

# 22651

**21222**

**3 Hours / 70 Marks**

Seat No. 

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15 minutes extra for each hour

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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.
- b) Interpret the function of a buzzer in automotive electrical system.
- c) State four parameter of battery specification.
- d) Define and list types of battery ratings.
- e) List types of methods of triggering primary circuit.
- f) Explain reasons for providing time delay in automatic head light system.
- g) Discuss function of mass air flow sensor.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Draw a neat labeled wiring diagram of windshield wiper in automobile.
  - b) Describe working of following switches in the vehicle.
    - (i) Ganged Switch
    - (ii) Mercury Switch
  - c) Illustrate with simple circuit diagram the testing of open circuit defect using voltmeter.
  - d) describe the procedure of battery terminal test with help of schematic diagram.
  - e) Illustrate with sketch current output test of an alternator. Predict the possible test results and their inference.
- 3. Attempt any THREE of the following:** **12**
- a) List four components of starting system and state their function.
  - b) Explain working of bendix drive with sketch.
  - c) Explain working of computer controlled ignition system.
  - d) Justify the precautions in handling of ignition system using Hall Effect Sensor.
- 4. Attempt any THREE of the following:** **12**
- a) List the Navigation systems in automobile. Explain any one.
  - b) Describe working of keyless entry system.
  - c) Describe working of an electric two wheeler with layout.
  - d) Explain with sketch throttle position sensor.

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

- a) Explain with sketch construction and working of -
  - (i) Maxi Fuse
  - (ii) Relays
- b) Explain with neat sketch construction of lead acid battery.
- c) Give the probable causes and remedies for following troubles.
  - (i) Corroded battery bracket
  - (ii) Reading of voltage on individual cells differ.

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

- a) "Computer controlled ignition system is better as compared to conventional ignition system." Justify your answer.
  - b) List and explain any one electronic fuel injector testing types.
  - c) State the purpose of OBD II. Define the terms –
    - (i) drive cycle
    - (ii) trip
    - (iii) warm up cycle
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