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Section : **Refrigeration and Air Conditioning R and AC**

Q.1 Absolute pressure is

A. Gauge pressure + atmospheric pressure
B. Gauge pressure x atmospheric pressure
C. Absolute pressure + gauge pressure
D. Absolute pressure + vacuum pressure

Ans ✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834938825**

Q.2 Fuse wire used in electric instruments is made up of:

A. Pure lead
B. Pure zinc
C. Alloy of lead and tin
D. Alloy of lead and zinc

Ans ✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834938759**

Q.3 During throttling process, the refrigerant

A. Gains heat
B. Loses heat
C. Neither gains nor loses heat
D. None of these

Ans ✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834938776**

Q.4 Work done during throttling

A. Zero and reversible

B. Zero and irreversible

C. Non zero and reversible

D. Non zero and irreversible

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938797**

Q.5 The pressure of water at a point is 3.924 N/cm^2. Find the corresponding height of water at that point?

A. 400 m

B. 40 m

C. 4 m

D. 0.4 m

Ans ✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938829**

Q.6 A stone thrown upwards falls back due to

A. Mass of the stone

B. Density of the stone

C. Gravity

D. Friction with air

Ans ✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938823**

Q.7 Automatic expansion valve is used for

A. Reducing load

B. Increasing load

C. Constant load

D. Varying load

Ans ✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938772**

Q.8 The area of a parallelogram of base 'b' and altitude 'h' is:

A. ½ bh

B. bh

C. ¼ bh

D. bh^2

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938813**

Q.9 Air at 50^0C passes through a cooling coil whose temperature is maintained uniformly at 25^0C. If the temperature of the air leaving the cooling coil is 30^0C, what is the bypass factor of the cooling coil?

A. 0.5

B. 0.2

C. 0.25

D. 1.0

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938799**

Q.10 The equation that shows the relationship between current, voltage and resistance is:

A. V = IR

B. V = I/R

C. $V= I^2R$

D. $V= IR^2$

Ans ✓ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938752**

Q.11 The point angle of a twist drill for general purpose is

A. 135^0

B. 118^0

C. 90^0

D. 60^0

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938827**

Q.12 The instrument used for checking clearance between the mating surfaces is known as

A. Snips
B. Taps
C. Feeler gauge
D. Tweezers

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938821**

Q.13 The criteria for main components selection to have a balanced system in a vapour compression refrigeration circuit:

A. It must be correctly sized for the duty
B. It must be suitable for the application
C. It must function as required in conjunction with the other components
D. All of the above

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938770**

Q.14 What is the efficiency in a Carnot cycle?

A. W_{out}/Q_{in}
B. $(Q_{in} - Q_{out}) / Q_{in}$
C. $1 - T_L / T_H$
D. All the above

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938762**

Q.15 A person's monthly salary is Rs 450/-. He saves Rs 90/- every month. What is the percentage of his saving?

A. 10%
B. 20%
C. 30%
D. 40%

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938817**

Q.16 What type of threads are suitable for lead screws of machine tool?

A. British Association threads

B. Whitworth screw threads

C. Acme threads

D. Square threads

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938828**

Q.17 Acetylene used for gas welding is stored in a cylinder painted with colour

A. Red

B. Black

C. White

D. Maroon

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938785**

Q.18 The bank of tubes at the backside of domestic refrigerator are

A. Condenser tubes

B. Evaporator tubes

C. Refrigerant cooling tubes

D. Capillary tubes

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938795**

Q.19 Identify the safest secondary refrigerant from the following refrigerants

A. Ammonia

B. Air and water

C. Freon

D. Sulphur dioxide

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938792**

Q.20 A collar bearing is generally used to support _____

A. axial load only

B. radial load only

C. both axial and radial loads

D. inclined loads

Ans ✔ 1. A

✘ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938754**

Q.21 Hermetic compressors were developed to

A. Improve energy efficiency

B. Overcome refrigerant leakage problem

C. Improve serviceability

D. Reduce weight

Ans ✘ 1. A

✔ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938777**

Q.22 The selling price of an item is Rs 3300, cost price of the item is Rs 3000. Then the profit or loss %

