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5th Sem / Mechanical Engg

Subject : Refrigeration and Air Conditioning

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 One ton of refrigeration is equal to

a) 120kJ/min b) 620 kJ/min

c) 420 kJ/min d) 210 kJ/min

Q.2 Full form of DBT is:

a) Dry Bulb Temp. b) Dew Bulb Temp.

c) Delta Bar Temp. d) Dry Bar Temp.

Q.3 The Ratio of actual mass of vapours in one kg of dry air to mass of vapours in saturated condition at the same temperature is known as:

a) Specific humidity b) Relative humidity

c) Degree of saturation d) none of the above

Q.4 Amount of heat required to raise the temperature of one kilogram of a substance by one degree Celsius is known as:

a) Sensible heat b) Latent heat

c) Enthalpy d) Specific heat

Q.5 The Freon group of refrigerant is

a) Halocarbon b) Azeotrope

c) Hydro-Carbon d) Inorganic

Q.6 Ideal refrigerant should have

a) High latent heat b) Low latent heat

c) high boiling point d) none of the above

SECTION-B

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

Q.7 Define Air Conditioning?

Q.8 Write the chemical formula of R-12.

Q.9 Define WBT?

Q.10 The part of refrigeration system where actual cooling take place is called_____

Q.11 The difference between dry bulb temperature and wet bulb temperature is called _____

Q.12 The sub-cooling of refrigerant _____ the C.O.P.

SECTION-C

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

Q.13 Explain Dry Ice Refrigerant.

Q.14 What is the effect of change in suction pressure and change in discharge pressure on the performance of vapour compression system.

Q.15 Explain capillary tube with the help of neat sketch.

Q.16 Write the properties and uses of R-744.

Q.17 What is sensible heat factor (SHF). Explain briefly.

Q.18 Write the advantage and disadvantage of split air conditioners.

Q.19 A machine working on Carnot cycle operates between 400K and 300 K. Determine the C.O.P. when it is operated as

i) A refrigerating machine

ii) A heat pump

Q.20 Explain thermostatic expansion valve.

Q.21 What are advantage and disadvantage of auto defrosting.

Q.22 Explain heating and humidification process.

SECTION-D

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

Q.23 Explain the working of window Air-conditioning system.

Q.24 Explain with the help of neat diagram theory and working of reciprocating compressor.

Q.25 Explain with the help of neat diagram theory and mechanism of simple vapour compression refrigeration system.