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Total No. of Questions: 09

Total No. of Pages: 02

**B. Tech. (AE) (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
  - a. What is the unit of refrigeration?
  - b. What is use of expansion device in the refrigerator?
  - c. What is the function of compressor in an air-conditioning system?
  - d. Name the refrigerant which is eco-friendly.
  - e. How the leak detection of refrigerant can be done?
  - f. What is the use and location of condenser in a domestic refrigerator?
  - g. What is the material of pipe used in refrigerating machine?
  - h. What are various types of refrigerants?
  - i. Define the term air-conditioning.
  - j. Why freons are banned?

**SECTION B**

2. Draw and explain schematic layout of car air conditioning system.
3. What are the functions of an expansion device? Explain expansion valve calibration.
4. Explain the construction and working of manually controlled air conditioner-heater system.
5. Give the brief classification of refrigerants? Discuss the desirable properties of refrigerant.
6. Explain different types of air distribution system with help of neat sketch.

**SECTION C**

7. Write the procedure for charging the refrigeration unit.
8. Write the possible cause and possible remedies for the following faulty conditions.
  - a) Unit hums and shuts off
  - b) Compressor starts for few seconds and trips off due to OLP
  - c) Unit runs excessively
9. What are various psychometric properties of moist air? Explain and show various psychometric processes on psychometric chart.