1. Pick up the wrong statement. A refrigerant should have
(a) Tow specific heat of liquid
(b) high boiling point
(c) high latent heat of vaporization
(d) higher critical temperature
(e) low specific volume of vapour.

Ans: b

2. A standard ice point temperature corresponds to the temperature of
(a) water at 0°C
(b) ice at – 4°C
(c) solid and dry ice
(d) mixture of ice, water and vapour under equilibrium conditions under NTP conditions
(e) mixture of ice and water Under equilibrium conditions.

Ans: e

3. Vapour compression refrigeration is some what like
(a) Carnot cycle
(b) Rankine cycle
(c) reversed Camot cycle
(d) reversed Rankine cycle
(e) none of the above.

Ans: e

4. Which of the following cycles uses air as the refrigerant
(a) Ericsson
(b) Stirling
(c) Carnot
(d) Bell coleman
(e) none of the above.

Ans: d

5. Ammonia–absorption refrigeration cycle requires

(a) very little work input
(b) maximum work input
(c) nearly same work input as for vapour compression cycle
(d) zero work input
(e) none of the above.

Ans: a

6. An important characteristic of absorption system of refrigeration is
(a) noisy operation
(b) quiet operation
(c) cooling below 0°C
(d) very little power consumption
(e) its input only in the form of heating.

Ans: b

7. The relative coefficient of performance is
(a) actual COP/theoretical COP
(b) theoretical COP/actual COP
(c) actual COP x theoretical COP
(d) 1-actual COP x theoretical COP
(e) 1-actual COP/theoretical COP.
Ans: a

8. Clapeyron equation is a relation between
(a) temperature, pressure and enthalpy
(b) specific volume and enthalpy
(c) temperature and enthalpy
(d) temperature, pressure, and specific volume
(e) temperature, pressure, specific value and enthalpy.
Ans: e

9. Clapeyron equation is applicable for registration at
(a) saturation point of vapour
(b) saturation point of liquid
(c) sublimation temperature

(d) triple point
(e) critical point.
Ans: a

10. In vapour compression cycle, the condition of refrigerant is saturated liquid
(a) after passing through the condenser
(b) before passing through the condenser
(c) after passing through the expansion throttle valve
(d) before entering the expansion valve
(e) before entering the compressor.
Ans: a

11. In vapour compression cycle, the condition of refrigerant is very wet vapour
(a) after passing through the condenser
(b) before passing through the condenser
(c) after passing through the expansion or throttle valve
(d) before entering the expansion valve
(e) before entering the compressor.
Ans: e

12. In vapour compression cycle, the condition of refrigerant is high pressure saturated liquid
(a) after passing through the condenser
(b) before passing through the condenser
(c) after passing through the expansion or throttle valve
(d) before entering the expansion valve
(e) before entering the compressor.
Ans: d

13. In vapour compression cycle the condition of refrigerant is superheated vapour
(a) after passing through the condenser
(b) before passing through the condenser
(c) after passing through the expansion or throttle valve
(d) before [entering the expansion valve
(e) before entering the compressor.
Ans: b

14. In vapour compression cycle the condition off refrigerant is dry saturated vapour

(a) after passing through the condenser
(b) before passing through the condenser
(c) after passing through the expansion or throttle valve
(d) before entering the expansion valve
(e) before entering the compressor..
Ans: e

15. The boiling point of ammonia is
(a) -100°C
(b) -50°C
(c) - 33.3°C
(d) 0°C
(e) 33.3°C.
Ans: c

16. One ton of refrigeration is equal to the refrigeration effect corresponding to melting of 1000 kg of ice
(a) in 1 hour
(b) in 1 minute
(c) in 24 hours
(d) in 12 hours
(e) in 10 hours.
Ans: c

17. One ton refrigeration corresponds to
(a) 50 kcal/min
(b) 50 kcal/kr
(c) 80 kcal/min
(d) 80 kcal/hr
(e) 1000 kcal/day.
Ans: a

18. In S.J. unit, one ton of refrigeration is equal to
(a) 210 kJ/min
(b) 21 kJ/min
(c) 420 kJ/min
(d) 840 kJ/min

(e) 105 kJ/min.

Ans: a

19. The vapour compression refrigerator employs the following cycle

(a) Rankine

(b) Carnot

(c) Reversed Rankine

(d) Brayton

(e) Reversed Carnot.

