

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER– VII EXAMINATION – SUMMER 2026

Subject Code:3170208

Date:03-06-2026

Subject Name: Measurement, Instrumentation and Control in Automobile

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) Define: 1) Sensitivity 2) Sensor 3) Reliability	03
	(b) Differentiate between Static and Dynamic measurement systems.	04
	(c) Explain the working of hot wire type air flow (MAF) rate Sensor with neat diagram.	07
Q.2	(a) Explain pressure sensors in detail.	03
	(b) What is Transducer? Explain the different types of transducers.	04
	(c) Describe the working of diaphragm pressure gauge with neat sketch.	07
	OR	
	(c) Describe instrumentation required for testing of IC Engine.	07
Q.3	(a) Explain Difference Between Precision and Accuracy with Example.	03
	(b) Describe active suspension control system in short.	04
	(c) Compare Power Absorption Dynamometers with Power Transmission Dynamometers.	07
	OR	
Q.3	(a) How Temperature Measuring Instruments are classified?	03
	(b) Discuss about data acquisition systems for automobile engineering.	04
	(c) Discuss traction control and electronic stability for automobile system.	07
Q.4	(a) Write short note on Antilock braking system (ABS).	03
	(b) Explain in detail solenoid-operated valve.	04
	(c) Explain method of rotational speed measurement by using stroboscope with neat sketch.	07
	OR	
Q.4	(a) Explain (i) Analogue Signals (ii) Pulsed Signals	03
	(b) Explain comfort system for automobile system.	04
	(c) Explain the working of exhaust gas recirculation (EGR) with neat sketch.	07
Q.5	(a) Explain FFT analyser.	03
	(b) Explain (i) Piezo-electric type and (ii) Seismic type accelerometers.	04
	(c) Explain electronic transmission control system with neat diagram.	07
	OR	
Q.5	(a) Discuss need for signal analysis. Describe use of FFT analyzer.	03
	(b) Write in detail with neat sketch oxygen sensors.	04
	(c) What is Load cell? Compare Hydraulic load cell with Pneumatic load cell.	07
