

22651

24225

3 Hours / 70 Marks

Seat No.

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- Instructions –*
- (1) All Questions are *Compulsory*.
 - (2) Answer each next main Question on a new page.
 - (3) Illustrate your answer with neat sketches wherever necessary.
 - (4) Figures to the right indicate full marks.
 - (5) Assume suitable data, if necessary.
 - (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following: 10**
- a) List the types of switches.
 - b) Interpret the role of relays in an electrical circuit.
 - c) State the importance of battery terminal tests.
 - d) State the four factors affecting the battery life.
 - e) List the functions of the starting system in automobiles.
 - f) List any two advantages of electric two-wheelers.
 - g) State the function of the Throttle position sensor.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain how a solenoid works and provide an example of its application in an electrical or mechanical system.
 - b) Explain the procedure of the voltage drop test.
 - c) Explain the distributor-less ignition system with a block diagram.
 - d) Explain the procedure for specific gravity tests of battery testing.
- 3. Attempt any THREE of the following:** **12**
- a) Explain the working principle of the fuel gauge with the figure.
 - b) Explain the working principle of the starter motor.
 - c) Explain with a neat sketch working of the electronic ignition system.
 - d) Explain with a block diagram the working of automatic headlight dimming circuit.
- 4. Attempt any THREE of the following:** **12**
- a) Describe the testing procedure of the insulated circuit resistance test.
 - b) Explain with a block diagram the working of the automatic door lock system.
 - c) Explain with a block diagram the global positioning system used in automobiles.
 - d) Describe the working of the engine coolant temperature sensor.
 - e) Explain construction and working of lithium-ion battery.
- 5. Attempt any TWO of the following:** **12**
- a) Draw and explain the circuit diagram of the windshield wiper circuit.
 - b) Explain the current output and field current draw tests concerning alternator testing.
 - c) Describe the causes and troubles of battery overcharging and sulphation.

6. Attempt any TWO of the following:**12**

- a) Explain with a neat sketch the workings of an overrunning clutch.
 - b) Explain the Ohm-meter test and sound test in electronic fuel injector testing.
 - c) Enlist any two purposes of OBD II. Define the terms –
 - i) Drive cycle
 - ii) Trip
 - iii) Warm-up cycle.
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