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Trinity ITI Udyavara

Question Paper

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Score: 85/135 (62.96%)

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1. What is the atmospheric pressure at sea level?

- A) **1.033 kg/cm²** B) 1.3 Kg/cm² (Incorrect)
C) 1.5 Kg/cm² D) 1.6 Kg/cm²

2. What is the rate of doing work?

- A) Duty B) Force
C) **Power (Correct)** D) Velocity

3. What is the melting temperature of silver brazing rod?

- A) **1120 Degree F** B) 1200 Degree F (Incorrect)
C) 1250 Degree F D) 1300 Degree F

4. Which instrument is used to measure atmospheric pressure?

- A) Hygrometer B) Hydrometer
C) Manometer D) **Barometer (Correct)**

5. What is the unit of heat in M.K.S system?

- A) B.T.U (British thermal unit) B) **K.Cal (Kilo Calorie) (Correct)**
C) KV (Kilo Volt) D) K.W (Kilo Watt)

6. What is the boiling point of pure water in centigrade scale?

- A) 212 Degree Centigrade B) **100 Degree Centigrade (Correct)**
C) 32 Degree Centigrade D) 0 Degree Centigrade

7. What is bottom dead centre in reciprocating compressor cylinder?

- A) **The piston moves up from the point of cylinder** B) The piston stops in cylinder at top (Incorrect)
C) The piston moves down from the point of cylinder D) The piston starts in cylinder at top

8. What is the barometer reading at sea level in Hg column?

- A) **760 mm (Correct)** B) 750 mm
C) 740 mm D) 730 mm

9. What is the capacity of doing work?

- A) Work B) Power
C) Force D) **Energy (Correct)**

10. Which instrument is used for measuring heat?

- A) Thermometer B) Anemometer (Incorrect)
C) **Calorimeter** D) Ammeter

11. Which refrigeration system works on directly by the heat energy?

- A) Jet refrigeration B) Mechanical refrigeration
C) **Vapour absorption refrigeration** D) Vapour compression refrigeration (Incorrect)

12. What is the absolute zero temperature in degree centigrade?

- A) 0 Degree Centigrade B) 100 Degree Centigrade
C) **-273 Degree Centigrade (Correct)** D) 212 Degree Centigrade

13. How the level of heat in a substance is expressed?

- A) Micron B) Pressure (Incorrect)
C) Humidity D) **Temperature**

14. What is the energy of a body by virtue of its position?

- A) Wind energy B) Kinetic energy
C) **Potential energy (Correct)** D) Electrical energy

15. What is the physical state of ammonia at condenser inlet in vapour absorption system?

- A) Solid (Incorrect) B) Liquid
C) **Vapour** D) Semi solid

16. Which law is related to the constant PV at constant T?

- A) **Boyles law (Correct)** B) Charles s law
C) Pascal s law D) Renaults law

17. Which thermodynamic process the temperature is kept constant?

- A) Isobaric process B) **Isothermal process**

C) Constant volume process
(Incorrect)

D) Constant pressure process

C) Generator and condenser

D) Generator and evaporator
(Incorrect)

18. What is the equivalent absolute scale for centigrade?

A) Kelvin (Correct)

B) Celsius

C) Rankine

D) Fahrenheit

19. Which method is used to connect the swaged joint in copper tubes?

A) TIG welding

B) Silver brazing (Correct)

C) Lead soldering

D) Fusion welding

20. Which components maintain the pressure difference in RAC system?

A) Condenser and filter

B) Evaporator and motor

C) Receiver and condenser

D) Compressor and expansion device (Correct)

21. What is top dead centre in reciprocating compressor cylinder?

A) The piston moves down from the point of cylinder

B) The piston moves up from the point of cylinder

C) The piston stops in cylinder at bottom

D) The piston starts in cylinder at bottom
(Incorrect)

22. Which component controls the thermostat and defrost heater in frost free refrigerator?

A) Thermoheater

B) Defrost timer (Correct)

