# 17617

**11819**

**3 Hours / 100 Marks** Seat No. | | | | | | | | |

*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 following electrical components :

(1) Relay

(2) Blower motor

(ii) Describe '20 AH rating' and 'CCA rating' of a battery.

(iii) Describe initial excitation and self-excitation of an alternator.

(iv) Describe function of ignition coil and distributor.

b) **Attempt any ONE of the following:** **6**

(i) Draw schematic sketch of electromagnetic temperature gauge and describe its working.

(ii) Describe jump starting procedure with help of sketch. State precautions during the same.

**Marks**

**2. Attempt any FOUR of the following:** **16**

a) Describe procedure to test voltage drop in a circuit.

b) Describe operation of solenoid switch.

c) With help of schematic diagram, describe starting system working.

d) Describe working of power window circuit.

e) Sketch symbol of two resistor types and describe their use.

f) Explain regulator output test of an alternator.

**3. Attempt any FOUR of the following:** **16**

a) Describe operation of common anti-theft system.

b) Define drive cycle and trip.

c) Describe procedure and purpose of conducting current draw test of starting system.

d) State the function of the following:

Detonation sensor and Cylinder identification sensor

e) Describe optical method of triggering primary circuit of ignition system.

**4. a) Attempt any THREE of the following:** **12**

(i) Describe operation of automatic door lock system.

(ii) Describe operation of automatic ON/OFF headlight with time delay.

(iii) Describe throttle position sensor test procedure.

(iv) Describe electronic fuel injection diagnostic trouble code as per SAE J 2012 standard.

**b) Attempt any ONE of the following:** **6**

(i) Describe electronic regulation of charging system with help of schematic diagram.

(ii) Describe operation of distributorless ignition system with help of schematic diagram.

**Marks**

**5. Attempt any FOUR of the following:** **16**

a) Draw block diagram of microprocessor used in automobile.

b) State purpose and describe operation of automatic headlight dimming.

c) Describe four precautions to be taken during battery charging.

d) Describe purpose of second generation on-board diagnosis.

e) Describe use and working of fiber optics.

f) Describe procedure to test alternator rotor/field winding.

**6. Attempt any FOUR of the following:** **16**

a) Describe two factor affecting battery life.

b) Describe charge indicator light circuit operation.

c) State precautions to be taken while conducting battery open circuit test.

d) Describe working of computer controlled ignition system.

e) Describe working of two components of primary circuit in ignition system.