

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code: 3160209

Date:20-05-2025

Subject Name: Automotive Electricals and 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) Explain Circuit Breakers.	03
(b) Draw any six electrical symbols and name them.	04
(c) Explain the basic wiring Diagram layout of a four-wheeler electrical system.	07
Q.2 (a) Give the function of the following: (i) Relay circuit (ii) Switches (iii) Fuse.	03
(b) Explain the utility of the parking brake indicator.	04
(c) Describe the different battery capacity rating techniques.	07
OR	
(c) Describe the Various Methodologies for Battery Charging Techniques.	07
Q.3 (a) Explain the working Fuel Gauge.	03
(b) Justify the need for an alternator.	04
(c) Explain the spark plug with a neat sketch.	07
OR	
Q.3 (a) Write Short notes on windscreen wipers.	03
(b) Describe the Fuel metering sensor.	04
(c) Explain the current voltage regulator for the charging system in detail with a neat sketch.	07
Q.4 (a) Explain the working of the odometer.	03
(b) Describe throttle position sensors.	04
(c) Draw the wiring diagram of the flashing-type side indicator and explain its working.	07
OR	
Q.4 (a) Explain the working of the oil pressure warning light.	03
(b) Describe crank angle position sensors with a neat sketch.	04
(c) Write a short note on the Electronic MPFI system used in the vehicle in detail.	07
Q.5 (a) Define the central locking system of a vehicle.	03
(b) Explain the effect of interference suppression on vehicle engines.	04
(c) Discuss cold starting devices: Glow plug & choke.	07
OR	
Q.5 (a) Explain the balancing type of fuel gauge.	03
(b) Explain the spark advance mechanism and cam angle in the Ignition System.	04
(c) Compare lead acid battery, dry battery and alkaline battery.	07