C) Relay

D) OLP

23. What is the advantage of using flux in brazing?

A) Over heating

B) Melting tubes

C) Prevent Oxidation (Correct)

D) Chemical reaction

24. Which compressor dome handles high pressure and high temperature vapour?

A) Semi hermetic reciprocating compressor

B) Open type reciprocating compressor (Incorrect)

C) Hermetic reciprocating compressor

D) Hermetic rotary compressor

25. What is the absolute pressure of gas in a cylinder, if gauge reads 135.3 p.s.i?

A) 130 p.s.i.a

B) 140 p.s.i.a

C) 150 p.s.i.a (Correct)

D) 160 p.s.i.a

26. Which two components do the compressor function in vapour absorption system?

A) Generator and absorber B) Generator and separator

27. Which components are connected by metering device in vapour compression cycle?

A) Condenser and evaporator

B) Compressor and condenser

C) Evaporator and suction line

D) Compressor and evaporator (Incorrect)

28. Which condition is maintained for refrigerant in high side of vapour compression system?

A) Above its critical temperature

B) Below its critical temperature (Correct)

C) Above its freezing temperature

D) Below its freezing temperature

29. Which factors produce work?

A) Force and distance (Correct)

B) Time and distance

C) Force and power

D) Force and time

30. What is the purpose of accumulator in a refrigerator?

A) Improves oil circulation

B) Prevents surging of refrigerant

C) Avoids hunting of refrigerant

D) Prevents liquid flood back to compressor (Correct)

31. What is effect of compression process on refrigerant vapour?

A) Heat the vapour below saturation

B) Cool the vapour above saturation

C) Increase the pressure and temperature (Correct)

D) Decrease the pressure and temperature

32. Which part connects the piston with small end of connecting rod in a reciprocating compressor?

A) Piston pin

B) Piston bolt

C) Piston rings

D) Piston sleeve (Incorrect)

33. Which winding is made of thin wire in single phase motor?

A) Main

B) Series

C) Starting (Correct)

D) Running

34. What is the physical condition of refrigerant in hermetic dome of rotary compressor?

A) LP Liquid

B) HP Liquid

C) HP Vapour (Correct)

D) LP Vapour

35. Which is a positive displacement compressor?

- A) Centrifugal compressor **B) Scroll compressor**
C) Water pump D) Oil pump (Incorrect)

36. Which instrument is used to identify the terminals of a compressor motor?

- A) Ammeter B) Voltmeter
C) Ohm meter (Correct) D) Anemometer

37. Which motor has the least starting torque?

- A) CSIR B) CSR
C) RSIR (Correct) D) PSC

38. Which motor has the least starting torque?

- A) CSIR B) CSR
C) RSIR (Correct) D) PSC

39. Which winding is made of thick wire in single phase induction motor?

- A) Starting **B) Running (Correct)**
C) Auxiliary D) Additional

40. Which type of compressor is used for domestic refrigerator?

- A) Semi sealed compressor B) Centrifugal compressor
C) Hermetic compressor D) Open type compressor (Incorrect)

41. What is the revolving part of induction motor?

- A) Stator **B) Rotor**
C) Relay D) Winding (Incorrect)

42. Which type of rotor is used in 3 Phase induction motor?

- A) Squirrel cage rotor** B) Shaded pole rotor
C) Laminated rotor D) Solid rotor (Incorrect)

43. What is the temperature set in thermostat that stops the compressor motor?

- A) Cut in B) Range
C) Cut out D) Differential (Incorrect)

44. Which lubricant oil is used in swash plate of R 134a compressor?

- A) Servo 20 **B) POE (Correct)**
C) SAE - 40 D) Mineral oil

45. Which valve is closed during compression stroke in reciprocating compressor?

- A) Service valve B) Liquid line valve

- C) Discharge valve **D) Suction valve (Correct)**

46. Which gas is used for pressure testing the compressor dome?

- A) Air B) Oxygen
C) Nitrogen D) Refrigerant (Incorrect)