Ans: e

20. Allowable pressure on high-pressure side or ammonia absorption system is of the order of

(a) atmospheric pressure

(b) slightly above atmospheric pressure

(c) 2-4 bars

(d) 5-6 bars

(e) 7-10 bars.

Ans: d

21. The moisture in a refrigerant is removed by

(a) evaporator

(b) safety relief valve

(c) dehumidifier

(d) driers

(e) expansion valve

Ans: d

22. The condensing pressure due to the presence of non condemnable gases, as compared to that actually required for condensing temperatures without non condemnable gases,

(a) will be higher

(b) will be lower

(c) will remain unaffected

(d) may be higher or lower depending upon the nature of non condemnable gases

(e) unpredictable.

Ans: a

23. Critical pressure of a liquid is the pressure

(a) above which liquid will remain liquid
(b) above which liquid becomes gas
(c) above which liquid becomes vapour
(d) above which liquid becomes solid
(e) at which all the three phases exist together.
Ans: a

24. Critical temperature is' the temperature above which
(a) a gas will never liquefy
(b) a gas will immediately liquefy
(c) water will evaporate
(d) water will never evaporate
(e) none of the above.
Ans: a

25. The refrigerant for a refrigerator should have
(a) high sensible heat
(b) high total heat
(c) high latent heat
(d) low latent heat
(e) low sensible heat
Ans: c

26. Rating of a domestic refrigerator is of the order of
(a) 0.1 ton
(b) 5 tons
(c) 10 tons
(d) 40 tons
(e) 100 tons.
Ans: a

27. The COP of a domestic refrigerator
(a) is less than 1
(b) is more than 1
(c) is equal to 1
(d) depends upon the make
(e) depends upon the weather conditions.

Ans: b

28. The domestic refrigerator uses following type of compressor
(a) centrifugal
(b) axial
(c) miniature sealed unit
(d) piston type reciprocating
(e) none of the above.
Ans: d

29. Presence of moisture in a refrigerant affects the working of
(a) compressor
(b) condenser
(c) evaparator
(d) expansion valve.
(e) heat transfer.
Ans: d

30. Refrigeration in aeroplanes usually employs the following refrigerant
(a) C02
(b) Freon-11
(c) Freon-22
(d) Air
(e) none of the above.
Ans: d

31. Domestic refrigerator working on vapour compression cycle uses the following type of expansion device
(a) electrically operated throttling valve
(b) manually operated valve
(c) thermostatic valve
(d) capillary tube
(e) expansion valve.
Ans: d

32. Air refrigeration operates on
(a) Carnot cycle

(b) Reversed Carnot cycle
(c) Rankine cycle
(d) Erricson cycle
(e) Brayton cycle.
Ans: e

33. Air refrigeration cycle is used in
(a) domestic refrigerators
(b) commercial refrigerators
(c) air conditioning
(d) gas liquefaction
(e) such a cycle does not exist.
Ans: d

34. In a vapour compression cycle, the refrigerant immediately after expansion valve is
(a) liquid
(b) sub-cooled liquid
(c) saturated liquid
(d) wet vapour
(e) dry vapour.
Ans: d

35. The vapour pressure of refrigerant should be
(a) lower than atmospheric pressure
(b) higher than atmospheric pressure
(c) equal to atmospheric pressure
(d) could be anything
(e) none of the above.
Ans: b

36. For better COP of refrigerator, the pressure range corresponding to temperature in evaporator and condenser must be
(a) small
(b) high
(c) euqal
(d) anything
(e) under some conditions small and under some conditions high.

Ans: a

37. The bank of tubes at the back of domestic refrigerator are
(a) condenser tubes
(b) evaporator tubes
(c) refrigerant cooling tubes
(d) capillary tubes
(e) throttling device.
Ans: a

38. The higher temperature in vapour compression cycle occurs at
(a) receiver
(b) expansion valve
(c) evaporator
(d) condenser discharge
(e) compressor discharge.
Ans: e

39. Highest temperature encountered in refrigeration cycle should be
(a) near critical temperature of refrigerant
(b) above critical temperature
(c) at critica. temperature
(d) much below critical temperature
(e) could be anywhere.
Ans: d

40. In refrigerator, liquid receiver is required between condenser and flow controlling device, if quantity of refrigerant for system is
(a) less than 2 kg
(b) more than or equal to 3.65 kg
(c) more than 10 kg
(d) there is no such consideration
(e) pone of the above.
Ans: b