A. 10%loss

B. 10% profit

C. 5% profit

D. 7% profit

Ans ✘ 1. A

✔ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938814**

Q.23 Boiling point of R-12 is

A. -23.8^0C

B. -33.3^0C

C. -29.8^0C

D. -40.8^0C

Ans ✘ 1. A

✘ 2. B

✔ 3. C

✘ 4. D

Question ID : **5834938786**

Q.24 The curve traced by a point on cord as it unwinds (but remains taut) around a circle is known as

A. Involute
B. Cycloid
C. Spiral
D. Helix

Ans
✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834938819**

Q.25 One of the desirable properties of refrigerant is that it should have

A. Low critical temperature
B. Low freezing point
C. Low thermal conductivity
D. Low latent heat of evaporation

Ans
✘ 1. A
✔ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834938790**

Q.26 Air refrigerator cycle works on

A. Carnot cycle
B. Rankine cycle
C. Bell Coleman cycle
D. Stirling cycle

Ans
✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834938763**

Q.27 The formation of frost on cooling coil in a refrigerator

A. Improves the COP of the system

B. Reduces the power consumption

C. increases the power consumption

D. increases the heat transfer

Ans

✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938800**

Q.28 In a vapour compression cycle the enthalpies at evaporator inlet, compressor inlet and compressor outlet are 343.29kJ/kg, 1450.22 kJ/kg and 1673.8 kJ/kg respectively. If the mass flow rate of the refrigerant is 0.05kg/s, find the refrigeration effect in TR?

A. 3.18TR

B. 18.93TR

C. 15.75TR

D. 55TR

Ans

✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938768**

Q.29 A train crosses a 300m long platform in 20s with 90kmph speed. What is the length of the train?

A. 200m

B. 300m

C. 400m

D. 100m

Ans

✓ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938830**

Q.30 If the relative humidity of atmospheric air is 100%, the dry bulb temperature (DBT), wet bulb temperature (WBT), dew point temperature (DPT) are related as

A. DBT>WBT=DPT

B. DBT=WBT>DPT

C. DBT>WBT>DPT

D. DBT=WBT=DPT

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938811**

Q.31 What is the capacity of a conical tank of radius 2m and height 5m?

A. 62.8 m^3

B. 52.3 m^3

C. 20.9 m^3

D. 157 m^3

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938816**

Q.32 Degree of superheating obtained using a liquid suction heat exchanger is

A. Always greater than the degree of sub cooling

B. Always less than the degree of sub cooling

C. Always equal to the degree of sub cooling

D. Depends on the effectiveness of the heat exchanger

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938780**

Q.33 In actual air conditioning application for R-12 and R-22 and operating at a condenser temperature of 42^0C and evaporator temperature of 7^0C , the heat rejection factor is about

A. 1
B. 1.125
C. 2
D. 1.75

Ans ✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938803**

Q.34 Refrigerator condenser is cooled by

A. Fan
B. Evaporator cooling
C. Natural air
D. Heat exchanger with return gas

Ans ✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938802**

Q.35 'Pinch effect' in welding is the result of:

A. Electrostatic forces
B. Magnetic forces
C. Electromagnetic forces
D. None of the above

Ans ✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938793**

Q.36 A soldering iron bit is made of:

A. Brass
B. Tin
C. Steel
D. Copper

Ans ✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938782**

Q.37 Unit of the rate of heat transfer is

A. Watts
B. Joules
C. Newton
D. Pascal

Ans
✔ 1. A
✘ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834938812**

Q.38 The temperature difference between the wet bulb temperature of incoming air and temperature of outgoing water is known as cooling tower _____

A. Cooling range
B. Heat load
C. Approach
D. Pumping head

Ans
✘ 1. A
✘ 2. B
✔ 3. C
✘ 4. D

Question ID : **5834938808**

Q.39 An EMF of 120 V causes a current of 3A to flow in a circuit. Calculate how much energy is supplied by the source in 12 sec

