

Telangana State Council Higher Education

Notations :

1.Options shown in **green** color and with  icon are correct.

2.Options shown in **red** color and with  icon are incorrect.

Question Paper Name :	Nanotechnology 1st June 2023 Shift 2
Subject Name :	Nanotechnology
Creation Date :	2023-06-01 16:55:57
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Nanotechnology

Group Number :	1
Group Id :	28393675
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Nanotechnology

Section Id :	283936199
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	120
Number of Questions to be attempted :	120
Section Marks :	120
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

Sub-Section Number : 1
Sub-Section Id : 283936199
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 1 Question Id : 28393610361 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two bars having different materials but of same area and length are subjected to same tensile force. If the bars have their axial elongation in the ratio of 4:6, then the two material's ratio of Modulus of Elasticity is _____.

Options :

1. ✓ 6 : 4
2. ✗ 4 : 6
3. ✗ $2 : \sqrt{6}$
4. ✗ $\sqrt{6} : 2$

Question Number : 2 Question Id : 28393610362 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A metal bar of 10 mm diameter when subjected to a pull of 23.5 kN gave an elongation of 0.3mm on a gauge length of 200 mm. The metal's Young's modulus of elasticity is _____.

Options :

- 1.

✘ 500 kN/mm²

2. ✘ 300 kN/mm²

3. ✘ 360 kN/mm²

4. ✔ 200 kN/mm²

Question Number : 3 Question Id : 28393610363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If in a crystal there exists a point defect of the interstitial atom and if solute atom is smaller than the solvent atom, then select the true statement for the edge dislocation.

Options :

1. ✘ Dislocation will always attract to interstitial atom

2. ✘ Compression side of edge dislocation will repeal and will be attracted to the tension side

3. ✔ Compression side of edge dislocation will attract and will be repealed to the tension side

4. ✘ Dislocation will always repeal to interstitial atom

Question Number : 4 Question Id : 28393610364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is the metallic tiny whisker?

Options :

1. ✖ Bulk metallic glass
2. ✖ Single crystal with high dislocation
3. ✖ Metal foam
4. ✔ Tiny projection of the metals with zero dislocation

**Question Number : 5 Question Id : 28393610365 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

Select the following false statement for strain-relief crystallization.

Options :

1. ✔ Interaction of like signed dislocation
2. ✖ Decrease in the electric resistance
3. ✖ Increase in density
4. ✖ Dislocation climb

**Question Number : 6 Question Id : 28393610366 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0**

Correct Marks : 1 Wrong Marks : 0

When a material is plastically deformed at low temperature (around 25 degrees) relative to the melting temperature, the following change is not observed in _____.

Options :

1. ✖ Change in grain shape
2. ✖ Strain hardening
3. ✖ Increase in dislocation density
4. ✔ Decrease in dislocation density

Question Number : 7 Question Id : 28393610367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Classification of Composites can be based on _____.

Options :

1. ✖ Matrix type
2. ✔ Matrix type & Reinforcement constituent
3. ✖ Reinforcement constituent
4. ✖ Neither on matrix type nor on reinforcement constituent type

Question Number : 8 Question Id : 28393610368 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is an example for Carbon fiber?

Options :

1. ✓ Reinforcement
2. ✗ Filler
3. ✗ Stabilizer
4. ✗ Flame retardant

Question Number : 9 Question Id : 28393610369 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following polymer additive is used to remove parts from molds?

Options :

1. ✗ Plasticizers
2. ✗ Stabilizers
3. ✓ Lubricants
4. ✗ Reinforcements

Question Number : 10 Question Id : 28393610370 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is not a characteristic trait of polymer materials.

Options :

1. ✖ Low density
2. ✖ Resistant to chemical attack
3. ✔ High strength
4. ✖ Low cost

Question Number : 11 Question Id : 28393610371 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The smallest portion of the crystal lattice is _____.

Options :

1. ✔ Unit cell
2. ✖ Miller indices
3. ✖ Lattice point
4. ✖ Crystal

Question Number : 12 Question Id : 28393610372 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is Packing fraction of a simple cubic structure?

Options :

1. ✖ 0.681

2. ✖ 0.745

3. ✖ 0.813

4. ✔ 0.524

Question Number : 13 Question Id : 28393610373 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Burgers vector of edge dislocation is ----- to the dislocation line.

