Roll No .....

MMTP - 203

M.E./M.Tech., II Semester

Examination, July 2015

Advance Refrigeration Systems

Time : Three Hours

Maximum Marks : 70

Note : Attempt any five questions out of eight. All questions carry equal marks. Use of refrigerant property table and p-h chart is permitted.

1. a) Enumerate the required properties of an ideal refrigerant.
   b) What is an Azeotrope? Discuss two azeotropic mixture refrigerant and their applications.

2. Discuss an actual vapour compression cycle with a neat sketch. State the functions of all the components and their functions during the working of actual refrigeration system.

3. Following data refers to a two stage compression ammonia refrigeration system with intercooler.
   Condenser pressure = 15 bar
   Evaporator pressure = 3 bar
   Intercooler pressure = 8 bar
   Load on evaporator = 12 TR
   If the temperature of desuperheated vapour and subcooled liquid refrigerant are limited to 35°C find
   i) The power required to drive the system
   ii) C.O.P. of the system

4. a) Distinguish between reciprocating and rotary compressors used for refrigeration.
   b) Write a note on flooded evaporator.

5. a) What is the function of an expansion device in a refrigeration system? Explain the working externally equalised thermostatic expansion valve.
   b) Differentiate between flash chamber and drier.

6. a) What is heat rejection rate? Discuss its importance.
   b) Explain how air cooled condensers are rated and selected.

7. a) Describe with a neat sketch Li-Br absorption refrigeration system.
   b) Describe desirable properties of solvent and refrigerant solvent combination for a vapour absorption system.

8. Write short notes on any two.
   a) Cascade system
   b) Capacity control of compressor
   c) Evaporative condenser.

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