548 Register No.: [ ]

April 2018

Time – Three hours
(Maximum Marks: 75)

[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory. Answer any FOUR questions from the remaining in each PART - A and PART - B

(2) Answer division (a) or division (b) of each question in PART - C.

(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and 10 marks in PART – C.]

PART – A

1. Define the term air-conditioning.
2. How will you control the evaporator temperature?
3. Explain the working of a manual heater used in automotive air-conditioning system.
4. Define the term alternative refrigerants.
5. What are the objectives of air routing and temperature control systems?
6. What do you mean by vacuum reverse in an automotive air-conditioning system?
7. List out the difficulties in replacing the heater system in an automotive air-conditioning system.
8. Explain the designation of refrigerants with an example.

PART – B

9. Discuss about the condenser high pressure service ports.
10. Explain about the sensor based heating system used in automotive air-conditioning system.
11. Give the classifications of refrigerants based on their chemical compositions.
12. Explain the term air filtration.
13. Explain the types of air flow and the ways to control them.
14. What are the causes for failure of an air-conditioner in an automobile?

[Turn over.....

15. How will you find the automotive air-conditioning system refrigerant leaks?

16. Explain the calibration work for an expansion valve.

PART – C

17. (a) Explain the basic working principle of a refrigeration system with a neat schematic sketch.

(Or)

(b) Explain the construction and working principle of a thermostatic expansion valve with neat sketches.

18. (a) Explain the Ford automatically controlled air-conditioner and heating system with neat sketches.

(Or)

(b) (i) Discuss briefly about the automatic temperature control system using sensors.
(ii) Explain the ways of protecting engines.

19. (a) Discuss about the handling and disposal of new and used HCFC refrigerants.

(Or)

(b) Discuss in detail about the causes and remedial measures to be taken to prevent global warming and to confine Ozone depletion layer.

20. (a) Explain the air routing process implemented in an automobile using air recirculation system with neat sketches.

(Or)

(b) (i) Discuss briefly about the instruments used to test the air control.
(ii) Discuss about the duct system of air routing.

21. (a) Explain the various steps involved in ensuring the effective operation and performance of the automotive air-conditioning system.

(Or)

(b) Discuss in detail about the major faults that occur and the corresponding services to be done on compressors.
