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February 2026

Trinity ITI Udyavara

Question Paper

Duration: 60 Mins

Total Marks: 135

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Student Name: _____ Roll No: _____

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

- A) Hot gas defrosting B) Manual defrosting
C) Hot water defrosting D) Electric defrosting

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

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

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

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

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

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

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

- A) Door paint B) Thermostat
C) Door gasket D) Door hinges

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

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

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

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

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

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

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

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

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

- A) Rubber B) Zinc
C) Copper D) Plastic

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

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

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

- A) Condenser B) Evaporator
C) Compressor D) Capillary tube

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

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

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

- A) Capillary line B) Suction line
C) Discharge line D) Liquid line

15. Which domestic system uses automatic defrost?

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

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

- A) Rotating B) Orbital
C) Centrifugal D) Reciprocating

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

- A) Disconnect starting winding
- B) Decrease starting torque
- C) Increase starting torque
- D) Improve power factor

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

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

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

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

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

- A) Freezing of liquid refrigerant
- B) Flashing of liquid refrigerant
- C) Freezing of liquid
- D) Boiling of oil

21. What is the atmospheric pressure at sea level?

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

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

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

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

- A) Kinetic energy
- B) Potential energy
- C) Electrical energy
- D) Wind energy

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

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

25. Which factors produce work?

- A) Force and time
- B) Force and distance
- C) Time and distance
- D) Force and power

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

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

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

- A) Readjust the heater
- B) Reuse the heater and overload protector
- C) Replace heater and bimetal thermo
- D) Repair heater

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

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

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

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

30. What is the use of dehydrator?

- A) Absorb oil
- B) Absorb moisture
- C) Absorb refrigerant
- D) Absorb heat

31. How the capacity of refrigerator is expressed?

- A) Weightage
- B) Wattage
- C) Litres
- D) Tonnage

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

- A) Defrost timer
- B) Relay
- C) OLP
- D) Thermoheater

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

- A) Low pressure
- B) Poor cooling
- C) High heating
- D) Low humidity

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

- A) Normal RPM of fan motor
- B) Refrigerant leaks
- C) Clean air filter
- D) Frost blocks air circulation

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

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

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

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

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

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

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

- A) TIG welding
- B) Fusion welding
- C) Lead soldering
- D) Silver brazing

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

- A) Below its critical temperature
- B) Below its freezing temperature
- C) Above its freezing temperature
- D) Above its critical temperature

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

- A) Door switch
- B) Relay
- C) OLP
- D) Thermostat

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

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

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

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

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

- A) Avoids hunting of refrigerant
- B) Prevents liquid flood back to compressor
- C) Prevents surging of refrigerant
- D) Improves oil circulation

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

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

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

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

46. Which motor has the least starting torque?

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

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

- A) High watt Cabinet bulb
- B) Defective fan motor
- C) Open door switch
- D) Defective timer

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

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

49. What is the cut out temperature of bimetal thermo in frost free refrigerator?

- A) 25 Degree Centigrade
- B) 10 Degree Centigrade
- C) 5 Degree Centigrade
- D) 20 Degree Centigrade

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

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

51. Which instrument is used for measuring heat?

- A) Thermometer
- B) Calorimeter
- C) Ammeter
- D) Anemometer

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

- A) Readjust the bimetal thermo
- B) Replace the bimetal thermo
- C) Reuse the bimetal thermo
- D) Repair the bimetal thermo

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

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

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

- A) Generator and evaporator
- B) Generator and condenser
- C) Generator and absorber
- D) Generator and separator

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

- A) Compressor and evaporator
- B) Evaporator and suction line
- C) Compressor and condenser
- D) Condenser and evaporator

56. Which component is used in frost free refrigerator?

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

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

- A) Expensive and more moving parts
- B) No system pressure equalising
- C) Periodical servicing is required
- D) Inexpensive and has no moving parts

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

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

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

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

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

- A) 5 cm
- B) 15 cm
- C) 10 cm
- D) 25 cm

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

- A) Oil present in the coil
- B) Excess of refrigerant
- C) Shortage of refrigerant
- D) Liquid in the coil

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

- A) Additional
- B) Starting
- C) Running
- D) Auxiliary

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

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

64. What is the rate of doing work?

- A) Force
- B) Power
- C) Velocity
- D) Duty

65. Which colour is used for painting condenser coil?

- A) Red
- B) Black
- C) Blue
- D) Green

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

- A) No pumping
- B) More pumping
- C) Oil pumping
- D) Poor pumping

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

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

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

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

69. What is the equivalent absolute scale for centigrade?

- A) Rankine
- B) Kelvin
- C) Fahrenheit
- D) Celsius

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

- A) 750 mm
- B) 730 mm
- C) 740 mm
- D) 760 mm

71. What is the revolving part of induction motor?

- A) Relay
- B) Rotor
- C) Stator
- D) Winding

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

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

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

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

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

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

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

- A) Condenser and filter
- B) Receiver and condenser
- C) Evaporator and motor
- D) Compressor and expansion device

