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**5th Sem. Branch: Mechanical
Sub : Refrigeration and Air Conditioning**

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (6x1=6)

- Q.1 Which of the following belongs to the inorganic group of refrigerants?
a) Propylene b) Ethane
c) Carbon dioxide d) Propane
- Q.2 The refrigerant widely used in window air-conditioners is:
a) R-12 b) R-22
c) R-717 d) R-744
- Q.3 Air refrigerator works on
a) Carnot cycle b) Reversed carnot cycle
c) Bell-Colema cycle d) Both A & B
- Q.4 In a vapour compression refrigeration system, the heat is rejected to the environment by:
a) Evaporator b) Condenser
c) Compressor d) Receiver

- Q.5 Natural convection air-cooled compressor are used in
a) Domestic refrigerator
b) Water cooler
c) Room Air-Conditioners
d) All of the above
- Q.6 Reversed Carnot cycle consist of
a) Two isentropic processes and two adiabatic processes
b) Two isentropic processes and two isothermal processes
c) Two isentropic process and two isobaric processes
d) Two isentropic processes and two isochoric processes

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 One ton of refrigeration is equal to _____ (in kj/min)
- Q.8 Define secondary refrigerant?
- Q.9 What is Psychrometry?
- Q.10 _____ compressor is that in which vapour refrigerant is compressed by the backward and forward motion of the piston.
- Q.11 During sensible heating of Air, the specific humidity remains _____.
- Q.12 For Saturated air, wet bulb depression is _____.

Section-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

- Q.13 Explain steam jet refrigeration.
- Q.14 Explain Bell-Coleman cycle Air refrigerator.
- Q.15 Explain the principle parts of a simple vapour compression refrigeration system.
- Q.16 Write the advantage and disadvantage of hermetically sealed compressor.
- Q.17 Write the properties of an ideal refrigerants.
- Q.18 Explain the halide torch method of leakage detection.
- Q.19 Explain the cooling and dehumidification process.
- Q.20 Explain the installation procedure of air conditioners.
- Q.21 Write the advantage and disadvantage of invertor AC.
- Q.22 Write the difference between air and water cooled condensers.

Q.24 Explain automatic expansion valve with the help of neat sketch.

Q25 Explain Window type air conditioning system with the help of neat sketch. Give its advantages.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

- Q.23 Draw and explain various lines of psychrometric chart.