



17620

16172

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) *Use of Non-programmable Electronic Pocket Calculator is **permissible**.*
 - (6) *Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall.*

Marks

1. A) Attempt **any three** : **(3×4=12)**
 - a) What are the basic requirements for designing HVAC in Car ?
 - b) Enlist different types of duct system used in air distribution.
 - c) State desirable properties of refrigerants used in air conditioning.
 - d) Explain in brief working of 'low pressure switch'.

B) Attempt **any one** : **(1×6=6)**

 - a) Define 'human comfort zone'. Show comfort zone on psychrometric chart.
 - b) Explain with neat block diagram the working of 'rear heating and cooling system'.
2. Attempt **any four** : **(4×4=16)**
 - a) Differentiate between controlled and uncontrolled ventilation.
 - b) Explain the construction of 'air intake section' with neat sketch.
 - c) State the functions of 'drier'. Explain with neat sketch.
 - d) Explain the working of 'sun-load sensor' with sketch.
 - e) Enlist different leak detection method. Explain in brief any one of them.
 - f) What is 'comfort heating system' ?
3. Attempt **any two** : **(2×8=16)**
 - a) State the environmental and safety aspect in automobile air conditioning. Explain in detail with example.
 - b) Explain with neat sketch the construction of 'scroll type compressor'.
 - c) What are the various faults, causes and their remedies if compressor is not starting in car air conditioning ?

P.T.O.

4. A) Attempt **any three** :

(3×4=12)

- a) Explain the working of 'thermostatic expansion valve' with neat sketch.
- b) Enlist various metering devices used in automobile air conditioning.
- c) State the functions of
 - i) In-car temperature sensor.
 - ii) Time delay relay.
- d) Explain in detail the moisture removal procedure from automobile air conditioning.

B) Attempt **any one** :

(1×6=6)

- a) Explain the working of 'remote bulb' with neat sketch.
- b) State the functions of following components :
 - i) Vacuum restricter
 - ii) Check relay.

5. Attempt **any two** :

(2×8=16)

- a) Draw general layout of 'automotive air conditioning system' and show all the components and explain its working.
- b) Explain with neat sketch the construction of 'electro magnetic switch'.
- c) What is 'climate control'? Explain the working of electronic climate control with block diagram.

6. Attempt **any four** :

(4×4=16)

- a) State the functions of
 - i) Accumulator
 - ii) Receiver
 - b) Enlist various types of switches used in automobile air conditioning system.
 - c) What is 'aspirator'? Explain its concept in brief.
 - d) State the use of 'vacuum pump'. Explain the procedure of vacuumisation with the vacuum pump.
 - e) What do you mean by 'visual acoustic' check?
 - f) Enlist faults and remedies in comfort heating system.
-