

# 17617

16172

**3 Hours / 100 Marks**

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

1. a) **Attempt any THREE of the following:** **12**
- (i) State the purposes of following electrical components
- 1) Relays
- 2) Solenoidal
- (ii) Define battery rating and enlist its types.
- (iii) State types and functions of starter drives.
- (iv) List four components of conventional ignition system and state their function.
- b) **Attempt any ONE of the following:** **6**
- (i) Draw the sketch of speedometer gauge and describe its constructions and working.
- (ii) State precautions to be taken while charging of lead acid battery.

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- 2. Attempt any FOUR of the following:** **16**
- a) State the types and function of switches.
  - b) List the various circuit defects and describe short circuit with suitable sketch.
  - c) Describe the current draw test.
  - d) Draw the wiring diagram of power window circuit and explain its working.
  - e) Enlist functions of fuses and maxi fuses used in Automobile. Draw neat labeled sketch of cartridge fuse.
  - f) Draw the block diagram of starting system and describe its working.
- 3. Attempt any FOUR of the following:** **16**
- a) List common antitheft systems used in car. Describe any one.
  - b) State the purpose of OBD-II. Define the term drive cycle.
  - c) Describe working of automatic resetting type circuit breaker with neat sketch.
  - d) State the purpose of following components used in ignition system.
    - (i) Cords
    - (ii) distributor
    - (iii) condenser
    - (iv) ignition coil
  - e) State the function of
    - (i) Cam shaft position sensor
    - (ii) Cylinder Identification sensor

4. a) **Attempt any THREE of the following:** **12**
- (i) Describe the operation of automatic door lock system.
  - (ii) State the salient features of keyless entry system.
  - (iii) Describe working of intake air temperature sensor.
  - (iv) Describe DTC structure as detected by SAE J2012.
- b) **Attempt any ONE of the following:** **6**
- (i) Describe the working of alternator with neat sketch.
  - (ii) How are the hydrometer and digital voltmeter used to check the state of charge of automotive battery.
5. **Attempt any FOUR of the following:** **16**
- a) State the functions of microprocessor used in Automotive.
  - b) Describe the operation of park assists system.
  - c) What are the causes and troubles from battery overcharging and under charging.
  - d) Write the procedure for sound test for testing electronic fuel injector.
  - e) How alternator voltage and current output are controlled?
  - f) Sketch and describe the procedure for testing alternator rotor and stator.
6. **Attempt any FOUR of the following:** **16**
- a) Describe construction and working of maintenance free batteries.
  - b) Describe working of Bendix drive and where it is used?
  - c) Defferentiate between conventional and electronic ignition systems.
  - d) Explain operation of Hall effect switch with neat sketch.
  - e) Describe working of Battery ignition system with neat sketch.
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