17620

15116

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) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **20**

a) Discuss about comfort zone and the effect of humidity.

b) Explain briefly the construction and working of Intake section, Core section and Distribution section.

c) Draw general layout of automotive air-conditioning system and briefly explain it.

d) Explain the working of electronic temperature control system.

Marks

e) Explain the following from maintenance point of view:

(i) Visual check

(ii) Accoustic check

(iii) Leak test

(iv) Temperature test

f) Explain how comfort heating system works under what condition this system is used?

g) Explain working of internally equilized expansion valve.

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

a) Explain controlled and uncontrolled ventillation.

b) Explain with neat sketch the ducting system used in cars.

c) Explain the function of following:

(i) Drier

(ii) Accumulator

d) Describe the working of electromagnetic clutch with neat sketch.

e) Explain the construction and working of sun load sensor.

f) Explain refrigerant charging and discharging procedure.

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

a) List out at least four common faults that generally occur in automotive A/c.

b) Briefly discuss about various modes of heat transfer.

c) Draw labelled block diagram of electronic climate control system.

d) For problems mentioned below, provide causes and remedies:

(i) Less cooling

(ii) A/c not starting.

e) Discuss about requirements of HVAC in heavy goods vehicles.

f) What is blower clutch control? Explain how it works.

Marks

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

a) Explain the function of check valves and check relays.

b) Discuss any four aspects of HVAC related to environmental effect and safety.

c) Explain in detail the functions of following:

(i) Vacuum reserve tank

(ii) Vacuum motor

d) Explain the working of fluorescent leak detector.

e) Why is compressor, called as "heart" of vapour compression refrigeration system? Explain.

f) Explain construction, location and working of low-pressure switch.

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

a) Explain in detail the construction and working of rear heating and cooling.

b) Draw neat sketch of Thermostatic Expansion Valve (TEV) and explain its working.

c) Explain the construction and working of remote bulb with neat sketch.

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

a) Provide classification of compressors used in air-conditioning system. Sketch construction of reciprocating compressor and explain its working.

b) What is refrigerant? Enumerate desirable properties of a good refrigerant. Give classification of refrigerant.

c) Draw neat sketch of high pressure switch and explain its working. Further state its location. List out the causes which will lead to activation of H.P. switch.
