

# 17617

**11920**

**3 Hours / 100 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) 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 purpose of the following electrical components
    - (1) Relay
    - (2) Fuse
  - (ii) State any four types of batteries and its applications.
  - (iii) List out any four components of starting system and state its function.
  - (iv) Describe construction of ignition coil with neat sketch
- b) **Attempt any ONE of the following:** **6**
- (i) Describe construction and working of engine oil pressure gauge. (Electromagnetic type)
  - (ii) Describe any four factors which affects life of battery.

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- 2. Attempt any FOUR of the following:** **16**
- a) State the function of following:
    - (i) Temp. gauge
    - (ii) Fuel gauge
    - (iii) Engine oil pressure gauge
    - (iv) Speedometer gauge
  - b) State any four types of tests used to find out circuit defect.
  - c) State the function of any four elements of charging system.
  - d) Describe working of power window with the help of block diagram.
  - e) Describe the working of Buzzers with neat sketch.
  - f) Describe working principle of alternator with necessary sketches.
- 3. Attempt any FOUR of the following:** **16**
- a) State any two purpose of
    - (i) Keyless entry system
    - (ii) Automatic head light dimming
  - b) List any four sensor used in modern car with their locations.
  - c) Describe constructional details of electrochromic mirror with suitable block diagram.
  - d) Describe conventional ignition system with neat sketch.
  - e) Describe working of computer controlled ignition system with block diagram.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Describe working of park assistance system.
  - (ii) Describe automatic door lock system.
  - (iii) Describe construction and working of engine coolant temperature sensor
  - (iv) Describe sound test and ohmeter test for electronic fuel injection system.

- b) **Attempt any ONE of the following:** **6**
- (i) Describe the operation of charge indicator light circuit with simple wiring diagram in charging system.
  - (ii) “Computer controlled ignition system is better as compared to conventional ignition system.” Justify your answer.
- 5. Attempt any FOUR of the following:** **16**
- a) Describe working of GPS system with its block diagram.
  - b) Describe antitheft system used in vehicle
  - c) “Overcharging and sulfation affects on the battery life”  
Justify your Answer.
  - d) “On board diagnostic is important aspect in vehicle maintenance”. Justify Answer.
  - e) How performance of the charging system can be improved?  
Justify.
  - f) Which component of charging system is “responsible to maintain the constant system voltage, irrespective to the engine speed.” Justify your answer with suitable reasons.
- 6. Attempt any FOUR of the following:** **16**
- a) Describe constructional details of lead acid battery.
  - b) How condition of battery and its temperature affects on the charging system.
  - c) “Regular maintenance improves battery life”. Justify your answer.
  - d) How following factor affects on the establishment of spark
    - (i) The rate of increase the voltage at the gap.
    - (ii) The temp of the electrode
  - e) How electronic ignition system improves the performance of engine? Justify.
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