

17620

15162

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) Define radiation and evaporation with one example each.
 - (ii) Explain with neat sketch core section.
 - (iii) State the function of the following automobile A.C. system.
 - 1) Evaporator
 - 2) Compressor
 - 3) Accumulator
 - 4) Condenser
 - (iv) Explain construction and working of high-side temperature switch.
- b) Attempt any ONE of the following: 6
- (i) Explain the following terms in human comfort control.
 - 1) Effects of humidity
 - 2) Wind chill factor
 - 3) Comfort zone
 - (ii) Explain construction and working of vacuum restrictor with neat sketch.

P.T.O.

- 2. Attempt any FOUR of the following:** **16**
- a) List requirements of HVAC for heavy goods vehicle.
 - b) Explain with neat sketch rotary vane air cycle system.
 - c) Explain concept of blower clutch control with neat sketch.
 - d) Explain nitrogen leak tester.
 - e) Describe working of comfort heating system with neat sketch.
 - f) Explain the working principle of electromagnetic clutch with neat sketch.
- 3. Attempt any FOUR of the following:** **16**
- a) Describe with neat sketch working of accumulator.
 - b) Describe construction and working of sun load sensor.
 - c) List four properties of refrigerant.
 - d) State the causes and remedies for the following faults in comfort heating system.
 - (i) Little or no heat
 - (ii) Defrosting in-sufficient
 - e) Explain with neat sketch working of scroll type compressor used in A.C. system.
- 4. a) Attempt any THREE of the following:** **12**
- (i) Compare controlled and uncontrolled ventilation with any four aspects.
 - (ii) Draw neat and labeled layout of automobile air conditioning system.
 - (iii) Explain the working of externally equalized thermostatic expansion valve with neat sketch.
 - (iv) Distinguish between manual climate control and electronic climate control system. (any four points)

- b) **Attempt any ONE of the following:** **6**
- (i) Explain with neat sketch construction and working of split case system.
 - (ii) Differentiate between thermostatic expansion valve and fixed orifice tube with six aspects.
- 5. Attempt any FOUR of the following:** **16**
- a) Give the procedure to charging the A.C. system.
 - b) Draw a neat labelled sketch of rotary vane compressor.
 - c) Draw and labelled the components of thermostatic expansion valve.
 - d) Explain the concepts of time delay relay with neat sketch.
 - e) State the causes and remedies for following faults in compressor.
 - (i) Noise in compressor
 - (ii) Compressor not working
 - f) Write procedure of freon leak detector test.
- 6. Attempt any FOUR of the following:** **16**
- a) Explain the rear cooling system with neat sketch.
 - b) Discuss throttling action and modulating action as function of thermostatic expansion valve.
 - c) Explain construction and working of typical vacuum system.
 - d) Explain the construction of system hoses.
 - e) Explain with neat sketch superheat switch along with its location.
-