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Roll No.

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5th Sem. / Mechanical Engineering

Subject : Refrigeration And Air Conditioning

Time : 3 Hrs.

M.M. : 100

SECTION-A

Note: Multiple choice Questions. All questions are compulsory (10x1=10)

(Course Outcome/CO)

- Q.1 The CO-efficient of performance of a domestic Air conditioner is: (CO-1)
a) Equal to 1 b) less than 1
c) more than 1 d) None of these
- Q.2 In a vapour compression refrigeration system, the heat is rejected to the environment by: (CO-1)
a) evaporator b) condenser
c) compressor d) receiver
- Q.3 The Refrigerant commonly used in Domestic Electrolux refrigeration system is: (CO-2)
a) water b) ammonia
c) Freon d) carbon-dioxide
- Q.4 The cooling medium used in forced draft cooling tower is: (CO-1)
a) air only b) water only
c) air and water d) None of these
- Q.5 The ratio of actual mass of water vapour in unit mass of Dry air to the mass of water vapour in the

same mass and pressure of dry air when it is saturated at the same temperature is known as:

(CO-6)

- a) Degree of Saturation
- b) Absolute Humidity
- c) Relative Humidity
- d) Humidity

- Q.6 The amount of Heat required to change the state of a substance without change in temperature is known as: (CO-3)
a) Sensible Heat b) Latent Heat
c) Enthalpy d) Specific Heat
- Q.7 Full form of DBT is: (CO-3)
a) Dry Bulb Temp. b) Dew Bulb Temp.
c) Delta Bar Temp. d) Dry Bar Temp.
- Q.8 ISEER stands for (CO-5)
a) International seasonal energy efficiency ratio
b) Indian seasonal energy efficiency ratio
c) Indian social energy efficiency ratio
d) None of These
- Q.9 The cylinder colour code of R134a is: (CO-7)
a) Black b) Silver
c) Sky Blue d) white
- Q.10 The inclined straight uniformly spaced lines parallel to wet bulb temperature lines draw upto the saturation curve on a psychrometric chart represents: (CO-3)
a) Enthalpy or Total Heat lines
b) Dry bulb temp. lines
c) Relative Humidity lines
d) Dew Point Temp lines

SECTION-B

- Note:** Objective type questions. All questions are compulsory. 10x1=10
- Q.11 Define Air Conditioning (CO-1)
- Q.12 Define One Ton of Refrigeration? (CO-1)
- Q.13 What is the effect of super heating the refrigerant? (CO-2)
- Q.14 What is the chemical name of R-22? (CO-7)
- Q.15 What is the condenser pressure of R134a?(CO-7)
- Q.16 Name two types of air cooled condensers. (CO-5)
- Q.17 What are Inorganic Refrigerants? (CO-4)
- Q.18 Define the Term Psychrometer? (CO-3)
- Q.19 Define Inverter Technology. (CO-5)
- Q.20 Define Sensible heating. (CO-6)

SECTION-C

- Note:** Short answer type questions. Attempt any twelve questions out of fifteen questions. 12x5=60
- Q.21 Explain Dry Ice refrigeration. (CO-1)
- Q.22 Write five properties of R717. (CO-4)
- Q.23 Explain Simple vapour absorption Refrigeration system. (CO-2)
- Q.24 Explain the working of Rotary Compressor.(CO-5)
- Q.25 Write down the function and various types of Compressors. (CO-7)
- Q.26 Explain the working of over load protector. (CO-7)
- Q.27 Define Saturated air Specific Humidity. (CO-3)
- Q.28 Write down 10 applications of Refrigeration. (CO-7)
- Q.29 Explain Sensible Heat Factor. (CO-3)
- Q.30 What is Steam Jet Refrigeration? How does it work? (CO-2)
- Q.31 Explain Window Air Conditioning. (CO-7)

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- Q.32 The temperature of saturated air at atmospheric pressure is recorded as 25°C. Calculate; (CO-6)
- (i) Specific Humidity
- (ii) Enthalpy per KG of dry air
- Q.33 Explain the working of Automatic expansion valve. (CO-4)
- Q.34 Explain the effect of sub cooling and super heating. (CO-2)
- Q.35 A machine working on Carnot cycle operates between 310K and 265K. (CO-1)
- Determine the C.O.P when it is operated as
- i) Arefrigerating machine,
- ii) Aheat Pump,
- iii) Aheat Engine.

SECTION-D

- Note:** Long answer type questions. Attempt any two out of three questions. 2x10=20
- Q.36 Explain with the help of neat diagram theory and working of reciprocating compressor (CO-7)
- Q.37 Explain with the help of neat diagram Actual vapour compression refrigeration system. (CO-2)
- Q.38 Explain with the help of neat diagram Central Air conditioning system. (CO-5)

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