Options :

1. ✖ 30°

2. ✔ 90°

3. ✖ 55°

4. ✖ 70°

Question Number : 14 Question Id : 28393610374 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of lateral strain to linear strain is _____

Options :

1. ✖ Bulk Modulus
2. ✖ Modulus of Elasticity
3. ✖ Modulus of Rigidity
4. ✔ Poisson's Ratio

Question Number : 15 Question Id : 28393610375 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Capacity of a material to absorb energy prior to failure is

Options :

1. ✖ Hardness
2. ✖ Stiffness
3. ✔ Toughness

4. ✖ Strength

Question Number : 16 Question Id : 28393610376 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ structure has amorphous solids.

Options :

- 1. ✖ Regular
- 2. ✔ Irregular
- 3. ✖ Linear
- 4. ✖ Dendritic

Question Number : 17 Question Id : 28393610377 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Each point (position of particle) in a crystal lattice is termed as _____.

Options :

- 1. ✖ Lattice point
- 2. ✖ Lattice lines
- 3. ✔ Lattice index

4. ✖ Lattice spot

Question Number : 18 Question Id : 28393610378 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a metal forms a FCC lattice with unit edge length of 500 pm and atomic mass of 110.
Calculate the density of the metal.

Options :

1. ✔ 5846 kg/m³
2. ✖ 2923 kg/m³
3. ✖ 8768 kg/m³
4. ✖ 1750 kg/m³

Question Number : 19 Question Id : 28393610379 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the advantage of using conducting polymers in place of metals?

Options :

1. ✖ Cost
2. ✖ Thermal conductivity

3. ✓ Light-weight

4. ✗ Solubility

Question Number : 20 Question Id : 28393610380 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the average maximum temperature used for engineering ceramics?

Options :

1. ✗ 2860°C

2. ✗ 6815°C

3. ✓ 2760°C

4. ✗ 3400°C

Question Number : 21 Question Id : 28393610381 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Example for a thermoplastic is _____.

Options :

1. ✗ Melamine

2. ✓ Acetal

3. ✗ Epoxide

4. ✗ Urethane

Question Number : 22 Question Id : 28393610382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

QD lasers have a very low threshold current densities ranging from _____.

Options :

1. ✗ 0.5 to 5 A cm⁻²

2. ✗ 2 to 10 A cm⁻²

3. ✗ 10 to 30 A cm⁻²

4. ✓ 6 to 20 A cm⁻²

Question Number : 23 Question Id : 28393610383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Buried hetero-junction (BH) device is a type of _____, where the active volume is buried in a material of wider band-gap and lower refractive index.

Options :

1. ✖ Gas lasers
2. ✔ Strong index guiding lasers
3. ✖ Gain guided lasers
4. ✖ Weak index guiding lasers

Question Number : 24 Question Id : 28393610384 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following have anisotropic nature within their structure?

Options :

1. ✔ Snowflakes
2. ✖ Hair wax
3. ✖ Polythene
4. ✖ Crystal glass

Question Number : 25 Question Id : 28393610385 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is a phenomenon, where the magnetic lines of force cannot penetrate the body of a superconductor.

Options :

1. ✖ Isotopic effect
2. ✖ BCS theory
3. ✖ London theory
4. ✔ Meissner effect

Question Number : 26 Question Id : 28393610386 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the periodic table, number of metallic elements is _____.

Options :

1. ✔ 95
2. ✖ 118
3. ✖ 125
4. ✖ 145

Question Number : 27 Question Id : 28393610387 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which property of metal is used for making strings of musical instruments like Sitar and Violin.

Options :

1. ✘ Malleability
2. ✘ Ductility
3. ✔ Sonorousness
4. ✘ Conductivity

Question Number : 28 Question Id : 28393610388 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ metal is used for nuclear energy.

Options :

1. ✘ Zirconium
2. ✘ Lanthanum
3. ✔ Uranium
4. ✘ Tungsten

Question Number : 29 Question Id : 28393610389 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

From the following, forbidden energy gap of dielectrics is _____.

Options :

1. ✖ Equal to 1.2 eV
2. ✔ Greater than or equal to 3 eV
3. ✖ Less than 1.2 eV
4. ✖ Equal to 2 eV

Question Number : 30 Question Id : 28393610390 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The torque induced on a dipole when placed in an electric field E is _____.

