

22653

24225

3 Hours / 70 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) Assume suitable data, if necessary.

Marks

1. Attempt any FIVE of the following :

10

- (a) Define the term radiation and evaporation.
- (b) List different types of duct system used in air distribution.
- (c) List the operational precaution for air condition system.
- (d) State function and location of sun load sensor.
- (e) Enlist different leak detection methods.
- (f) Mention the types of heating system used in Automobile.
- (g) Enlist faults in comfort heating system.

2. Attempt any THREE :

12

- (a) State various safety aspect used in HVAC system.
- (b) Explain construction working of "Rear Heating System".
- (c) Explain construction and working of electromagnetic clutch with neat sketch.
- (d) Compare conventional climate control system and electronic climate control system.
- (e) Write the general faults occurring in comfort heating system and suggest remedies over it.



- 3. Attempt any THREE :** **12**
- (a) Differentiate between controlled and uncontrolled ventilation.
 - (b) Explain with neat sketch, independent case system with down stream blower.
 - (c) Explain the function of high pressure switch and low pressure switch.
 - (d) Compare fluorescent leak detector and nitrogen leak detector tests.
- 4. Attempt any THREE :** **12**
- (a) Explain function of the following in air conditioning system :
 - (i) Evaporator
 - (ii) Condenser
 - (b) Draw neat sketch of accumulator and state its function.
 - (c) Explain construction of “Ambient Switch” with neat sketch.
 - (d) State the use of vacuum pump. Explain the procedure of vacuumisation with the vacuum pump.
- 5. Attempt any TWO :** **12**
- (a) Define “human comfort zone”. Show comfort zone on psychrometric chart.
 - (b) Draw and explain “Layout of Automobile Air Conditioning System”.
 - (c) Explain essential preventive maintenance steps for car heater system.
- 6. Attempt any TWO :** **12**
- (a) Explain the procedure for testing outside temperature sensor and in-car temperature sensor.
 - (b) Explain with neat sketch working of thermostatic expansion valve.
 - (c)
 - (i) List different service equipments and tools used in Automobile Air Conditioning
 - (ii) State the use of vacuum pump.
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