

Roll No. 

Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(AE) (2011 Onwards) (Sem.-6)**  
**AUTOMOTIVE HEATING, VENTILATION & AIR CONDITIONING**  
Subject Code : BTAE-602  
Paper ID : [A2381]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

**SECTION-A****1. Write briefly :**

1. What is Refrigeration?
2. What are the functions of expansion valve in AC system of a car?
3. Draw the sketch of high pressure switch used in AC of an automobile.
4. Write the safety features of HVAC system of a Volvo bus.
5. Define Refrigerant.
6. Write the name of important properties of a refrigerant used in automobiles.
7. What is comfortable temperature range for human beings?
8. Define Humidity.
9. What do you mean by charging and discharging of air conditioning system?
10. Write the reasons of non starting of a refrigerator.

### SECTION-B

2. Draw schematic of a thermostatic expansion valve. Explain its working.
3. Discuss the desirable thermodynamic properties of a good refrigerant.
4. Explain velocity reduction method of duct design. State its advantages and disadvantages.
5. What is fog? Show the process of fogging on the psychometric chart when two air streams are mixed together.
6. Discuss with the help of neat sketches, the service schedule of AC of a car for trouble free working.

### SECTION-C

7.
  - a) What are the possible reasons when an automobile catches fire? Discuss in details.
  - b) What are the various possible causes of AC failure? Discuss their respective remedies also.
8. Write the detailed procedure for estimating the cooling load of an AC bus with 52 seating capacity.
9. Write short note on **any two** of the following :
  - a) Effect of HVAC on ozone layer
  - b) AC heating system
  - c) Air flow circuit of an AC car