

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI(NEW) EXAMINATION – WINTER 2022****Subject Code:3160209****Date:13-12-2022****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.

MARKS

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|------------|--|-----------|
| Q.1 | (a) What is the need of charging circuit? | 03 |
| | (b) Draw any six electrical symbols and name it. | 04 |
| | (c) Explain working principle of battery with neat sketch. | 07 |
| Q.2 | (a) Enlist types of cables used in automobile electrical system with its color codes. | 03 |
| | (b) Draw a wiring diagram of 4 wheeler vehicle. | 04 |
| | (c) Explain the working of cut out relay, voltage regulator and current regulator. | 07 |
| | OR | |
| | (c) Write Short Note on Fog Lamps and Side Indicator Lamp with circuit diagram. | 07 |
| Q.3 | (a) Explain working of glow plug and choke. | 03 |
| | (b) Explain Bedix drive mechanisms. | 04 |
| | (c) Explain spark plug with neat sketch. | 07 |
| | OR | |
| Q.3 | (a) Explain working of solenoid used in electronic system. | 03 |
| | (b) Explain battery ratings. | 04 |
| | (c) Write the difference between alternator and generator. | 07 |
| Q.4 | (a) Explain the working of odometer. | 03 |
| | (b) Give the types of sensors. Explain about oxygen sensors. | 04 |
| | (c) Explain Insulation of cables and Earthing system. | 07 |
| | OR | |
| Q.4 | (a) Explain windscreen wiper. | 03 |
| | (b) Explain the working of fuel gauge with neat sketch. | 04 |
| | (c) Give Principle of starting system. Write short note on starter motor and its circuits. | 07 |
| Q.5 | (a) Explain central locking system of vehicle. | 03 |
| | (b) Write short note on onboard diagnostic system. | 04 |
| | (c) State the various parts of electronics ignition system & explain their function. | 07 |
| | OR | |
| Q.5 | (a) Write short note on recent trend on automotive electronic engine management system. | 03 |
| | (b) List various types of horns and explain working of any one. | 04 |
| | (c) Compare lead acid battery, dry battery and alkaline battery. | 07 |
