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# **ISRO Technician-B**

**Previous Year Paper  
(Refrigeration & AC) 03  
Nov 2022**





भारत सरकार :: अंतरिक्ष विभाग  
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|                  |                                                   |
|------------------|---------------------------------------------------|
| Participant ID   |                                                   |
| Participant Name |                                                   |
| Test Center Name |                                                   |
| Test Date        | 03/11/2022                                        |
| Test Time        | 12:00 PM - 1:30 PM                                |
| Subject          | TECHNICIAN B (REFRIGERATION and AC) Post Code 005 |

Section : TECHNICIAN-B (REFRIGERATION and AC) Post Code-005-1

Q.1

Water is flowing through a condenser at the rate of 0.4 kg/s and the temperature of water is reduced from 40°C to15°C. Find the rate of heat being removed from the water? Specific heat of water is 4.2 kJ/kg.K

a) 42.0 kW      b) 104.75 kW      c) 52.38 kW      d) 130.9 kW

Ans 

✓ A. a

✗ B. b

✗ C. c

✗ D. d

Question ID : 1703221395

Status : Not Answered

Chosen Option : --

Q.2

Copper pipes are joined with fittings by

a) Bolting      b) Welding      c) Riveting      d) Flaring

Ans 

✗ A. a

✗ B. b

✗ C. c

✓ D. d

Question ID : 1703221419

Status : Answered

Chosen Option : D

https://cdn.digialm.com/per/g01/pub/1258/touchstone/AssessmentQPHTMLMode1/1258O22415/1258O22415S2D108/16685834557159951/265000...

1/21

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Q.3 Relation between Volume (V) and Temperature (T) of a gas as per the Charle's Law is

- a)  $VT=\text{Constant}$     b)  $V/T=\text{Constant}$     c)  $T-V=\text{Constant}$     d)  $V+T=\text{Constant}$

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221408  
Status : Answered  
Chosen Option : B

Q.4 Which refrigerant is used in Frozen food transportation containers ?

- a) Lithium bromide    b) Ammonia    c) Freon-22    d) Liquid Nitrogen

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221402  
Status : Answered  
Chosen Option : D

Q.5 Swash plate axial compressors are commonly used in \_\_\_\_\_

- a) Window air conditioner    b) Split Air conditioner    c) Car Air conditioner    d) Centralized air conditioner

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221389  
Status : Answered  
Chosen Option : C

Q.6 To extinguish fire due to flammable liquids, which type of extinguishing agent is used?

- a) Foam
- b) Water
- c) Carbon Tetra Chloride
- d) None of the above

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221384

Status : Answered

Chosen Option : D

Q.7 Gasket material used for compressors in refrigeration system is

- a) Cork
- B Lead
- c) Asbestos rubber
- d) All the above

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221404

Status : Answered

Chosen Option : A

Q.8 Air-washers are used for

- a) Cooling & de humidification of air
- b) Humidification of air
- c) Cleaning of the air
- d) All the above

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221413

Status : Answered

Chosen Option : D

Q.9

Material used for fabrication of AC ducts is .....

a) Galvanized Iron

b) Aluminium

c) Fibre Reinforced Plastic

d) All of the above

Ans

X

A. a

X

B. b

X

C. c

✓

D. d

Question ID : 1703221390

Status : Answered

Chosen Option : A

Q.10

Medium used in Feeler bulb of Thermostatic Expansion valve is .....

a) Alcohol

b) R22

c) Mercury

d) Ammonia

Ans

X

A. a

✓

B. b

X

C. c

X

D. d

Question ID : 1703221392

Status : Answered

Chosen Option : B

Q.11

In sensible cooling process the dew point temperature of the air

a) Decreases

b) Increases

c) Remains constant

d) None of the above

Ans

X

A. a

X

B. b

✓

C. c

X

D. d

Question ID : 1703221405

Status : Answered

Chosen Option : A

Q.12 Process of changing solid into vapor state without passing through liquid state is

a) Super heating      b) Sublimation      c) Sub cooling      d) Triple point

- Ans ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221397  
Status : Answered  
Chosen Option : B

Q.13 Type of file used to remove more material is .....

- a) Bastard file      b) Fine grade file      c) Second cut file      d) Smooth file

- Ans ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221387  
Status : Answered  
Chosen Option : A

Q.14 Which one of the following is not used as a fuel in Gas welding?

- a) Acetylene      b) Hydrogen      c) Oxygen      d) LPG

- Ans ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221401  
Status : Answered  
Chosen Option : B

Q.15

Refrigerant cylinder color code for Refrigerant R-11 is .....

