**QUESTION BANK**

**Refrigeration and air conditioning**

5TH SEMESTER

CHAPTER-1 (2 MARKS)

1. Define Refrigeration?
2. Define COP of refrigeration?
3. Define tonn of refrigeration?
4. State the unit of refrigerating effect?
5. Define refrigerator and heat pump.
6. Draw the PV and TS diagram Bell-colamen cycle?
7. Explain closed or dense air refrigeration cycle.
8. What is the difference between a open and closed air refrigeration cycle.
9. Discuss about closed system brayton cycle.
10. Draw schematic diagram of Bell-colamin cycle.

(5 MARKS)

1. Derive the COP of Bell-coalmen cycle with PV and TS diagram.
2. Differentiate between open and closed Bell-Colamen cycle.

Solve problem of bell-colamen cycle.

CHAPTER-2 (2 MARKS)

1. What is the function of refrigerant.
2. Write two advantages and disadvantages of vapour compression refrigeration system over air refrigeration system.
3. Draw the TS and PH diagram of vapour compression cycle with

a) Dry saturated vapour after compression.

b) Super heated vapour after compression.

1. What do you mean by sup cooling or under cooling of refrigerant.

(5 MARKS)

1. Compare between vapour compression refrigeration system (VCRS) and vapour absorption refrigeration system (VARS)
2. Explain simple vapour compression refrigeration system with neat schematic diagram.
3. Describe actual vapour compression cycle with PH and TS diagram.
4. Explain the effect of sub cooling of refrigerant in a vapour compression refrigeration with PH and TS diagram.

Solve problem on vapour compression refrigeration system.

CHAPTER-3 (2 MARKS)

1. What is the use of analyser?
2. Define vapour absorption refrigeration refrigeration system?
3. Write the function of rectifier in VARS.
4. Write the the COP of an ideal vapour absorption refrigeration system.
5. What is the function of analyzer and rectifier in VARS.

(5 MARKS)

1. Describe different components of s simple vapour absorption refrigeration system with neat sketch.
2. Derive the COP of an ideal vapour absoption refrigeration system.
3. Differentiate between VCRS and VARS.

(10 MARKS)

1. Explain brief with neat diagram the working of a practical vapour absoption system.
2. Explain simple vapour absoption system with neat sketch.

Solve problem on COP

CHAPTER-4 (2 MARKS)

1. What is the function of reciprocating compressor?
2. What do you mean by hermitically sealed compressor?
3. Define the term
4. Discharge pressure and compression ratio.
5. Suction volume and swept volume.
6. Define volumetric efficiency of reciprocating compressor.
7. Why condenser is used in refrigeration cycle.
8. What is the function of evaporator and its types.
9. What is the function of condenser and write its type.
10. What do you mean by heat rejection ratio.
11. What is the difference between hermetically and semi hermetically sealed compression.
12. What is the difference between reciprocating and rotary compression?
13. What is the function of centrifugal compressor?

(5 MARKS)

1. Explain the working of single acting reciprocating air compressor with neat sketch.
2. Explain the Working of air cooled condenser.
3. Differentiate between air cooled and water cooled condenser.
4. Write short note on cooling tower and spray pond.
5. Explain the working principle of shell and tube type evaporator.
6. Explain the bare tube coil evaporator.
7. What is the function of evaporator. explain different type of evaporator.
8. Write short note fined evaporator.

CHAPTER-5 (2 MARKS)

1. Write the function of expansion valve with two example.
2. What is the function of thermostatic expansion valve.
3. Define refrigerant? Give some example.
4. What is the function of refrigeration. And classify the function of refrigerant.
5. What is the chemical formula of refrigerant- Dichloro difloro methane,Dichloro tetrafloro ethane.
6. Write the chemical formula of R-12,R-11,R-22 and R-134a.
7. What is the function of capillary tube?
8. What do you mean by anti-freeze and give examples.

(5 MARKS)

1. What should be the desirable properties of an ideal refrigerant? Or State the factor consider while selection of a refrigerant for a system.
2. Write short note on automatic expansion valve.
3. Write short note on thermostatic expansion valve.
4. Explain the thermodynamic properties of refrigerants.
5. Explain chemical properties of refrigerants.
6. Define refrigerants and classify refrigerant and explain designation system for refrigerant.
7. How do you mean by secondary refrigerant give example?
8. Write short note on Azeotrope refrigerant.
9. How do you mean by CFC? How to substitude for CFC.
10. Write short note on
11. Cold storage
12. Water cooler
13. Cold storage plant

CHAPTER-6 (2 MARKS)

1. What do you mean by Psychometry?
2. What is saturated air?
3. What is moist air?
4. What is humidity ratio?
5. Define relative humidity .
6. Define dry air and moist air.
7. Define absolute humidity and relative humidity.
8. What do you mean by due point temp.
9. Define dalton’s law of partial pressure.
10. What do you mean by adiabatic saturation temperature,
11. What do you mean by pass factor of heating and cooling coil.
12. Define humidification.
13. What is SHF.
14. Define fog.
15. What do you understand by human comfort.
16. Why a comfort chart is recommended?
17. What are the factor affecting human comfort?

(5 MARKS)

1. Differentiate between humidification and dehumidification.
2. Explain enthalpy of moist air.
3. Explain different psychometric terms.
4. Write short note on adiabatic saturatic of air by evaporation of water.
5. Explain the psychometric process sensible heating and cooling.
6. Explain heating and humidification.
7. Explain cooling and dehumidification.
8. Write short note on adiabatic mixing of two air streams.
9. What do you mean by human comfort. Explain different factors affecting human comfort?
10. What is psychometry chart and write some uses?

Problems on psychometry chart.

(10 MARKS)

1. What do you mean by psychometric chart explain different psychometry process and uses?
2. Explain sling psychometer with neat diagram.
3. What do you mean by wet bulb temperature, explain how it is different from dew point temperature.

CHAPTER-7 (2 MARKS)

1. Write the condition of comfort air conditioning.
2. What are the equipment used in air conditioning system?
3. Classify air conditioning system.
4. How does an air filter work?

(5 MARKS)

1. Describe winter air conditioning with neat sketch.
2. Define air conditioning system and classify air conditioning system
3. Explain the factor affecting comfort air conditioning.
4. Differentiate between summer and winter air conditioning system.
5. Discuss in brief about the filters and fans used in air conditioning system.
6. Describe in detail summer air conditioning system with neat sketch.

Solve problems on air conditioning system (10 marks)