Options :

1. ✖ $E \sin \theta$
2. ✖ $E \cos \theta$
3. ✖ $pE \cos \theta$
4. ✔ $pE \sin \theta$

Question Number : 31 Question Id : 28393610391 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of 1 Debye in cm is _____.

Options :

1. ✓ $3.33 \times 10^{-30} \text{ cm}$

2. ✗ $3.33 \times 10^{-28} \text{ cm}$

3. ✗ $3.33 \times 10^{-32} \text{ cm}$

4. ✗ $3.33 \times 10^{-34} \text{ cm}$

Question Number : 32 Question Id : 28393610392 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a water drop of radius 1 mm all the molecular dipole points are in the same direction. If the dipole moment of a water molecule is $6 \times 10^{-30} \text{ m}$, what is the polarization in the water drop?

Options :

1. ✗ $6.4 \times 10^{-13} \text{ m}^{-2}$

2. ✗ $7.4 \times 10^{-13} \text{ m}^{-2}$

3. ✗ $9.4 \times 10^{-13} \text{ m}^{-2}$

4. ✓ $8.4 \times 10^{-13} \text{ m}^{-2}$

Question Number : 33 Question Id : 28393610393 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the formula, $P = \chi_e E$, χ_e is called as _____.

Options :

1. ✗ Electric constant
2. ✗ Polarizing constant
3. ✓ Electric susceptibility
4. ✗ Polarizing susceptibility

Question Number : 34 Question Id : 28393610394 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Ferroelectric materials, Polarization is _____

Options :

1. ✓ Reversible
2. ✗ Permanent
3. ✗ Spiked

4. ✖ Linear

Question Number : 35 Question Id : 28393610395 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The temperature characteristic of ferroelectric crystal is called _____

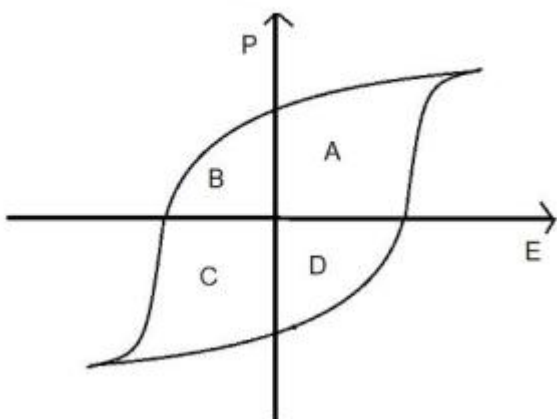
Options :

1. ✖ Crystal Temperature
2. ✔ Transition Temperature
3. ✖ Ferro Temperature
4. ✖ Weiss Temperature

Question Number : 36 Question Id : 28393610396 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ part of the curve shows Spontaneous Polarization.



Options :

1. ✖ B

2. ✖ C

3. ✖ D

4. ✔ A

Question Number : 37 Question Id : 28393610397 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is the symmetry of BaTiO_3 in ferroelectric form.

Options :

1. ✔ Tetragonal

2. ✖ Cubic

3. ✖ Trigonal Bi-pyramidal

4. ✖ Octahedron

Question Number : 38 Question Id : 28393610398 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum amount of current passed through the body of superconductor in order to destroy the superconductivity is called _____.

Options :

1. ✓ Critical current
2. ✗ Induced current
3. ✗ Eddy current
4. ✗ Hall current

Question Number : 39 Question Id : 28393610399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solid that offers no _____ for the passage of electricity is called superconductors.

Options :

1. ✗ Conductance
2. ✗ Inductance
3. ✗ Impedance
4. ✓ Resistance

Question Number : 40 Question Id : 28393610400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The shifting of electrons in superconductors is prevented by _____.

Options :

1. ✖ Threshold energy level
2. ✖ Energy barrier
3. ✖ Orbitals
4. ✔ Quantum effect

Question Number : 41 Question Id : 28393610401 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An ideal superconductor exhibit _____.

Options :

1. ✖ Mesmeric effect
2. ✖ Mesomeric effect
3. ✔ Meissner effect
4. ✖ Monomeric effect

Question Number : 42 Question Id : 28393610402 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Preparation of superconductors by ceramic method with homogeneous mixture of the oxides in their molar ratios _____.

