

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-VI EXAMINATION – WINTER 2025****Subject Code:3160209****Date:02-12-2025****Subject Name:Automotive Electricals and Electronics****Time:02:30 PM TO 05:00 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.

		<b>MARKS</b>
<b>Q.1</b>	(a) How to generation of electric energy in automobile electrical systems? (b) Enlist different types of cables and cable connectors used in automobile electrical systems. (c) Explain basic wiring Diagram layout of Two and Four wheeler electrical system with neat sketch.	<b>03</b> <b>04</b> <b>07</b>
<b>Q.2</b>	(a) Give the reason of Battery failure in vehicles. (b) Difference between lead acid battery and alkaline battery. (c) Explain the various methods of battery capacity rating.	<b>03</b> <b>04</b> <b>07</b>
	<b>OR</b>	
	(c) Explain central locking system of vehicle.	<b>07</b>
<b>Q.3</b>	(a) Brief about A.C. & D.C. horns, wind tone horn and electronic horn. (b) Explain the gravimetric test for battery. (c) Types of charging system. Explain any one in detail.	<b>03</b> <b>04</b> <b>07</b>
	<b>OR</b>	
<b>Q.3</b>	(a) What is characteristics electronic regulator? (b) Explain head lamp angle and its position. (c) Explain flywheel magneto charging system and Alternator.	<b>03</b> <b>04</b> <b>07</b>
<b>Q.4</b>	(a) What is the working principle of operation contactless electronic ignition system. (b) Discuss about current trends in automotive electronic engine management system. (c) Explain multi-port fuel injection system with neat sketch.	<b>03</b> <b>04</b> <b>07</b>
	<b>OR</b>	
<b>Q.4</b>	(a) Explain security warning system in brief. (b) Write short note on instrument panel lights and body interior lights. (c) Explain electromagnetic interference Suppression.	<b>03</b> <b>04</b> <b>07</b>
<b>Q.5</b>	(a) Describe Feedback carburetor systems. (b) Difference between speedometer and odometer. (c) Explain basic arrangement of sensor and also give detail of Crank angle position sensor of vehicles.	<b>03</b> <b>04</b> <b>07</b>

**OR**

<b>Q.5</b>	<b>(a)</b> Explain working principle of stepper motor.	<b>03</b>
	<b>(b)</b> Write short note on altitude sensor and flow sensor.	<b>04</b>
	<b>(c)</b> List various types of warning light-sensors and explain it.	<b>07</b>

\*\*\*\*\*