

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER- VII EXAMINATION-SUMMER 2023

Subject Code: 3171720

Date: 30/06/2023

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 in brief about current trends in automobiles with emphasis on increasing role of Software.	03
(b) Define Automotive Sensors. Enlist various types of Automotive Sensors.	04
(c) Explain current trends in automobiles with emphasis on increasing role of Electronics.	07
Q.2 (a) Explain Electronic Transmission Control.	03
(b) Explain Throttle position sensor for Automotive system.	04
(c) Explain an overview of typical Automotive subsystems and components.	07
OR	
(c) Explain functionality of Generic automotive control ECU with diagrams.	07
Q.3 (a) Explain in brief: Adaptive Power Steering.	03
(b) Explain in brief: Adaptive Cruise Control.	04
(c) Explain AUTOSAR with necessary diagrams.	07
OR	
Q.3 (a) Define Safety and Comfort System.	03
(b) Explain Active Suspension Control.	04
(c) Explain Antilock Braking System with necessary diagrams	07
Q.4 (a) Explain in Brief: Airbags.	03
(b) Explain the aspect of hardware design for automotive including electromagnetic suppression.	04
(c) Explain Body Electronics including lighting Control.	07
OR	
Q.4 (a) Explain in Brief: Remote Keyless Entry.	03
(b) Explain the Electronic Stability Program (ESP).	04
(c) Explain the Fuel Control Module (FCM).	07
Q.5 (a) Explain Electromagnetic Compatibility.	03
(b) Explain Electronic instrument Cluster and dash board Electronics.	04
(c) Explain the principles of System Design in Automotive System.	07
OR	
Q.5 (a) Explain in brief: Immobilizers	03
(b) Explain Battery Management System (BMS).	04
(c) Explain Assembly process of Automotive and Instrumentation Systems.	07