Options :

1. ✖ $\text{Y}_2\text{O}_3, \text{BaCO}_3, \text{Cu}_2\text{O}$
2. ✔ $\text{Y}_2\text{O}_3, \text{BaCO}_3, \text{CuO}$
3. ✖ $\text{Y}_2\text{O}_4, \text{BaCO}_3, \text{CuO}$
4. ✖ $\text{YO}_3, \text{BaCO}_3, \text{CuO}$

Question Number : 43 Question Id : 28393610403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is relation between transition temperature (T_c) and isotopic mass (M)?

Options :

1. ✖ $T_c \propto M^{1/2}$
2. ✖ $T_c \propto M^{-1}$
3. ✖ $T_c \propto M$
4. ✔ $T_c \propto M^{-1/2}$

Question Number : 44 Question Id : 28393610404 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
 : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The sequence of the colour change during the polymerisation of polyaniline, is _____.

Options :

1. ✓ Light blue >> blue green >> copper tint >> green
2. ✗ Green >> copper tint >> blue green >> light blue
3. ✗ Copper tint >> blue green >> green >> light blue
4. ✗ Blue green >> green >> light blue >> copper tint

Question Number : 45 Question Id : 28393610405 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
 : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Conductivity of a material is defined as _____.

Options :

1. ✗ $\frac{R.A}{l}$

2. ✗ $\frac{E}{J}$

3. ✓ $\frac{l}{R.A}$

4. ✖ $\frac{B}{H}$

Question Number : 46 Question Id : 28393610406 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The materials insulating capacity against high voltages is called as _____.

Options :

1. ✖ Thermoelectricity
2. ✖ Electromechanical effect
3. ✖ Electrochemical effect
4. ✔ Dielectric strength

Question Number : 47 Question Id : 28393610407 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The nature of the coefficient of resistance of an insulator is _____.

Options :

1. ✖ Positive
2. ✔ Infinite

3. ✖ Negative

4. ✖ Zero

Question Number : 48 Question Id : 28393610408 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one is the most commonly used for making magnetic recording tape?

Options :

1. ✖ Silver nitrate

2. ✖ Small particles of iron

3. ✖ Silicon-iron

4. ✔ Ferric oxide

Question Number : 49 Question Id : 28393610409 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Example of piezoelectric material is _____.

Options :

1. ✔ Quartz

2. ✖ Glass

3. ✖ Corundum

4. ✖ Neoprene

Question Number : 50 Question Id : 28393610410 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is the correct classification of the conducting materials?

Options :

- 1. ✖ low resistivity, low conductivity
- 2. ✖ high resistivity, high conductivity
- 3. ✖ medium resistivity, medium conductivity
- 4. ✔ low resistivity, high conductivity

Question Number : 51 Question Id : 28393610411 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

With increase in temperature, the electrical conductivity of intrinsic semiconductor _____.

Options :

- 1. ✖ Decreases

2. ✓ Increases

3. ✗ Remains same

4. ✗ First increases then decrease

Question Number : 52 Question Id : 28393610412 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the net charge on n-type material?

Options :

1. ✗ Positive

2. ✓ Neutral

3. ✗ Negative

4. ✗ Both positive and negative

Question Number : 53 Question Id : 28393610413 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The _____ statement is true for a dielectric

Options :

1. ✗ Dielectrics are superconductors at high temperature

- 2. ✖ They cannot become superconductors
- 3. ✖ They have very less breakdown voltage
- 4. ✔ Dielectrics are superconductors at low temperature

Question Number : 54 Question Id : 28393610414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A material with one dimension in Nano range and the other two dimensions are large is known as

Options :

- 1. ✖ Micro-material
- 2. ✖ Quantum wire
- 3. ✖ Quantum dot
- 4. ✔ Quantum well

Question Number : 55 Question Id : 28393610415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Product design belongs to_____.

Options :

1. ✖ Bottom-up approach
2. ✔ Top-down approach
3. ✖ Top-down followed by Bottom-up
4. ✖ Bottom-up approach followed by Top-down

Question Number : 56 Question Id : 28393610416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A special case of non-inverting amplifier in which all of the output voltage is feedback to the inverting input of the op-amp is known as _____.

Options :

1. ✖ Differentiator
2. ✖ Integrator
3. ✔ Voltage Follower
4. ✖ Logarithmic Amplifier

Question Number : 57 Question Id : 28393610417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ effects are exhibited by Schmitt trigger.

Options :

1. ✖ Hall
2. ✔ Hysteresis
3. ✖ Accelerator
4. ✖ Illumination

Question Number : 58 Question Id : 28393610418 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Frequency response improves with _____ in an RC coupled amplifier.