A. 3420J
B. 4320J
C. 5120J
D. 4120J

Ans
✘ 1. A
✔ 2. B
✘ 3. C
✘ 4. D

Question ID : **5834938758**

Q.40 The atomic mass of the Oxygen is

A. 12
B. 14
C. 16
D. 32

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938756**

Q.41 The tubing used for refrigerant ammonia is made of

A. Silver
B. Copper
C. Steel
D. Brass

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938771**

Q.42 In general, central air conditioning system as compared to individual system has:

A. Higher overall efficiency
B. Lower overall efficiency
C. Same overall efficiency
D. Unpredictable

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938781**

Q.43 The relative humidity of air is defined as the ratio of

A. Mass of water vapour in a given volume to the total mass of the mixture of air and water vapour
B. Mass of water vapour in a given volume to the mass of water vapour, if air is saturated at same temperature
C. Mass of water vapour in a given volume to the mass of air
D. Mass of air to the mass of water vapour in the mixture of air and water vapour

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938809**

Q.44 If a+b+c = 0 and abc = 4, then find the value of $a^3+b^3+c^3$?

A. 8

B. 12

C. 16

D. 18

Ans ✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938820**

Q.45 In a forced draft cooling tower, the fan is fixed at the _____

A. top of the cooling tower

B. middle of the cooling tower

C. bottom of the cooling tower

D. any location based on cooling tower height

Ans ✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938798**

Q.46 At what temperature, Celsius scale thermometer and Fahrenheit scale thermometer reads same reading

A. 0^0C

B. 100^0C

C. - 40^0C

D. -4^0C

Ans ✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938806**

Q.47 Inverter compressor consumes _____ power than the conventional compressor

A. Less

B. More

C. No change

D. None of the above

Ans ✓ 1. A

✗ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938801**

Q.48 45^0 is equal to how many radians?

A. π/4

B. π/3

C. π/8

D. π/5

Ans ✔ 1. A

✘ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938815**

Q.49 Convert 45ºC into ºF

A. 138.6ºF

B. 49ºF

C. 113ºF

D. 57ºF

Ans ✘ 1. A

✘ 2. B

✔ 3. C

✘ 4. D

Question ID : **5834938810**

Q.50 Energy Efficiency Ratio (EER) is

A. Net refrigeration effect/total work done

B. Cooling capacity/power consumption

C. Power consumption/cooling capacity

D. Absolute discharge pressure / absolute suction pressure

Ans ✘ 1. A

✔ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938769**

Q.51 What is the cause for water cooler which runs continuously?

A. Outside low temperature

B. Poor insulation

C. Correct charge

D. Less water consumption

Ans ✘ 1. A

✔ 2. B

✘ 3. C

✘ 4. D

Question ID : **5834938804**

Q.52 The thermostatic expansion valve is located in between the

A. Compressor and condenser

B. Condenser and evaporator

C. Evaporator and compressor

D. None

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938773**

Q.53 The pressure gauge on the discharge side of a refrigerant compressor reads too high.
The reason will be

A. Lack of cooling water

B. Shortage of refrigerant

C. Ambient temperature is high

D. None of these

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938774**

Q.54 Reversed carnot cycle consists of the following processes

A. Two isochoric and two isothermal

B. Two isentropic and two isothermal

C. Two polytropic and two isothermal

D. Two isentropic and two isochoric

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938761**

Q.55 CFC based refrigerants are being replaced as they are found to

A. Cause Ozone layer depletion

B. Consume more energy

C. React with several materials of construction

D. Expensive

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938831**

Q.56 The least count of vernier calliper is

A. 0.10mm

B. 0.01mm

C. 0.05mm

D. 0.02mm

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938822**

Q.57 The sub-cooling in a refrigeration cycle

A. Does not alter C.O.P.

B. Maintains constant C.O.P.

C. Increases C.O.P.

D. Decreases C.O.P.

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938764**

Q.58 One Ton of refrigeration is approximately equal to

A. 211kJ/min

B. 50 kcal/min

C. Both A&B

D. 50 kJ/min

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938760**

Q.59 Sling psychrometer indicates

A. Only DBT

B. Only WBT

C. Both DBT & WBT

D. RH

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938784**

Q.60 Hermetic compressor is

A. Reciprocating type

B. Thermodynamically efficient

C. A factory sealed unit containing motor and compressor

D. None of these

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938775**

Q.61 Flash chamber is used for

A. To separate the liquid and vapour

B. Condenses the refrigerant at faster rate

C. Collecting the condensed refrigerant in a chamber

D. All of the above

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938779**

Q.62 Megger is used for measuring

A. Resistance of the insulator

B. Resistance of the conductor

C. Both A&B

D. None of the above

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938757**

Q.63 Thermal diffusivity is:

