

Sree Chitra Tirunal Institute for Medical Sciences & Technology,

Thiruvananthapuram-695011

Written Test: MFCP of Technician (MRAC) A to B

9th April, 2013

Roll Number:

1. Multistage compressors are used in
 - A. Very low temperature deep freezers
 - B. Domestic Refrigerators
 - C. -20°C Freezers
 - D. Mortuary cold storage
2. Select the WRONG statement
 - A. Air frictional loss in duct is primarily due to surface friction
 - B. Air pressure loss decreases with increase in duct length
 - C. Equal friction method is used in duct design
 - D. If longer side duct size is 1000 mm, GI sheet of 22 SWG can be used
3. Central AC with re-circulation AHU is used in an ICU. In this system, negative pressure is experienced in
 - A. Micro Filter
 - B. Return Air Duct
 - C. Supply Air Duct
 - D. No negative pressure in return air system
4. ----- reduces transmission efficiency in a centrifugal AC Plant
 - A. Loose Belt
 - B. Improper fuse
 - C. Chiller
 - D. Cooling Tower
5. "Fouling" is a problem experienced in
 - A. Water-cooled condenser
 - B. Air-cooled condenser
 - C. Both water & air-cooled condensers
 - D. Split AC
6. PUF used in AC system is
 - A. a cleaning agent
 - B. a refrigerant gas
 - C. an insulating material
 - D. Precision ac Unit Fan

7. BMS used in Central AC refers to
- A. Building Maintenance System
 - B. Brine Mobility Support
 - C. British Motor Synchronization protocol
 - D. Building Management System
8. Select the WRONG statement regarding Screw Compressor
- A. It is a negative displacement compressor
 - B. It is a helical rotary compressor
 - C. Its full load IKW is higher than that of Centrifugal Compressor
 - D. It is used for higher capacity applications
9. Deep well pumps with two suction lines are used for
- A. increasing the pumping pressure
 - B. pumping water from a depth of more than 8 m
 - C. increasing the efficiency
 - D. pumping muddy water
10. Term 'S S Valve' used in Medical Gas Line is
- A. Stainless Steel Valve
 - B. Self-Sealing Valve
 - C. Self Sufficient Valve
 - D. Suction System Valve
11. Refrigerated Dryer is used in
- A. Central Vacuum Compressor system
 - B. Anaesthesia Gas Scavenging system
 - C. Central Compressed Air system
 - D. Freezer of Refrigerator
12. Select the CORRECT statement regarding operation theatre (OT) AC system
- A. Positive air pressure is maintained in the OT
 - B. Single level filtering is sufficient for fresh air AC system
 - C. Laminar air flow is not advised for OT
 - D. AC Exhaust of an OT can be used as an air supply to another OT AHU
13. Unit of Electric current is
- A. Volt
 - B. Watt
 - C. KWH
 - D. Ampere
14. One square metre is approximately ----- square feet
- A. 30.48
 - B. 25.4
 - C. 12
 - D. 10.76

15. A flow rate of 1 cubic metre per minute is ----- cubic foot per minute (cfm)
- A. 35.315
 - B. 0.0283
 - C. 1728
 - D. 1000000
16. Water has maximum density at ----- °C.
- A. 39.2
 - B. 100
 - C. 0
 - D. 4
17. An office room of size 185 sq. ft. is to be air-conditioned by using a Split AC unit. Approximate capacity requirement is
- A. 0.75 TR
 - B. 1.5 TR
 - C. 5 TR
 - D. 3 TR
18. Mollier diagram is also known as
- A. Ts diagram
 - B. Temperature-Entropy diagram
 - C. Pressure-Enthalpy (Ph) diagram
 - D. Enthalpy-Entropy diagram
19. Which is NOT a part of Vertical Turbine pumping system?
- A. Motor
 - B. Delivery water line
 - C. Foot Valve
 - D. Water/Oil Lubrication
20. HEPA Filter is used in / required in air-conditioning system of
- A. Office room
 - B. Operation Theatre
 - C. Cold storage
 - D. Auditorium
21. Cassette AC indoor unit is
- A. Mounted on side wall
 - B. Floor mounted
 - C. Mounted on window
 - D. Ceiling suspended
22. VRF means
- A. Variable Refrigerant Flow
 - B. Vertical Reverse Flow

- C. Volatile Refrigerant Filling
- D. Variable Regulation Function

23. In passing through the throttling device, the pressure of the liquid refrigerant is

- A. Reduced
- B. Increased
- C. Not changed
- D. Reduced or increased depending on AC load variations.

