

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER- VIII EXAMINATION – SUMMER 2026****Subject Code:2181708****Date:25-05-2026****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)	Brief about protocol used in automotive system.	03
	(b)	Discuss open loop and closed loop algorithms for engine control system.	04
	(c)	Explain in brief, uses of electro-magnetic interference suppression in hardware design for automotive system.	07
Q.2	(a)	Brief about importance of traction control in automotive vehicle.	03
	(b)	Discuss any two automotive standards and safety standards.	04
	(c)	What are different control algorithm used for engine management system in automotive system ? Discuss any one in detail.	07
		OR	
	(c)	Brief about advantages of instrumentation system in assembling line of automotive vehicle.	07
Q.3	(a)	Explain importance of air bag in automobile vehicle safety system	03
	(b)	Discuss about safety system in automotive system in detail.	04
	(c)	Brief about functionality of ECU in automotive system.	07
		OR	
Q.3	(a)	Explain about Fuel Control Module.	03
	(b)	Explain importance of electronics and software in automotive system.	04
	(c)	Enlist and Explain different sensors used in automotive system.	07
Q.4	(a)	Explain lightening control in automotive vehicle.	03
	(b)	Discuss battery management system in automotive system in detail.	04
	(c)	Explain AUTOSAR in automotive system in detail.	07
		OR	
Q.4	(a)	Which are different automotive subsystems and components of automotive systems ?	03
	(b)	Explain importance of adaptive cruise control in automotive system.	04
	(c)	What are merits of fuel control module with reference to energy management and emission control in automotive system.	07
Q.5	(a)	Explain merits of active suspension control.	03
	(b)	Brief about electronic instrument clusters and dashboard electronics.	04

- (c) Discuss importance of adaptive power steering in automotive system in detail. **07**

OR

- Q.5** (a) Discuss sensor arrangement in automotive vehicle. **03**
(b) Explain merits of antilock braking system over conventional braking system. **04**
(c) Explain Fuel metering and vehicle speed sensors in detail. **07**