A. A dimensionless parameter

B. Function of temperature

C. Physical property of a substance

D. None of the above

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938765**

Q.64 The usual color code of the chilled water pipe is:

A. Black
B. Blue
C. Green
D. Red

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938794**

Q.65 Air conditioning means

A. Cooling
B. Heating
C. Dehumidifying
D. All of these

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938783**

Q.66 The heat treatment process done to relieve internal stress and strain is called as ____

A. Annealing
B. Hardening
C. Tempering
D. Normalizing

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938826**

Q.67 Which of the following component is common between vapour compression and vapour absorption systems?

A. Rectifier
B. Condenser
C. Generator
D. Absorber

Ans
✗ 1. A
✓ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938767**

Q.68 The ice is _____ than water

A. Lighter
B. Heavier
C. Same
D. None of these

Ans ✔ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938796**

Q.69 The 'solders', which are soft filler materials, in soldering process shall have melting temperature below _____

A. 450ºC
B. 600ºC
C. 750ºC
D. 900ºC

Ans ✔ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938789**

Q.70 Which one in the following is a scalar quantity?

A. Force
B. Pressure
C. Velocity
D. Acceleration

Ans ✗ 1. A
✔ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938824**

Q.71 Unit of heat in SI system is

A. Calorie
B. Joule
C. Newton
D. Watt

Ans ✗ 1. A
✔ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938807**

Q.72 The diode used for voltage regulation is

A. Rectifier diode

B. Zener diode

C. Signal diode

D. Variable diode

Ans

✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938753**

Q.73 Locus of a point which moves so that the ratio of its distance from a fixed point (called focus) and directrix is constant and greater than 1 is

A. Parabola

B. Ellipse

C. Hyperbola

D. Circle

Ans

✗ 1. A

✗ 2. B

✓ 3. C

✗ 4. D

Question ID : **5834938818**

Q.74 Heat is to be removed at a temperature of -5^0C and rejected at a temperature of 25^0C. What is the Carnot cycle COP?

A. 9.93

B. 8.93

C. 4

D. 6

Ans

✗ 1. A

✓ 2. B

✗ 3. C

✗ 4. D

Question ID : **5834938766**

Q.75 A condenser is sized to reject 12 kW heat at a condensing temperature of 50ºC when the maximum outdoor temperature is 35ºC. What is the rating and what will be the condensing temperature when the outdoor temperature is at 15ºC when the load is reduced to 8 kW?

A. 21.4ºC
B. 48ºC
C. 71.6ºC
D. 25ºC

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938778**

Q.76 The commonly used flux for brazing is

A. Borax
B. Resin
C. NH_4Cl
D. Inert gas

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938787**

Q.77 Which of the following arc welding methods is used for thin sheets as well as in difficult to access positions?

A. Short arc welding
B. Long arc welding
C. Pulsed arc welding
D. Spray arc welding

Ans
✓ 1. A
✗ 2. B
✗ 3. C
✗ 4. D

Question ID : **5834938788**

Q.78 Moisture should be removed from refrigerants to avoid

A. Freezing at the expansion valve

B. Restriction to refrigeration flow

C. Corrosion of lines

D. All of these

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938791**

Q.79 What is the resistance of an electric iron if the rating of it is 220V and 500 W?

A. 2.27 ohms

B. 1136.4 ohms

C. 96.8 ohms

D. 5.165 ohms

Ans
✗ 1. A
✗ 2. B
✓ 3. C
✗ 4. D

Question ID : **5834938755**

Q.80 Hot wire anemometer is used to measure

A. Pressure

B. Volume

C. Temperature

D. Velocity

Ans
✗ 1. A
✗ 2. B
✗ 3. C
✓ 4. D

Question ID : **5834938805**