Options :

1. ✖ Lower R_1
2. ✖ Less Gain
3. ✖ More Dias
4. ✔ Higher C_C

Question Number : 59 Question Id : 28393610419 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____transistor array is essential in construction of a mirror circuit where the formation of diode takes place by an adjacent transistor.

Options :

1. ✖ CA3081

2. ✖ CA3046

3. ✖ CA3083

4. ✔ CA3086

Question Number : 60 Question Id : 28393610420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An increase in operating frequency also increases _____ between input and output and decreases _____ for a compensating network of an amplifier.

Options :

1. ✖ Phase shift & break frequency

2. ✖ Magnitude (gain) & Phase shift

3. ✖ Break frequency & Phase shift

4. ✔ Phase shift & magnitude (gain)

Question Number : 61 Question Id : 28393610421 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ transistor is connected in parallel with feedback capacitor for termination of each ramp at a prescribed level in a Voltage Controlled Sawtooth Oscillator (VCO).

Options :

1. ✖ BJT
2. ✔ PUT
3. ✖ FET
4. ✖ MOSFET

Question Number : 62 Question Id : 28393610422 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The below stated condition applicable for Non-inverting amplifier is _____.

- A. Output voltage is greater than input voltage
- B. Output voltage is lesser than input voltage
- C. Output voltage is in phase with an input signal
- D. Output voltage is out of phase w.r.t. input by 180°

Options :

1. ✖ A & D
2. ✖ B & C

3. ✖ B & D

4. ✔ A & C

Question Number : 63 Question Id : 28393610423 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Choose a correct order from the following steps to be done in one of the algorithm of divide and conquer method

- i) Store the signal column wise
- ii) Compute the M-point DFT of each row
- iii) Multiply the resulting array by the phase factors W_N^{lq} .
- iv) Compute the L-point DFT of each column.
- v) Read the result array row wise.

Options :

1. ✖ i – ii – iv – iii – v

2. ✖ i – iii – ii – iv – v

3. ✔ i – ii – iii – iv – v

4. ✖ i – iv – iii – ii – v

Question Number : 64 Question Id : 28393610424 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The photoresist layer is exposed to _____ in CMOS fabrication

Options :

1. ✓ Ultra Violet Light

2. ✗ Visible Light

3. ✗ Infrared Light

4. ✗ Fluorescent

Question Number : 65 Question Id : 28393610425 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is sputtered on the whole wafer?

Options :

1. ✗ Silicon

2. ✓ Aluminium

3. ✗ Silica

4. ✗ Potassium

Question Number : 66 Question Id : 28393610426 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Boolean equation $Y = \bar{A}BC + \bar{A}\bar{B}C + A\bar{B}\bar{C} + A\bar{B}C$ is to be implemented using only two input NAND gates. The minimum number of gates required is

Options :

1. ✖ 3

2. ✖ 6

3. ✖ 5

4. ✔ 4

Question Number : 67 Question Id : 28393610427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A thermoelectric refrigerator works on the principle of

Options :

1. ✖ Jules Effect

2. ✖ Seebeck Effect

3. ✖ Vernier Effect

4. ✔ Peltier Effect

Question Number : 68 Question Id : 28393610428 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a bipolar junction transistor, the current gain β _____

Options :

1. ✓ increases with the increase in temperature
2. ✗ increases exponentially with the increase in temperature
3. ✗ decreases with the increase in temperature
4. ✗ does not change with the change in temperature

Question Number : 69 Question Id : 28393610429 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of depletion layers in a transistor is _____.

Options :

1. ✗ One
2. ✗ Three
3. ✗ Four
4. ✓ Two

Question Number : 70 Question Id : 28393610430 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following are the functions of a transistor _____.

Options :

1. ✖ Rectifier and a fixed resistor
2. ✔ Variable resistor and switching device
3. ✖ Switching device and a fixed resistor
4. ✖ Tuning device and rectifier

Question Number : 71 Question Id : 28393610431 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A BJT with $\beta = 50$ has a base to collector leakage current I_{CBO} of $2.5 \mu A$. If the transistor is connected in CE configuration, the collector current for $I_B = 0$ is

Options :

1. ✖ $0.05 \mu A$
2. ✖ $0.157 mA$
3. ✔ $0.1275 mA$

4. ✖ 0.516 mA

Question Number : 72 Question Id : 28393610432 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is true with regard to the cut off region of npn BJT?