- a) Purple
- b) Pink
- c) Orange
- d) Blue

- Ans 

✖

A. a
- ✖

B. b
- ✔

C. c
- ✖

D. d

Question ID : 1703221411

Status : Answered

Chosen Option : A

Q.16

Type of Air filters used for clean room application \_\_\_\_\_

- a) HEPA filters
- b) Electronic filters
- c) Charcoal filters
- d) Screen filters

- Ans 

✔

A. a
- ✖

B. b
- ✖

C. c
- ✖

D. d

Question ID : 1703221412

Status : Answered

Chosen Option : A

Q.17

In frost free refrigerator, defrosting is done by.....

- a) Closing the throttle valve
- b) Heating the Refrigerant
- c) Disconnecting Power supply
- d) Heating of evaporator

- Ans 

✖

A. a
- ✖

B. b
- ✖

C. c
- ✔

D. d

Question ID : 1703221417

Status : Answered

Chosen Option : D

Q.18 Amount of heat required to raise the temperature of unit mass of substance by unit temperature is called as \_\_\_\_\_

a) Sensible Heat      b) Latent heat      c) Specific Heat      d) Total heat

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221399  
Status : Answered  
Chosen Option : C

Q.19 Type of Condenser used in modern refrigerator is .....

a) Wire mesh      b) Plate      c) Body Condenser      d) None of the above

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221391  
Status : Answered  
Chosen Option : C

Q.20 Psychrometry is the study of .....

a) Physical & Thermodynamic properties of mixtures of air & Water vapour  
b) Physical & chemical properties of mixtures of air  
c) Chemical & Electrical properties of mixtures of air & Water vapour  
d) Chemical & Thermodynamic properties of mixtures of air

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221420  
Status : Answered  
Chosen Option : A

Q.21 Type of weld used to join two overlapping plates which are having cut outs

a) Bead weld      b) Butt Weld      c) Plug or Slot Weld      d) Groove Weld

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221409  
Status : Answered  
Chosen Option : B

Q.22 Which of the following is not a type of compressor?

a)Reciprocating      b) Rotary      c) Lateral      d) Screw

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221416  
Status : Answered  
Chosen Option : C

Q.23 The door gasket of a refrigerator is usually made of

a) Aluminium sheet      b) Linen      c) Rubber      d) Foam

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221415  
Status : Answered  
Chosen Option : C

Q.24 Which of the following insulator having least Thermal conductivity ?

a) Polyurethane    b) Cork                      c) Foam concrete    d) Thermocole

- Ans    ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221418

Status : Answered

Chosen Option : A

Q.25 Solenoid valve is operated by.....

- a) Electricity    b) hand                      c) Gas pressure    d) Oil pressure

- Ans    ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221407

Status : Answered

Chosen Option : A

Q.26 The gauge pressure of a refrigerant cylinder shows 12.835 bar. What is the absolute pressure?

- a) 11.822 bar    b) 13.848 bar    c) 11.522 bar    d)14.128 bar

- Ans    ☒ A. a
- ☒ B. b
- ☒ C. c
- ☒ D. d

Question ID : 1703221381

Status : Answered

Chosen Option : B

Q.27

Type of expansion valve used in Walk-in coolers is

a) Capillary tube

b) Electronic expansion valve

c) Manual valve

d)Thermostatic Expansion valve

Ans

✗

A. a

✗

B. b

✗

C. c

✓

D. d

Question ID : 1703221406

Status : Answered

Chosen Option : D

Q.28

Which of the following is not mode of heat transfer?

a) Conduction

b) Convection

c) Refraction

d) Radiation

Ans

✗

A. a

✗

B. b

✓

C. c

✗

D. d

Question ID : 1703221398

Status : Answered

Chosen Option : C

Q.29

In a vapor compression cycle, the state of the refrigerant immediately after expansion valve is

a) Super heated Vapour

b) Sub cooled liquid

c) Saturated liquid

d) Wet Vapor

Ans

✗

A. a

✗

B. b

✗

C. c

✓

D. d

Question ID : 1703221394

Status : Answered

Chosen Option : D

Q.30 In AC duct drawing, following symbol is used to indicate



- a) Exhaust air duct

b) Supply air duct- direction away from the reader
- c) Return air duct

d) Supply air duct- direction towards the reader

Ans 

✗

A. a

✗

B. b

✗

C. c

✓

D. d

Question ID : 1703221403

Status : Not Answered

Chosen Option : --

Q.31 What is the mass of air contained in a room of dimensions 6m x 8m x 3m? The specific volume of air is 0.83 m³/kg

