

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- SEMESTER-VII EXAMINATION – WINTER 2025

Subject Code:3171112

Date:28-11-2025

Subject Name:Automotive Electronics

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 the terms: Torque, Power, Fuel Consumption	03
(b) What do you mean by Electromagnetic interference?	04
(c) Explain the Four stroke SI Engine, with suitable diagram.	07
Q.2 (a) Justify the need of electronics in Automobile.	03
(b) Explain the effect of air fuel ratio on performance.	04
(c) Explain Idle speed control with relevant diagram	07
OR	
(c) With neat diagram explain electronic ignition control system.	07
Q.3 (a) Explain following sensor 1. TAS 2. Reluctance position sensor 3. Knock Sensor	03
(b) Explain working of stepper motor as actuator.	04
(c) Explain the modes of fuel control. Brief the digital engine control system.	07
OR	
Q.3 (a) Explain following sensor 1. MAP 2. Air bag 3. Engine Crankshaft Angular Position Sensor	03
(b) Explain working of brushless DC motor.	04
(c) What is hall effect? Explain Position sensor using principal of hall effect. Compare with magnetic reluctance sensor.	07
Q.4 (a) What do you mean by Electronics Suspension system?	03
(b) Explain Digital Engine control.	04
(c) Explain CAN protocol in detail.	07
OR	
Q.4 (a) Explain on board diagnosis system.	03
(b) Differentiate Throttle body Injection and Multi port fuel injection system	04
(c) Explain different buses used in automobile networks.	07
Q.5 (a) Differentiate hot spark plug from cold spark plug.	03
(b) What are the major controller inputs and outputs from/to Engine? Show their connection between Engine and Controller.	04
(c) Explain following:	07
1. Antilock braking system	
2. Throttle Actuator	

OR

- Q.5** (a) Explain the care and maintenance of automotive batteries. **03**
(b) Explain low tire-pressure warning system with relevant diagrams. **04**
(c) Explain following: **07**
1. Electronic steering control
 2. Central locking system
