

# 22651

**23124**

**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 answers 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 four types of circuit defects found in automotive circuits.
  - b) Interpret the function of SPDT switch in automotive electrical systems.
  - c) State the material used for positive and negative plates of lithium-ion battery.
  - d) Illustrate any two signs of an overcharged battery.
  - e) List any two components of starting system.
  - f) Give examples of any two vehicles using park assists system in India.
  - g) Indicate the range of voltage generated from an oxygen sensor.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Describe with neat sketch operation of a buzzer used in automobile electrical system.
  - b) Prepare a circuit diagram using switch, fuse, battery, electrical load in proper sequence for a particular application.
  - c) Explain with simple circuit diagram the testing procedure of voltage drop in an automotive circuit.
  - d) State any four factors affecting battery maintenance.
  - e) Explain with the help of wiring diagram computer controlled voltage regulation in alternators.
- 3. Attempt any THREE of the following:** **12**
- a) Draw a neat block diagram indicating components of starting system.
  - b) Describe use of hall effect as a method of triggering in ignition system.
  - c) Explain integrated starter-generator system used in hybrid vehicles.
  - d) Illustrate four remedial measures for faulty starting system with justifications.
- 4. Attempt any THREE of the following:** **12**
- a) Draw a neat block diagram of GPS system and list two applications.
  - b) Describe working of automatic headlight dimming system.
  - c) Describe function of any four components used in electric two wheeler.
  - d) Give example of any two DTC codes. Describe any one in detail.

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

- a) Explain with sketch construction and working of engine oil pressure gauge.
- b) Describe the procedure to conduct battery terminal test and open circuit test.
- c) Explain with neat sketch working of the charging system in automobile and state necessity of output regulation.

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

- a) Explain quick testing in starting system. Predict possible test results with their interpretation.
  - b) Prepare a chart indicating any one Diagnostic Trouble Code (DTC) with two possible causes and symptoms.
  - c) Explain with neat sketch construction and working of manifold absolute pressure sensor.
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