47. Which cooling medium is used to cool the motor of a hermetic reciprocating compressor in AC?

- A) Discharge vapour B) Liquid refrigerant
C) Suction vapour (Correct) D) Water

48. What is the method of starting a 3 phase slip ring induction motor?

- A) With starting relay B) Using starting capacitor
C) With running capacitor **D) Adding resistance to rotor winding (Correct)**

49. Which is used to connect the rotor bars in 3phase squirrel cage induction motor?

- A) Screw B) Welded
C) End ring D) Nut and bolt (Incorrect)

50. What is the use of a starting capacitor in single phase induction motor?

- A) Improve power factor **B) Increase starting torque (Correct)**
C) Decrease starting torque D) Dis connect starting winding

51. What is the advantage of a hermetically sealed compressor in refrigerator?

- A) Silent operation** B) Easily serviceable
C) Noise is more (Incorrect) D) Cost is high

52. Which movement of the scroll compresses the low pressure vapour in scroll compressor?

- A) Reciprocating B) Centrifugal
C) Rotating **D) Orbital (Correct)**

53. Which capacitor is disconnected by relay in capacitor start and induction run motor?

- A) Starting capacitor (Correct)** B) Running capacitor
C) Boosting capacitor D) Power factor correction capacitor

54. What is the formula to find out the synchronous speed of induction motor?

- A) $N_s = (150P/f)$ **B) $N_s = (120f/P)$**
C) $N_s = (150f/P)$ D) $N_s = (120P/f)$ (Incorrect)

55. How to change the direction of rotation in 3 Phase induction motor?

- A) Change neutral B) Change all phase (Incorrect)
C) Change any two phase D) Change the winding only

56. How the difference between the synchronous speed and the actual rotor speed is specified?

- A) Lead B) Lag
C) Slip (Correct) D) Trip

57. What is the use of capacitor in PSC operated induction motor?

- A) Decrease the starting torque B) Cancel the starting torque
C) Improve the power factor (Correct) D) Decrease the power factor

58. Where the refrigerant vapour is compressed in scroll compressor?

- A) Fixed and reciprocating scroll **B) Between fixed and orbiting scrolls (Correct)**
C) Crank and connecting rod D) Eccentric and cylinder

59. What is the use of suction baffle in a scroll compressor?

- A) Reduce noise of compressor (Correct)** B) Increase noise of compressor
C) Reduce capacity of compressor D) Allow liquid to enter into compressor

60. Which is disconnected by centrifugal switch is RSIR motor?

- A) Running winding B) Common winding
C) Starting winding (Correct) D) Running capacitor

61. What is the reason for poor compression?

- A) Less clearance volume **B) Scratches on the piston surface (Correct)**
C) Lapped valve plate and reed seat D) Good lubrication on the moving parts

62. What is the reason for swash plate compressor failure in car AC?

- A) Oil level is low (Correct)** B) Oil level is medium
C) Thermostat not working D) Refrigerant charge normal

63. Why the top of dome is hot in a scroll compressor?

- A) Discharge plenum is at top (Correct)** B) Suction super heat is less
C) Suction gas not cooled D) Undercharged system

64. What is the effect of moist air present inside the hermetic system?

- A) Capacity of compressor will increase B) Less wear and tear in compressor
C) Harmful to the compressor and motor D) Increase the life of compressor (Incorrect)

65. What is the cause for frequent tripping of circuit breaker while starting a single phase motor?

- A) Winding open **B) Winding short (Correct)**
C) Motor belt removed D) No load on the motor

66. What is the type of condenser used in direct cool refrigerator?

- A) Fin and tube (Incorrect) B) Shell and tube
C) Wire mesh D) Tube in tube

67. Which type of condenser is directly placed on water spray and air?

- A) Shell and tube condenser (Incorrect) B) Water cooled condenser
C) Evaporative condenser D) Air cooled condenser

68. Which type of condenser is used in window Air conditioner?

- A) Natural convection **B) Forced convection (Correct)**
C) Water cooled D) Evaporative

69. Which type of expansion device is used in frost free refrigerator?

- A) Float valve **B) Capillary tube (Correct)**
C) Automatic expansion valve D) Thermostatic expansion valve

