

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3171720

Date:28-11-2025

Subject Name:Automotive Instrumentation

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) Explain role of electronics in automotive system.	03
(b) List different sensors used in automotive system. Explain any one in detail.	04
(c) What is AUTOSAR in automotive system? Brief in detail.	07
Q.2 (a) Enlist different safety systems used in automotive vehicle.	03
(b) Explain functionality of ECU in brief.	04
(c) Explain different comfort systems used in automotive system in brief.	07
OR	
(c) What is active suspension system in automotive system? Enlist advantages and disadvantages of active suspension system.	07
Q.3 (a) Explain electronic transmission control.	03
(b) Explain traction control for automotive vehicle in brief.	04
(c) Explain ABS with diagrams in detail.	07
OR	
Q.3 (a) Explain adaptive power steering.	03
(b) Explain functional differences between traction control and electronic stability.	04
(c) Explain Adaptive cruise control in brief.	07
Q.4 (a) What is an immobilizer? Explain functionality of it.	03
(b) Explain electronic instrument clusters and dashboard electronics.	04
(c) Brief about need of air bag system in automotive.	07
OR	
Q.4 (a) Explain remote keyless entry in brief.	03
(b) Explain lighting control in automotive system.	04
(c) Explain aspects of hardware design for automotive and electro-magnetic interference suppression.	07
Q.5 (a) Explain body electronics in automotive system.	03
(b) What is principle of system design? Explain in detail.	04
(c) Explain Battery Management System in brief with diagram.	07
OR	
Q.5 (a) Explain electromagnetic compatibility in automotive system.	03
(b) Explain assembly process of automotive and instrumentation system in brief.	04
(c) Explain Fuel Control Module in brief.	07