41. Absorption system normally uses the following refrigerant
(a) Freon-11

(b) Freon-22
(c) C02
(d) S02
(e) ammonia.
Ans: e

42. One of the purposes of sub-cooling the liquid refrigerant is to
(a) reduce compressor overheating
(b) reduce compressor discharge tempera-ture
(c) increase cooling effect
(d) ensure that only liquid and not the vapour enters the expansion (throttling) valve
(e) none of the above.
Ans: d

43. The value of COP in vapour compression cycle is usually
(a) always less than unity
(b) always more than unity
(c) equal to unity
(d) any one of the above
(e) none of the above.
Ans: b

44. In a refrigeration system, heat absorbed in comparison to heat rejected is
(a) more
(b) less
(c) same
(d) more for small capacity and less for high capacity
(e) less for small capacity and more for high capacity.
Ans: b

45. Condensing temperature in a refrigerator is the temperature
(a) of cooling medium
(b) of freezing zone
(c) of evaporator
(d) at which refrigerant gas becomes liquid
(e) condensing temperature of ice.
Ans: d

46. Formation of frost on evaporator in refrigerator

(a) results in loss of heat due to poor heat transfer

(b) increases heat transfer rate

(c) is immaterial

(d) can be avoided by proper design

(e) decreases compressor power.

Ans: a

47. In refrigerators, the temperature difference between the evaporating refrigerant and the medium being cooled should be

(a) high, of the order of 25°

(b) as low as possible (3 to 11°C)

(c) zero

(d) any value

(e) none of the above.

Ans: b

48. In a flooded evaporator refrigerator, an accumulator at suction of compressor is used to

(a) collect liquid refrigerant and prevent it from going to compressor

(b) detect liquid in vapour

(c) superheat the vapour

(d) collect vapours

(e) increase refrigeration effect.

Ans: a

49. Accumulators should have adequate volume to store refrigerant charge at least

(a) 10%

(b) 25%

(c) 50%

(d) 75%

(e) 100%.

Ans: c

50. At lower temperatures and pressures, the latent heat of vaporisation of a refrigerant

(a) decreases

(b) increases

(c) remains same
(d) depends on other factors
(e) none of the above.
Ans: b

51. A refrigeration cycle operates between condenser temperature of + 27°C and evaporator temperature of- 23°C. The Cannot coefficient of performance of cycle will be
(a) 0.2
(b) 1.2
(c) 5
(d) 6
(e) 10.
Ans: c

52. Which of the following is not a desirable property of a refrigerant
(a) high triiscibility with oil
(b) low boiling point
(c) good electrical conductor
(d) large latent heat
(e) non-inflammable.
Ans: c

53. In vapour compression refrigeration system, refrigerant occurs as liquid between
(a) condenser and expansion valve
(b) compressor and evaporator
(c) expansion valve and evaporator
(d) compressor and condenser
(e) none of the above.
Ans: c

54. Pick up the correct statement about giving up of heat from one medium to other in ammonia absorption system
(a) strong solution to weak solution
(b) weak solution to strong solution
(c) strong solution to ammonia vapour
(d) ammonia vapour to weak solution
(e) ammonia vapour to strong solution.

Ans: b

55. Efficiency of a Cornot engine is given as 80%. If the- cycle direction be reversed, what will be the value of COP of reversed Carnot cycle

(a) 1.25
(b) 0.8
(c) 0.5
(d) 0.25
(e) none of the above.

Ans: d

56. Highest pressure encountered in a refrigeration system should be

(a) critical pressure of refrigerant
(b) much below critical pressure
(c) much above critical pressure
(d) near critical pressure
(e) there is no such restriction.

Ans: b

57. If a heat pump cycle operates between the condenser temperature of +27°C and evaporator temperature of - 23°C, then the Carnot COP will be

(a) 0.2
(b) 1.2
(c) 5
(d) 6
(e) 10.

Ans: d

58. A certain refrigerating system has a normal operating suction pressure of 10 kg/cm gauge and condensing pressure of about 67 kg/cm. The refrigerant used is

(a) Ammonia
(b) Carbon dioxide
(c) Freon
(d) Brine
(e) Hydrocarbon refrigerant.

Ans: b

59. Aqua ammonia is used as refrigerant in the following type of refrigeration system

(a) compression

(b) direct

(c) indirect

(d) absorption

(e) none of the above.

Ans: d

60. If the evaporator temperature of a plant is lowered, keeping the condenser temperature constant, the h.p. of compressor required will be

(a) same

(b) more

(c) less

(d) more/less depending on rating

(e) unpredictable.

