

22653

23242

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

Marks

1. Attempt any FIVE of the following :

10

- (a) List four precautions to operate A.C.
- (b) Define :
 - (i) Air movement
 - (ii) Wind chill factor
- (c) Name various A.C. control devices.
- (d) List service equipment required for maintaining A.C. system.
- (e) Write types of heating system in vehicle.
- (f) Write the use of control valve in heating system.
- (g) State a remedial action for one fault in heating system.

2. Attempt any THREE of the following :

12

- (a) Describe with neat sketch the construction of split duct.
- (b) Describe effects of humidity and wind chill factor on human comfort.



- (c) List eight desirable properties of refrigerant.
 - (d) Compare vacuum control system with electronic temperature control system.
- 3. Attempt any THREE of the following : 12**
- (a) State the requirements of HVAC in light motor vehicle.
 - (b) Illustrate rear heating and cooling system and explain its working.
 - (c) Describe scroll type compressor with neat sketch.
 - (d) Describe the working of pressure regulator switch.
- 4. Attempt any THREE of the following : 12**
- (a) Describe construction and working of electromagnetic clutch with neat sketch.
 - (b) Illustrate general layout of car air conditioning system.
 - (c) Prepare a checklist to perform visual acoustic inspection of A.C. system.
 - (d) Explain with neat sketch heating system used in car.
 - (e) Explain use of time delay relay for heater control.
- 5. Attempt any TWO of the following : 12**
- (a) List metering devices. Describe the working of fixed orifice tube.
 - (b) Discuss the need of electronic climate control system in cars. Explain its working with block diagram.
 - (c) Explain with neat sketch process of moisture removal from A.C. system.
- 6. Attempt any TWO of the following : 12**
- (a) Describe with sketch procedure of evaluation and charging of refrigerant in car A.C. system.
 - (b) List causes of the fault in A.C. compressor. Suggest remedial action.
 - (c) Describe the procedure to perform leak detection test by fluorescent leak detectors.
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