

REFRIGERATION AND AIR CONDITIONING

5TH Exam/MECH/5321/May'15

Duration: 3 Hrs.

Max. Marks: 75

SECTION-A

Q.1. Fill in the blanks:

1 x 15

- a) One tone of refrigeration means heat removal at the rate of _____
- b) If the vapour is super heated at the end of compression, then the operation is called _____
- c) _____ refrigerants are those which directly take part in the refrigeration system.
- d) Air refrigerator works on _____ Cycle.
- e) In Electrolux refrigerator, _____ evaporates in hydrogen.
- f) The evaporator generally used in home freezers ice cream cabinet is _____
- g) In hermetic sealed compressor, the motor gets cooled by _____
- h) The art of measuring the moisture content of air is termed as _____
- i) Ratio of _____ to _____ is called S.H.F.
- j) Refrigerant used in ice plant is _____
- k) The COP of Carnot pump _____ than of the COP of a _____ refrigerator.
- l) The compressor can also be treated as _____ machine.
- m) In an unsaturated air the state of vapour is _____
- n) Specific humidity is also called _____
- o) A vapour absorption system gives _____ operation.

SECTION-B

Q.2. Attempt any six questions:

5 x 6

- i. Enumerate different ways of producing refrigeration.
- ii. What is the advantage of air refrigeration system over vapour compression?
- iii. Differentiate between free and forced condenser.
- iv. Define the following terms:
(a) Saturated air (b) Relative humidity (c) Dew point temperature.
- v. What is the effect of super heating of vapour? Show with T-S and P-H diagram.
- vi. Differentiate between primary and secondary refrigerants.
- vii. State the principle of vapour absorption system.
- viii. Explain sensible heating and sensible cooling.

SECTION-C

Attempt any three questions:

3 x 10

Q3. Describe the Bell Coleman air cycle and obtain an expression for COP of the cycle.

Q4. Explain construction and working of Electrolux refrigerator.

Q5. Describe the following process.

(a) Cooling dehumidification (b) Heating and dehumidification.

Q6. Explain how suction pressure and discharge pressure affect the performance of vapour compression cycle.

Q7. Explain the construction and working of principle of single stage, single acting reciprocating compressor.