70. Which is the constant reference for the working of AEV?

- A) Oil temperature **B) Suction pressure (Correct)**
C) Volume expansion D) Discharge pressure

71. Which type of evaporator is used in house hold refrigerator?

- A) Plate evaporator (Correct)** B) Tube in tube evaporator
C) Shell and coil evaporator D) Shell and tube evaporator

72. Which evaporator is known as extended surface evaporator?

- A) Evaporator tubes **B) Finned evaporator (Correct)**
C) Bare tube evaporator D) Coiled stake evaporator

73. Which type of insulation material is used in modern refrigerators?

- A) Saw dust
B) Glass wool
C) Thermocol (Incorrect)
D) **Poly urethane foam**

74. Which colour is used for painting condenser coil?

- A) Green
B) **Black (Correct)**
C) Blue
D) Red

75. What is the physical state of refrigerant at the outlet of condenser in vapour compression cycle?

- A) High pressure vapour (Incorrect)
B) **High pressure liquid**
C) Low pressure liquid
D) Low pressure vapour

76. Which type of drier filter is suitable for HFC refrigerants?

- A) **Molecular sieve type (Correct)**
B) Activated alumina
C) Activated carbon
D) Silica gel

77. What is the purpose of chemical spraying on finned condenser?

- A) Flush out the condenser tubes
B) **Remove the rust on the fins (Correct)**
C) Blow the dust from the fins
D) Correct the bends in fins

78. What is the advantage of using capillary tube as an expansion device?

- A) Temperature balancing is easy
B) **Pressure balancing is easy (Correct)**
C) Volume balancing is easy
D) Complicate design

79. Which component is connected in series with defrost heater in a frost free refrigerator?

- A) Door switch
B) Cabinet bulb
C) **Bimetal thermo (Correct)**
D) Heating element

80. How much minimum gap is left on either side of the refrigerator from the wall during installation?

- A) 5 cm
B) 10 cm
C) **15 cm**
D) 25 cm (Incorrect)

81. Where the dehydrator is installed in a refrigeration system?

- A) Discharge line
B) Capillary line
C) Suction line (Incorrect)
D) **Liquid line**

82. Which device meters the amount of refrigerant entering the evaporator in window AC?

- A) Accumulator
B) **Capillary tube (Correct)**
C) Heat exchanger
D) Finned tube condenser

83. Which gas is used for flushing blocked capillary tube?

- A) Moist air
B) Hydrogen
C) **Dry nitrogen (Correct)**
D) Aqua ammonia

84. Which component is connected in series with bimetal thermo in a frost free refrigerator?

- A) Blower
B) Door switch
C) Cabinet bulb
D) **Defrost heater (Correct)**

85. Which cooling medium is used to condense the refrigerant vapour in plate and tube condenser?

- A) **Natural Air (Correct)**
B) Forced Air
C) Water
D) Brine solution

86. Which gas is used to flush out the coils of air cooled condenser?

- A) **Dry nitrogen (Correct)**
B) Pure dry air
C) Oxygen
D) kaksr

87. Which application uses the capillary tube expansion device?

- A) **Domestic RAC units (Correct)**
B) Industrial ice plants
C) Commercial AC plants
D) Hospital IAQ systems

88. Which expansion valve is suitable for constant load operation?

- A) King valve
B) Relief valve
C) Low side float valve
D) **Automatic expansion valve (Correct)**

89. What is the physical change of refrigerant in evaporator?

- A) Solid to liquid
B) Vapour to solid
C) **Liquid to vapour**
D) Vapour to liquid (Incorrect)

90. What is the process of accumulation of ice on the surface of evaporator?

- A) **Frosting (Correct)**
B) Defrosting
C) Evacuating
D) Melting of frost

91. What is the use of dehydrator?

- A) Absorb oil
B) Absorb heat
C) Absorb refrigerant
D) **Absorb moisture (Correct)**

92. How pressure drop is achieved in capillary tube of refrigeration cycle?

A) The friction between refrigerant and tube

C) The friction between piston and cylinder (Incorrect)