- a) 144.8 kg
- b) 119.52 kg
- c) 173.49 kg
- d) 168.5 kg

Ans 

✗

A. a

✗

B. b

✓

C. c

✗

D. d

Question ID : 1703221383

Status : Answered

Chosen Option : A

Q.32 Convert -40° Celsius into Fahrenheit

- a) -40°F
- b) -72°F
- c) -8°F
- d) 233°F

Ans 

✓

A. a

✗

B. b

✗

C. c

✗

D. d

Question ID : 1703221382

Status : Answered

Chosen Option : A

Q.33

What is ODP ?

a) Ozone Depletion Potential

b) Ozone Development Project

c) Ozone draining programme

d) Ozone detecting plan

Ans

✓ A. a

✗ B. b

✗ C. c

✗ D. d

Question ID : 1703221410

Status : Answered

Chosen Option : A

Q.34

The heat which changes the state of the substance without changing the temperature is called as .....

a) Latent heat

b) Total heat

c) Sensible heat

d) Specific heat

Ans

✓ A. a

✗ B. b

✗ C. c

✗ D. d

Question ID : 1703221385

Status : Answered

Chosen Option : A

Q.35

Specified temperature at which lubricating oil ceases to flow is known as .....

a) Pour point

b) Flash point

c) melting point

d) Freezing point

Ans

✓ A. a

✗ B. b

✗ C. c

✗ D. d

Question ID : 1703221386

Status : Answered

Chosen Option : B

Q.36

..... is Ozone friendly refrigerant.

- a) R-11
- b) R-134a
- c) R-12
- d) R-22

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221400

Status : Answered

Chosen Option : B

Q.37

“MEGGER” instrument is used to measure

- a) High Current
- b) Insulation Resistance
- c)Low Capacitance
- d) Low inductance

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221393

Status : Answered

Chosen Option : B

Q.38

Capacity of water cooler is expressed in .....

- a) Ton of Refrigeration(TR)
- b)Litres /hour
- c) BTU
- d) Watts

Ans ☒ A. a  
☒ B. b  
☒ C. c  
☒ D. d

Question ID : 1703221414

Status : Answered

Chosen Option : B

Q.39 In which component of Vapour compression refrigeration system, the refrigerant is cooled without changing the pressure

a) Evaporator   b) Compressor   c) Throttle Valve   d) Condenser

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221396

Status : Answered

Chosen Option : D

Q.40 In a Chisel, the angle between the top face of the cutting point and normal to the work surface at the cutting edge is known as.....

a) Clearance angle   b) Angle of inclination   c) Rake angle   d) None of the above

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221388

Status : Answered

Chosen Option : A

Section : TECHNICIAN-B (REFRIGERATION and AC) Post Code-005-2

Q.1 One atmospheric pressure is equivalent to

a) 76 cm of Hg   b) 56 cm Hg   c) 60 cm of Hg   d) 70 cm of Hg

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221437

Status : Answered

Chosen Option : A

Q.2

$a^m \times a^n = ?$

a)  $a^{mn}$       b)  $a^{m-n}$       c)  $a^{m/n}$       d)  $a^{m+n}$

Ans

✖ A. a

✖ B. b

✖ C. c

✔ D. d

Question ID : 1703221423

Status : Answered

Chosen Option : D

Q.3

Add the following term  $9a^3 + 8b^3 - c^3 + a^3 - 4b^3 + 3$  and find out the co-efficient of  $c^3$

a) -1      b) 1      c) 10      d) 3

Ans

✔ A. a

✖ B. b

✖ C. c

✖ D. d

Question ID : 1703221422

Status : Not Answered

Chosen Option : --

Q.4

If the side of a square is 'x' then the ratio between the area of a square to perimeter of a square is

a)  $x/4$       b)  $4x$       c) 4      d)  $x^2$

Ans

✔ A. a

✖ B. b

✖ C. c

✖ D. d

Question ID : 1703221426

Status : Answered

Chosen Option : A

Q.5

The cost price of a bike is Rs 25000 and a dealer gets 6% profit over the cost price of the bike. Find out the selling price of the bike

a)Rs 28000      b) Rs 23500      c) Rs27000      d) Rs 26500

Ans

✗

A. a

✗

B. b

✗

C. c

✓

D. d

Question ID : 1703221421

Status : Answered

Chosen Option : D

Q.6

The length of a rectangle is twice of its width. If the perimeter of the rectangle is 60 cm. Find its area in cm<sup>2</sup>?