24. Select the WRONG statement

- A. Externally Equalized TEV is used for certain applications
- B. Thermostatic Expansion Valve (TEV) is a temperature control device
- C. In a flooded type evaporator, a constant refrigerant liquid level is maintained
- D. Chillers are used for cooling the secondary refrigerants

25. Screw compressor in SCTIMST is

- A. Single Helical
- B. Triple Helical
- C. Double Helical
- D. Quadra Helical

26. Normal static pressure of an AHU (mm HG)

- A. 40 to 75
- B. 150 to 250
- C. 500 to 1000
- D. 2000 to 4000

27. What is Green Building Concept?

- A. Green colour paint, tiles etc. are used
- B. Building constructed with greenery around
- C. Building without usage of wood
- D. Eco-friendly design of building to achieve maximum energy efficiency

28. Which is a property of Refrigerant Oil?

- A. High Acidity
- B. High Flocc Point
- C. High Pour Point
- D. High Dielectric Strength

29. Ideal Power factor is

- A. 1
- B. 50
- C. 230
- D. 440


30. Crank shaft is used in

- A. Screw compressor

- B. Centrifugal compressor
 - C. Reciprocating compressor
 - D. All the above
31. Normal capacity of a Ward Vacuum (Wall suction) Unit bottle
- A. 250 ml
 - B. 2000 ml
 - C. 3000 ml
 - D. 600 ml
32. Air inlet (from AHU) and outlet (Exhaust) volumes (CFM) in an Operation Theatre AC system are
- A. Inlet higher than Outlet
 - B. Equal
 - C. Outlet higher than Inlet
 - D. Not specific
33. Term connected with paraffin content of Refrigeration Oil is
- A. Pour point
 - B. Floc point
 - C. Viscosity
 - D. Acidity
34. Which is NOT a desirable property of a refrigerant in an AC system?
- A. Low critical pressure
 - B. Low freezing point
 - C. High Dielectric Strength
 - D. Safe to use
35. Ammonia is
- A. R 22
 - B. R 502
 - C. R 11
 - D. R 717
36. In compound system of multi-stage compression, two or more compressors are connected in -----
- A. Parallel
 - B. Cascade
 - C. Series
 - D. Feedback method
37. Evaporator of a Split AC unit is in its -----
- A. Indoor Unit
 - B. Outdoor Unit
 - C. Pipe lines in between Indoor and Outdoor units
 - D. No evaporator in Split AC units

38. How many chilled water pipe lines are seen in reverse return system?
- A. 2
 - B. 1
 - C. 4
 - D. 3
39. For a good duct system Aspect Ratio must be
- A. High
 - B. Low
 - C. In between 5 and 10
 - D. Above 10
40. Transformer oil is
- A. a conductor
 - B. a semi-conductor
 - C. an insulator
 - D. highly inflammable
41. Induction motor will
- A. Decrease Power Factor
 - B. Increase Power Factor
 - C. Not change Power Factor
 - D. Always maintain the Power Factor as 1
42. Reputed Stabilizer of a Split AC is for
- A. Stabilizing the Voltage and for time delay in re-start
 - B. Voltage stabilization only
 - C. Time delay
 - D. Increasing the supply voltage
43. Electrical supply given to the Screw Chiller in SCTIMST is
- A. 440 VAC, 60 Hz
 - B. 440 VAC, 50 Hz
 - C. 230 VAC, 50 Hz
 - D. 1100 VAC, 60 Hz
44. Smoke detector is associated with
- A. Air-conditioning
 - B. Fire fitting
 - C. Relative Humidity
 - D. Heating elements
45. Gas scavenging system in hospital is to remove
- A. Refrigerant gases
 - B. Oxygen
 - C. Carbon Monoxide
 - D. Anaesthetic gases

46. Compressor suction pressure reduction is NOT due to
- A. Excess refrigerant
 - B. Fouling of Evaporator surface
 - C. Improper adjustment of throttling devices
 - D. Reduction of air quantity over cooling coils
47. The lowest possible reading one can take with a mercury manometer is ----- Hg absolute
- A. 1 cm
 - B. 1 Micron
 - C. 1 mm
 - D. 100 Micron
48. Megger is used to check
- A. Voltage
 - B. Insulation resistance
 - C. Current
 - D. Capacitance
49. In an energy efficient AC Compressor, IKW must be
- A. High
 - B. 1
 - C. Greater than 1
 - D. Low
50. Unit of electricity in domestic metering of KSEB is equal to
- A. KWH
 - B. KW
 - C. KVAR
 - D. KV


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Signature of the candidate