B) The friction between refrigerant and oil

D) The friction between belt and pulley

93. What is the desiccant used in dehydrator of hydrocarbon charged RAC unit?

A) Silica gel (Correct)

C) Sulphur dioxide

B) Ammonia

D) Calcium chloride

94. Which is the constant operating condition of TEV?

A) Super heat at suction line point

C) Enthalpy at the evaporator outlet (Incorrect)

B) Evaporator pressure at its inlet

D) Entropy at the condenser outlet

95. Which type of defrosting method is used in frost free refrigerator?

A) Hot water defrosting

C) Hot gas defrosting

B) Manual defrosting

D) Electric defrosting (Correct)

96. Why evaporator of air conditioner has more fins per inch?

A) Increase the air contact (Correct)

C) Decrease the air circulation

B) Increase the water dripping

D) Produce more ice

97. Why frost accumulates in window AC evaporator?

A) Over charge of refrigerant

C) Capillary choking

B) Less charge of refrigerant

D) Air filter blocked (Correct)

98. What is the effect of pressure drop at the inlet of the evaporator?

A) Flashing of liquid refrigerant (Correct)

C) Freezing of liquid

B) Freezing of liquid refrigerant

D) Boiling of oil

99. What is the remedy for broken bimetal thermo in a frost free refrigerator?

A) Repair the bimetal thermo (Incorrect)

C) Replace the bimetal thermo

B) Reuse the bimetal thermo

D) Readjust the bimetal thermo

100. Why there is no frosting at the bottom only in plate coil evaporator used with refrigerator?

A) Shortage of refrigerant

C) Excess of refrigerant

B) Oil present in the coil (Correct)

D) Liquid in the coil

101. Why the supply air throw is decreased in window AC?

A) Normal RPM of fan motor

C) Refrigerant leaks

D) Frost blocks air circulation (Correct)

102. What is the remedy for defective heating element in a frost free refrigerator?

A) Repair heater

C) Replace heater and bimetal thermo

B) Readjust the heater

D) Reuse the heater and overload protector (Incorrect)

103. What are the causes for blockage in capillary tube?

A) Non condensable gases

C) Solid particles

B) Moisture and wax from oil (Correct)

D) Over charging of refrigerant

104. What is the reason for frost accumulation in between fins and tubes of evaporator in frost free refrigerator?

A) Under charge of refrigerant

C) Defective fan motor

B) Over charge of refrigerant (Incorrect)

D) Defective timer

105. What is the reason for no cooling in a frost free refrigerator?

A) Defective fan motor (Incorrect)

C) High watt Cabinet bulb

B) Open door switch

D) Defective timer

106. Why the capillary tube is preferred as an expansion device?

A) No system pressure equalising

C) Expensive and more moving parts (Incorrect)

B) Inexpensive and has no moving parts

D) Periodical servicing is required

107. Which component defrosts in frost free refrigerator?

A) Bulb

C) Thermostat

B) Heater (Correct)

D) Capillary tube

108. Where the thermal bulb is fixed in frost free refrigerator?

A) Liquid line (Incorrect)

C) Last coil of condenser

B) Discharge line

D) Last coil of evaporator

109. Which component switches ON/OFF the starting winding in RSIR motor?

A) Thermostat

C) Relay (Correct)

B) Capacitor

D) OLP

110. What is the cut out temperature of bimetal thermo in

frost free refrigerator?