Ans: b

61. In a refrigeration cycle, the flow of refrigerant is controlled by

(a) compressor

(b) condenser

(c) evaporator

(d) expansion valve

(e) all of the above.

Ans: d

62. Where does the lowest temperature occur in a vapour compression cycle ?

(a) condenser

(b) evaporator

(c) compressor

(d) expansion valve

(e) receiver.

Ans: b

63. The leaks in a refrigeration system using Freon are detected by

(a) halide torch which on detection produces greenish flame lighting

(b) sulphur sticks which on detection gives white smoke

(c) using reagents

(d) smelling
(e) sensing reduction in pressure.
Ans: a

64. rick up the incorrect statement
(a) lithium bromide used in vapour absorption cycle is nonvolatile
(b) lithium bromide plant can't operate below 0°C
(c) a separator is used in lithium bromide plant to remove the unwanted water vapour by condensing
(d) concentration of solution coming out of lithium bromide generator is more in comparison to that entering the generator
(e) weak solution in liquid heat exchanger gives up heat to the strong solution.
Ans: c

65. The lower horizontal line of the refrigeration cycle plotted on pressure-enthalpy-diagram represents
(a) condensation of the refrigerant vapour
(b) evaporation of the refrigerant liquid
(c) compression of the refrigerant vapour
(d) metering of the refrigerant liquid
(e) none of the above.
Ans: b

66. Mass flow ratio of NH3 in comparison to Freon-12 for same refrigeration load and same temperature limits is of the order of
(a) 1 : 1
(b) 1 : 9
(c) 9 : 1
(d) 1 : 3
(e) 3 : 1
Ans: b

67. Freon group of refrigerants are
(a) inflammable
(d) toxic
(c) non-inflammable and toxic
(d) non-toxic and inflammable

(e) non-toxic and non-inflammable.

Ans: e

68 Ammonia is

(a) non-toxic

(b) non-inflammable

(c) toxic and non-inflammable

(d) highly toxic and inflammable

(e) none of the above.

Ans: d

69. In vapour compression cycle using NH3 as refrigerant, initial charge is filled at

(a) suction of compressor

(b) delivery of compressor

(c) high pressure side colse to receiver

(d) low pressure side near receiver

(e) anywhere in the cycle.

Ans: c

70. Short horizontal lines on pressure-enthalpy chart show

(a) constant pressure lines

(b) constant temperature lines

(c) constant total heat lines

(d) constant entropy lines

(e) constant volume lines.

Ans: a

71. On the pressure-enthalpy diagram, condensation and desuperheating is represented by a horizontal line because the process

(a) involves no change in volume

(b) takes place at constant temperature

(c) takes place at constant entropy

(d) takes place at constant enthalpy

(e) takes place at constant pressure.

Ans: e

72. One ton of the refrigeration is

(a) the standard unit used in refrigeration problems
(b) the cooling effect produced by melting 1 ton of ice
(c) the refrigeration effect to freeze 1 ton of water at 0°C into ice at 0°C in 24 hours
(d) the refrigeration effect to produce 1 ton of ice at NTP conditions
(e) the refrigeration effect to produce 1 ton of ice in 1 hour time.
Ans: c

73. Super heating in a refrigeration cycle
(a) increases COP
(b) decreases COP
(c) COP remains unaltered
(d) other factors decide COP
(e) unpredictable.
Ans: b

74. For proper refrigeration in a cabinet, if the temperature and vapour pressure difference between cabinet and atmosphere is high, then
(a) bigger cabinet should be used
(b) smaller cabinet should be used
(c) perfectly tight vapour seal should be used
(d) refrigerant with lower evaporation temperature should be used
(e) refrigerant with high boiling point must be used.
Ans: c

75. Choose the correct statement
(a) A refrigerant should have low latent heat
(b) If operating temperature of system is low, then refrigerant with low boiling point should be used
(c) Precooling and subcooling bf refrigerant are same
(d) Superheat and sensible heat of a. refrigerant are same
(e) Refrigerant is inside the lubes in case of a direct-expansion chiller.
Ans: b

76. The suction pipe diameter of refrigerating unit compressor in comparison to delivery side is
(a) bigger
(b) smaller
(c) equal

(d) smaller/bigger depending on capacity
(e) unpredictable.
Ans: a

77. Moisture in freon refrigeration system causes
(a) ineffective refrigeration
(b) high power consumption
(c) freezing automatic regulating valve
(d) corrosion of whole system
(e) breakdown of refrigerant.
Ans: c