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

- A) OLP
- B) Capacitor
- C) Thermostat
- D) Relay

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

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

78. Why frost free model refrigerator takes less freezing time of products?

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

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

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

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

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

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

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

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

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

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

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

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

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

85. Which component defrosts in frost free refrigerator?

- A) Thermostat
- B) Bulb
- C) Heater
- D) Capillary tube

86. Which evaporator is known as extended surface evaporator?

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

87. What is the reason for poor compression?

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

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

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

89. 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) 160 p.s.i.a
- C) 140 p.s.i.a
- D) 150 p.s.i.a

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

- A) Silica gel
- B) Calcium chloride
- C) Sulphur dioxide
- D) Ammonia

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

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

92. Why frost accumulates in window AC evaporator?

- A) Less charge of refrigerant
- B) Capillary chocking
- C) Over charge of refrigerant
- D) Air filter blocked

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

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

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

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

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

- A) Moisture and wax from oil
- B) Solid particles
- C) Non condensable gases
- D) Over charging of refrigerant

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

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

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

- A) Suction valve
- B) Service valve

C) Liquid line valve

D) Discharge valve

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

A) Relief valve

B) Automatic expansion valve

C) Low side float valve

D) King valve

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

A) Liquid line

B) Last coil of evaporator

C) Discharge line

D) Last coil of condenser

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

A) The friction between belt and pulley

B) The friction between refrigerant and oil

C) The friction between piston and cylinder

D) The friction between refrigerant and tube

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

A) Main

B) Starting

C) Running

D) Series

102. Which application uses the capillary tube expansion device?

A) Domestic RAC units

B) Commercial AC plants

C) Industrial ice plants

D) Hospital IAQ systems

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

A) Semi hermetic reciprocating compressor

B) Open type reciprocating compressor

C) Hermetic rotary compressor

D) Hermetic reciprocating compressor

104. What is the capacity of doing work?

A) Work

B) Energy

C) Force

D) Power

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

A) Float valve

B) Automatic expansion valve

C) Capillary tube

D) Thermostatic expansion valve

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

A) Less wear and tear in compressor

B) Capacity of compressor will increase

C) Harmful to the compressor and motor

D) Increase the life of compressor

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

A) Suction gas not cooled

B) Suction super heat is less

C) Discharge plenum is at top

D) Undercharged system

108. Which instrument is used to measure atmospheric pressure?

A) Hygrometer

B) Manometer

C) Hydrometer

D) Barometer

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

A) Correct the bends in fins

B) Flush out the condenser tubes

C) Blow the dust from the fins

D) Remove the rust on the fins

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

A) Cool the vapour above saturation

B) Decrease the pressure and temperature

C) Heat the vapour below saturation

D) Increase the pressure and temperature

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

A) Humidity

B) Temperature

C) Pressure

D) Micron

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

A) Increase the air contact

B) Decrease the air circulation

C) Produce more ice

D) Increase the water dripping

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

A) Liquid

B) Vapour

C) Semi solid

D) Solid

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

A) Bimetal thermo

B) Relay

C) Defrost heater

D) Timer

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

A) -273 Degree Centigrade

B) 100 Degree Centigrade

C) 0 Degree Centigrade D) 212 Degree Centigrade

116. Which is the constant operating condition of TEV?

- A) Super heat at suction line point B) Enthalpy at the evaporator outlet
C) Entropy at the condenser outlet D) Evaporator pressure at its inlet

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

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

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

- A) Piston pin B) Piston sleeve
C) Piston bolt D) Piston rings

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

- A) Bimetal thermo B) Timer
C) Relay D) Thermostat

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

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

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

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

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

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

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

- A) HP Liquid B) HP Vapour
C) LP Liquid D) LP Vapour

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

- A) Low pressure vapour B) Low pressure liquid
C) High pressure vapour D) High pressure liquid

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

A) No shaft seal is required B) Any refrigerant can be used

C) Cylinder lubrication is easier D) Mechanical efficiency is greater

126. Which motor has the least starting torque?

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

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

- A) Prevent Oxidation B) Chemical reaction
C) Melting tubes D) Over heating

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

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

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

- A) Defective timer B) Defective fan motor
C) Under charge of refrigerant D) Over charge of refrigerant

130. Which thermodynamic process the temperature is kept constant?

- A) Isobaric process B) Constant volume process
C) Constant pressure process D) Isothermal process

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

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

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

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

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

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

134. Which is a positive displacement compressor?

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

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

- A) Glass wool B) Saw dust
C) Poly urethane foam D) Thermocole