- A) 5 Degree Centigrade
- C) 20 Degree Centigrade

- B) 10 Degree Centigrade (Correct)**
- D) 25 Degree Centigrade

111. Which domestic system uses automatic defrost?

- A) Frost free refrigerator (Correct)**
- C) Split air - conditioner
- B) Conventional refrigerator
- D) Window air - conditioner

112. Which sheet is used to check the tightness of door gasket of a refrigerator?

- A) Rubber
- C) Copper
- B) Plastic (Correct)**
- D) Zinc

113. Which is used to clean the condenser fins of a refrigerator?

- A) Painting brush (Correct)**
- C) Soap solution
- B) Diluted acid
- D) Fin comb

114. How the capacity of refrigerator is expressed?

- A) Weightage
- C) Wattage
- B) Tonnage (Incorrect)**
- D) Litres**

115. What is the temperature maintained in the refrigerator freezer?

- A) 0 Degree Centigrade
- C) - 45 Degree Centigrade
- B) - 15 Degree Centigrade (Correct)**
- D) - 65 Degree Centigrade

116. Where the manually defrosted water is stored in refrigerator?

- A) Tray on top of the compressor (Correct)**
- C) Bottom of the condenser
- B) Bottom of the evaporator
- D) Top of the freezer

117. Which component is used in frost free refrigerator?

- A) Plate coil evaporator
- C) Oil separator
- B) Liquid receiver
- D) Timer switch (Correct)**

118. Which type of evaporator is used in frost free refrigerator?

- A) Plate type
- C) Finned tube (Correct)**
- B) Wire mesh
- D) Shell and tube

119. Which device protects the compressor motor from drawing more current?

- A) OLP (Correct)**
- C) Thermostat
- B) Relay
- D) Door switch

120. Which device equalizes the system pressure in frost free refrigerator?

- A) Capillary tube (Correct)**
- C) Condenser
- B) Compressor
- D) Evaporator

121. Which method of refrigeration system is adopted in frost free refrigerator?

- A) Vapour compression**
- C) Water vapour (Incorrect)
- B) Vapour absorption
- D) Evacuating

122. Which electrical control cuts off heating element in frost free refrigerator?

- A) Bimetal thermo (Correct)**
- C) Relay
- B) Thermostat
- D) Timer

123. What is the working condition of component during defrost cycle in frost free refrigerator?

- A) Evaporator fan motor is running
- C) Thermostat cuts off
- B) Compressor is not running**
- D) Relay activated (Incorrect)

124. Which component actuates the defrost cycle in frost free refrigerator?

- A) Bimetal thermo
- C) Timer**
- B) Defrost heater (Incorrect)
- D) Relay

125. Which component is turned off while defrost heater is energised?

- A) Cabinet bulb
- C) Thermostat sensor
- B) Evaporator fan (Correct)**
- D) Over load protector

126. Which movement of plunger energises the start winding in relay operation?

- A) Vertically up**
- C) Vertically down
- B) Bottom side (Incorrect)
- D) Horizontally left

127. Which is connected in series with start capacitor in motor circuit?

- A) Starting winding**
- C) Running Terminal (Incorrect)
- B) Common terminal
- D) Running winding

128. What is the advantage of sealed system compared to open type system?

- A) Mechanical efficiency is greater
- C) Any refrigerant can be used
- B) Cylinder lubrication is easier
- D) No shaft seal is required (Correct)**

129. Why frost free model refrigerator takes less freezing

time of products?

- A) Forced air circulation** B) Natural air circulation
C) Low temperature setting D) High temperature setting
(Incorrect)

130. What is the reason if refrigerator runs normally but no cooling effect?

- A) Leakage of refrigerant (Correct)** B) Condenser block
C) Filter block D) Over charge

131. What is the effect of bimetal thermo sticks in ON position in frost free refrigerator?

- A) Accumulation of frost B) More cooling
(Incorrect)
C) Poor cooling **D) No cooling**

132. What is the effect of contamination in refrigeration system?

- A) High heating
C) Low pressure

- B) Poor cooling (Correct)**
D) Low humidity

133. What is the cause for refrigerator door gap at closing position?

- A) Uneven floor level** B) Either side gap more
C) Either side gap less D) Uneven condenser level
(Incorrect)

134. Which component is replaced to prevent air entering the refrigerator cabinet?

- A) Thermostat (Incorrect) **B) Door gasket**
C) Door paint D) Door hinges

135. What is the result if discharge reed is broken in open type compressor?

- A) Poor pumping (Incorrect) B) More pumping
C) Oil pumping **D) No pumping**