Options :

1. ✔ $V_B < V_E$

2. ✖ $V_B > V_E$

3. ✖ $V_B = V_E$

4. ✖ $V_B > V_C$

Question Number : 73 Question Id : 28393610433 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Binary ladder network is better than resistive divider for D/A conversion,
because _____.

Options :

1. ✔ It requires resistor having two values only

2. ✖ It requires lesser number of resistors

3. ✖ It is cheaper

4. ✖ It gives better accuracy

Question Number : 74 Question Id : 28393610434 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a binary ladder (R-2R), D/A converter, the input resistance for each input is

Options :

1. ✖ 4R

2. ✔ 3R

3. ✖ 2R

4. ✖ R

Question Number : 75 Question Id : 28393610435 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A/D converter which does not use D/A converter is

Options :

1. ✖ Continuous null balance A/D converter

2.

✓ Dual slope integrator A/D converter

3. ✗ Staircase ramp A/D converter

4. ✗ Successive approximation A/D converter

Question Number : 76 Question Id : 28393610436 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is the main disadvantage of a dual slope integrator A/D converter

Options :

1. ✗ High cost

2. ✗ Low sensitivity

3. ✗ Temperature immunity

4. ✓ Slow conversion time

Question Number : 77 Question Id : 28393610437 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The gate voltage in a JFET at which drain current becomes zero is called _____.

Options :

1. ✗ Saturation voltage

2. ✖ Active voltage

3. ✔ Pinch-off voltage

4. ✖ Cut-off voltage

Question Number : 78 Question Id : 28393610438 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

JFET is a _____ device.

Options :

1. ✖ Tripolar

2. ✖ Antipolar

3. ✖ Bipolar

4. ✔ Unipolar

Question Number : 79 Question Id : 28393610439 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Junction Field Effect Transistor is a _____ controlled device

Options :

1. ✓ Voltage
2. ✗ Current
3. ✗ Resistance
4. ✗ Conductance

Question Number : 80 Question Id : 28393610440 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In FET, the np region exists between source and gate is _____.

Options :

1. ✗ forward biased
2. ✗ forward or reverse biased
3. ✓ reverse biased
4. ✗ unbiased

Question Number : 81 Question Id : 28393610441 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The wave-particle duality of light is defined as _____

Options :

1. ✖ a wave only
2. ✖ a particle only
3. ✔ both a wave and a particle
4. ✖ neither a wave nor a particle

Question Number : 82 Question Id : 28393610442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Uncertainty principle is easily understood with the help of _____

Options :

1. ✖ Dalton's effect
2. ✖ Electron effect
3. ✖ Rhombic effect
4. ✔ Compton's effect

Question Number : 83 Question Id : 28393610443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ subject deals with Quantum mechanics.

Options :

1. ✖ Mechanics
2. ✖ Electronics
3. ✔ Physics
4. ✖ Chemistry

Question Number : 84 Question Id : 28393610444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Schrodinger wave equation the time domain can be _____.

Options :

1. ✖ Dependent
2. ✖ Independent
3. ✖ Zero
4. ✔ Dependent and Independent

Question Number : 85 Question Id : 28393610445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The transmission depending on tunnel effect is that of a plane wave through a _____.

Options :

1. ✖ Circular Barrier
2. ✖ Opaque Object
3. ✖ Infinitely small barrier
4. ✔ Rectangular Barrier

Question Number : 86 Question Id : 28393610446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The central force motion is based on _____

Options :

1. ✔ the force is always directed towards fixed point
2. ✖ the force is not directed towards centre
3. ✖ the force on particle does not depend on distance from centre
4. ✖ the force is tangential to path always

Question Number : 87 Question Id : 28393610447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two particles A and B, initially at rest, move towards each other under mutual force of attraction. At the instant when the speed of A is v and the speed of B is $2v$, the speed of mass of the system is _____.

Options :

1. ✖ v
2. ✖ $1.5v$
3. ✖ $3v$
4. ✔ Zero

Question Number : 88 Question Id : 28393610448 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ Laws governs mechanical waves.

Options :

1. ✖ Faraday's
2. ✔ Newton's
3. ✖ Hertz'
4. ✖ Planck's

Question Number : 89 Question Id : 28393610449 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
 : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The wave function of the particle lies in _____ region.