78. The advantage of dry compression is that
(a) it permits higher speeds to be used
(b) it permits complete evaporation in the evaporator
(c) it results in high volumetric and mechanical efficiency
(d) all of the above
(e) none of the above.
Ans: d

79. Choose the wrong statement
(a) Temperature of medium being cooled must be below that of the evaporator
(b) Refrigerant leaves the condenser as liquid
(c) All solar thermally operated absorption systems are capable only of intermittent operation
(d) frost on evaporator reduces heat transfer
(e) refrigerant is circulated in a refrigeration system to transfer heat.
Ans: a

80. Under-cooling in a refrigeration cycle
(a) increases COP
(b) decreases COF
(c) COP remains unaltered
(d) other factors decide COP
(e) unperdictable.
Ans: a

81. For obtaining high COP, the pressure range of compressor should be

(a) high
(b) low
(c) optimum
(d) any value
(e) there is no such criterion.
Ans: b

82. The coefficient of performance is the ratio of the refrigerant effect to the
(a) heat of compression
(b) work done by compressor
(c) enthalpy increase in compressor
(d) all of the above
(e) none of the above.
Ans: d

83. The C.O.P of a refrigeration cycle with increase in evaporator temperature, keeping condenser temperature constant, will
(a) increase
(b) decrease
(c) remain unaffected
(d) may increase or decrease depending on the type of refrigerant used
(e) unpredictable.
Ans: a

84. Vertical lines on pressure-enthalpy chart show constant
(a) pressure lines
(b) temperature lines
(c) total heat lines
(d) entropy lines
(e) volume lines.
Ans: c

85. Most of the domestic refrigerators work on the following refrigeration system
(a) vapour compression
(b) vapour absorption
(c) carnot cycle
(d) electrolux refrigerator

(e) dual cycle.

Ans: a

86. The general rule for rating refrigeration systems (excepting for C02 system) is to approximate following h.p. per ton of refrigeration

(a) 0.1 to 0.5 h.p. per ton of refrigeration

(b) 0.5 to 0.8 h.p. per ton of refrigeration

(c) 1 to 2 h.p. per ton of refrigeration

(d) 2 to 5 h.p. per ton of refrigeration

(e) 5 to 10 h.p. per ton refrigeration.

Ans: c

87. Reducing suction pressure in refrigeration cycle

(a) lowers evaporation temperature

(b) increases power required per ton of refrigeration

(c) lowers compressor capacity because vapour is lighter

(d) reduces weight displaced by piston

(e) all of the above.

Ans: e

88. Cooling water is required for following equipment in ammonia absorption plant

(a) condenser

(b) evaporator

(c) absorber

(d) condenser and absorber

(e) condenser, absorber and separator (rectifier).

Ans: e

89. The refrigeration effect in a dry evaporator compared to flooded evaporator in a similar plant is

(a) same

(b) more

(c) less

(d) more or less depending on ambient conditions

(e) unpredictable.

Ans: c

90. The C.O.P. of a refrigeration cycle with lowering of condenser temperature, keeping the evaporator temperature constant, will

(a) increase

(b) decrease

(c) may increase or decrease depending on the type of refrigerant used

(d) remain unaffected

(e) unpredictable.

Ans: a

91. Which of the following refrigerants has lowest freezing point

(a) Freon-12

(b) NH3

(c) C02

(d) Freon-22

(e) S02.

Ans: d

92. The COP of a vapour compression plant in comparison to vapour absorption plant is

(a) more

(b) less

(c) same

(d) more/less depending on size of plant

(e) unpredictable.

Ans: a

93. The C.O.P. of a domestic refrigerator in comparison to domestic air conditioner will be

(a) same

(b) more

(c) less

(d) dependent on weather conditions

(e) unpredictable.

Ans: c

94. The evolution of heat of solution takes place in ammonia absorption plant when

(a) ammonia vapour goes into solution

(b) ammonia vapour is driven out of solution

(c) lithium bromide mixes with ammonia

(d) weak solution mixes with strong solution

(e) lithium bromide is driven out of solution.

Ans: a

95. The change in evaporator temperature in a refrigeration cycle, as compared to change in condenser temperature, influences the value of C.O.P.

(a) more

(b) less

(c) equally.

(d) unpredictable

(e) none of the above.

Ans: a