a) 100      b) 200      c) 150      d) 300

Ans

✗

A. a

✓

B. b

✗

C. c

✗

D. d

Question ID : 1703221429

Status : Answered

Chosen Option : D

Q.7

The unit of momentum is .....

a) kg.m/s      b) N.m/s      c) kg.m/s<sup>2</sup>      d) N.m/s<sup>2</sup>

Ans

✓

A. a

✗

B. b

✗

C. c

✗

D. d

Question ID : 1703221432

Status : Not Answered

Chosen Option : --

Q.8

Find the area of an ellipse, if the major and minor axis of an ellipse is 10 cm and 6 cm respectively?

a)  $4\pi$                       b)  $16\pi$                       c)  $60\pi$                       d)  $15\pi$

Ans 

✗

A. a

✗

B. b

✗

C. c

✓

D. d

Question ID : 1703221428

Status : Not Answered

Chosen Option : --

Q.9

Which of the following satisfies the stable equilibrium condition?

a) Cone resting on its tip on a horizontal flat surface

b) a ball on a horizontal flat surface

c) Cone resting on its base on a horizontal flat surface

d) A ball on convex surface

Ans 

✗

A. a

✗

B. b

✓

C. c

✗

D. d

Question ID : 1703221439

Status : Answered

Chosen Option : B

Q.10

Which of the following is prime Number?

a) 20                      b) 17                      c) 4                      d) 10

Ans 

✗

A. a

✓

B. b

✗

C. c

✗

D. d

Question ID : 1703221430

Status : Answered

Chosen Option : B

Q.11

If a bus covers a distance of 60 meters in 5 second, then its average speed is?  
a) 60.8 km/h      b) 36 km/h      c) 32.4 km/h      d) 43.2 km/h

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221440  
Status : Not Answered  
Chosen Option : --

Q.12

A body is said to be in equilibrium if the resultant of all the forces & moments acting on a body is  
a) Less than zero                      b) zero  
c) More than one                      d) one

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221435  
Status : Answered  
Chosen Option : B

Q.13

The value of sin  $\Theta$  is maximum when,  $\Theta$  is equal to  
a) 0°                      b) 30°                      c) 90°                      d) 45°

- Ans
- ☒ A. a
  - ☒ B. b
  - ☒ C. c
  - ☒ D. d

Question ID : 1703221425  
Status : Not Answered  
Chosen Option : --

Q.14      The property of a metal by which it can be drawn out into wire is known as

a) Ductility

b) Malleability

c) Brittleness

d) Toughness

Ans    ☒ A. a

☐ B. b

☐ C. c

☐ D. d

Question ID : 1703221431

Status : Answered

Chosen Option : A

Q.15      The direction of dynamically induced Electro Motive Force can be shown by

a) Boyle's Law

b) Charles Law

c) Fleming's right hand rule

d) Hooke's law

Ans    ☐ A. a

☐ B. b

☒ C. c

☐ D. d

Question ID : 1703221438

Status : Answered

Chosen Option : C

Q.16      The peripheral speed of a car wheel of diameter 300 mm rotating at the speed of 60 RPM, is

a)  $30 \pi \text{ m/s}$

b)  $0.3\pi \text{ m/s}$

c)  $0.6 \pi \text{ m/s}$

d)  $60 \pi \text{ m/s}$

Ans    ☐ A. a

☒ B. b

☐ C. c

☐ D. d

Question ID : 1703221433

Status : Not Answered

Chosen Option : --

Q.17

Covert  $\pi/4$  radian into degree

a)90                      b) 45                      c) 180                      d) 120

Ans

A. a

B. b

C. c

D. d

Question ID : 1703221424

Status : Answered

Chosen Option : B

Q.18

Nitriding is a process of

a) Tempering                      b) Annealing

c) Quenching                      d) Case hardening

Ans

A. a

B. b

C. c

D. d

Question ID : 1703221436

Status : Answered

Chosen Option : B

Q.19

James can finish a piece of work in 10 days, Akash in 12 days and Prasad in15 days. How many days will they take to finish the work, if all of them work together?

a)5                      b) 4                      c) 6                      d) 8

Ans

A. a

B. b

C. c

D. d

Question ID : 1703221427

Status : Not Answered

Chosen Option : --

Q.20

The microstructure and physical property of the material can be altered by

a) Milling

b) Heat treating

c) Grinding

d) Turning

- Ans
- ✖

A. a

✔

B. b

✖

C. c

✖

D. d

Question ID : 1703221434

Status : Answered

Chosen Option : B