17617

15116

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

Instructions – (1) All Questions are *Compulsory*.

(2) Illustrate your answers with neat sketches wherever necessary.

(3) Figures to the right indicate full marks.

(4) Assume suitable data, if necessary.

(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) Solenoids

(ii) Explain any four battery ratings.

(iii) Draw a schematic arrangement of Bendix drive and label it.

(iv) State any four needs of ignition system.

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

(i) Draw a neat labelled sketch of electromagnetic engine oil pressure gauge and describe its construction and working.

(ii) Describe construction and working of lead acid battery with neat sketch.

Marks

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

a) Describe the working of any one electrical buzzer with neat sketch.

b) Describe open circuit defect with suitable sketch.

c) List the components of starting system and write their function.

d) Draw the wiring diagram of power window circuit and describe its working.

e) Describe operation of mercury switch with neat sketch. Enlist any one advantage and disadvantage of it.

f) Explain the phenomenon of self excitation.

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

a) Describe the operation of keyless entry system.

b) Describe the testing procedure of throttle position sensor.

c) Explain working of automatic resetting type circuit breaker with neat sketch.

d) State the function of following components used in ignition system:

(i) Ignition coil

(ii) Distributor

(iii) Spark plug

(iv) Condensor

e) State the function of:

(i) Camshaft position sensor

(ii) Detonation sensor

Marks

4. a) **Attempt any <u>THREE</u> of the following:** **12**

(i) Describe the operation of common anti theft system.

(ii) Explain concept of automatic headlight dimming.

(iii) Describe the construction of oxygen sensor.

(iv) Enlist any two purposes of OBDII. Define the terms:

1) Drive cycle

2) Trip

3) Warm up cycle

b) **Attempt any <u>ONE</u> of the following:** **6**

(i) Draw a layout of computer regulation circuit and describe its operation.

(ii) Describe construction and operation of computer controlled ignition system with block diagram.

5. **Attempt any <u>FOUR</u> of the following:** **16**

a) Draw a block diagram of GPS and label it.

b) Describe the fiber optics concept used in advanced lighting accessories.

c) Explain how specific gravity test performed with help of hydrometer.

d) Explain Ohm-meter test for electronic fuel injector.

e) Explain current output test for alternator.

f) Describe the procedure for testing alternator rotor and stator with neat sketch.

Marks

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

a) Describe trickle charging process used in battery.

b) Describe the procedure of insulated circuit resistance test for a starting system.

c) What are the causes and troubles of battery overcharging and sulphation?

d) Explain how hall effect switch is used in ignition system.

e) Describe operation of distributorless ignition system with block diagram.

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