Q.24 Draw the T-s and p-h diagrams of simple vapour compression refrigeration cycle.
Q.25 Write any six properties of an ideal refrigerant.
Q.26 How is a refrigerant selected ? Explain.
Q.27 Write any five advantages of solar power refrigeration system over vapour compression refrigeration system.
Q.28 Explain domestic Electrolux refrigerator.
Q.29 Write any six differences between air cooled and water cooled condensers.
Q.30 Explain working principle of a reciprocating compressor.
Q.31 Explain dry-expansion evaporator.
Q.32 Explain sensible cooling with the help of neat sketch.
Q.33 Define humidity ratio and degree of saturation.
Q.34 Write the advantages and disadvantages of split sir conditioner.
Q.35 Explain the four factors involves in the complete air-conditioning.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 What are the functions of Expansion devices? Explain different types of expansion valves.
Q.37 Explain in details all factors affecting the performance of a vapour compression system.
Q.38 Explain central air conditioning system with the neat sketch. Also write its merits.

Roll No. .....

5th Sem / Mechanical Engg.
Subject:- Refrigeration & Air Conditioning

Time : 3Hrs. M.M. : 100

SECTION-A

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

Q.1 One ton of refrigeration is equal to :
a) 120 kJ/min b) 620kJ/min
c) 420kJ/min d) 210kJ/min

Q.2 For a vapour compression refrigeration system to have high C.O.P., it should have:
a) higher suction pressure
b) higher evaporator temperature
c) lower condenser temperature
d) all of the above

Q.3 C.O.P.of domestic air conditioner as compared to that of domestic refrigerator is:
a) lower. b) higher.
c) same. d) un-predictable.

Q.4 In ice plant, the material of pipes used with primary refrigerant Ammonia is:
a) copper. b) brass.
c) aluminium. d) iron and steel

Q.5 The Refrigerant commonly used in Domestic

Electrolux Refrigeration system is:

a) Ammonia b) Water
c) Carbon-dioxide d) Freon

Q.6 In a refrigeration system, the expansion device is connected between the:

a) compressor and condenser
b) Condenser and receiver
c) Receiver and evaporator
d) Evaporator and compressor

Q.7 The evaporator generally used in home refrigerators, ice cream cabinets etc. is:

a) plate evaporator
b) finned evaporator
c) shell and tube evaporator
d) shell and coil evaporator

Q.8 The relative humidity, during cooling and dehumidification of most air:

a) remains constant
b) can increase or decrease
c) increases
d) decreases

Q.9 During sensible cooling, the specific humidity of the moist air:

a) remains constant b) increases
c) decreases d) none of the above

Q.10 A split air-conditioner does not have provision for:

a) Recirculation of air b) ventilation of air
c) Cleaning of air d) exhaust of air

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Write down the S.I unit of refrigeration.

Q.12 Draw the T-s diagram of simple vapour compression refrigeration cycle.

Q.13 Write the function of discharge line in simple vapour compression.

Q.14 The refrigerant number of carbon dioxide is_____

Q.15 Define two fluids vapour absorption refrigeration system.

Q.16 Name two type of rotary compressors.

Q.17 Define mechanical draft cooling tower.

Q.18 Define wet bulb temperature.

Q.19 Define psychrometry.

Q.20 What is winter air-conditioning?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain any two methods of refrigeration.

Q.22 A carnot cycle machine operates between the temperature limits of 40 and -30. Determine the C.O.P., when it operates as:

1. a refrigerating machine
2. a heat pump

Q.23 Explain the use of Flash chamber and Accumulator in vapour compression refrigeration system.