisition systems for automobile engineering.	04
	(c) Discuss traction control and electronic stability for automobile system.	07
	OR	
Q.5	(a) Differentiate Analog and Digital transducers.	03
	(b) Write in detail with neat sketch oxygen sensors.	04
	(c) Define Secondary and Tertiary types of measurements. Discuss with suitable examples.	07