Options :

1. ✖ $X > 0$

2. ✖ $X < 0$

3. ✖ $X > L$

4. ✔ $0 < X < L$

Question Number : 90 Question Id : 28393610450 Question Type : MCQ Option Shuffling : Yes
 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
 : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Energy of the particle is proportional to _____.

Options :

1. ✖ n

2. ✖ n^{-1}

3. ✔ n^2

4. ✖ n^{-2}

Question Number : 91 Question Id : 28393610451 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The line of action of concurrent forces joins at _____.

Options :

1. ✓ a single point
2. ✗ a plane
3. ✗ perpendicular planes
4. ✗ two points

Question Number : 92 Question Id : 28393610452 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Forces meeting at one point but having lines of action, not in one plane are known as _____.

Options :

1. ✗ Coplanar concurrent forces
2. ✗ Coplanar non-concurrent forces
3. ✗ Non-coplanar concurrent forces

4. ✓ Non-coplanar non-concurrent forces

Question Number : 93 Question Id : 28393610453 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A spring when compressed by 4 cm has 2 J energy stored in it. The force required to extend it by 8 cm is _____.

Options :

1. ✗ 2 N
2. ✗ 20 N
3. ✓ 200 N
4. ✗ 2000 N

Question Number : 94 Question Id : 28393610454 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following equation of motion represents simple harmonic motion? Where k , k_0 , k_1 and a are all positive.

Options :

1. ✓ acceleration = $-k(x + a)$
2. ✗ acceleration = $k(x + a)$

3. ✖ acceleration = kx

4. ✖ acceleration = $-k_0x + k_1x^2$

Question Number : 95 Question Id : 28393610455 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following principles states that the inertia forces, couples, external forces and torques on a body together give statical equilibrium?

Options :

1. ✖ Paul Ehrlich principle

2. ✖ David Hilbert principle

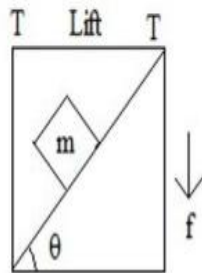
3. ✖ Edward Jenner principle

4. ✔ D' Alembert principle

Question Number : 96 Question Id : 28393610456 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A wedge m of weight 104 N is sliding on a smooth inclined plane of an elevator which is moving down with a constant acceleration of 2 m/s^2 as shown in the figure below. What will be the net normal reaction force acting on the wedge exerted by the inclined plane of an elevator? Take $g = 10\text{ m/s}^2$. Inclination angle of the lift plane is 30° .



Options :

1. ✖ 68 N
2. ✔ 72 N
3. ✖ 108 N
4. ✖ 90 N

Question Number : 97 Question Id : 28393610457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a rigid body rotates with an angular momentum L and its kinetic energy is halved, then the angular momentum is

Options :

1. ✖ L
2. ✔ $L/2$

3. ✖ 2L

4. ✖ 3L

Question Number : 98 Question Id : 28393610458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A particle moves in a circular motion that is consistent. The particle's angular momentum will be conserved at _____.

Options :

1. ✖ the point on the circumference of the circle

2. ✖ any point inside the circle

3. ✖ any point outside the circle

4. ✔ the centre point of the circle

Question Number : 99 Question Id : 28393610459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The relationship between the load lifted (W) and the effort required (P) to lift the load often is called as the law of the machine is _____.

Options :

1. ✖ $P = aW/b$

2. ✖ $P = aW/2b$

3. ✖ $P = aW - b$

4. ✔ $P = aW + b$

Question Number : 100 Question Id : 28393610460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A certain weight lifting machine of velocity ratio 30 can lift a load of 1500 N with the help of 125 N effort. What is the efficiency of the machine?

Options :

1. ✔ 40%

2. ✖ 50%

3. ✖ 60%

4. ✖ 70%

Question Number : 101 Question Id : 28393610461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Radiation heat transfer is depicted by _____.

Options :

1. ✖ Due to bulk fluid motion, there is a transport of energy
2. ✖ There is the circulation of fluid by buoyancy effects
3. ✔ Movement of discrete packets of energy as electromagnetic waves
4. ✖ Thermal energy transfer as vibrational energy in the lattice structure of the material.

Question Number : 102 Question Id : 28393610462 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The literature of heat transfer generally recognizes distinct modes of heat transfer.

The number of modes are _____

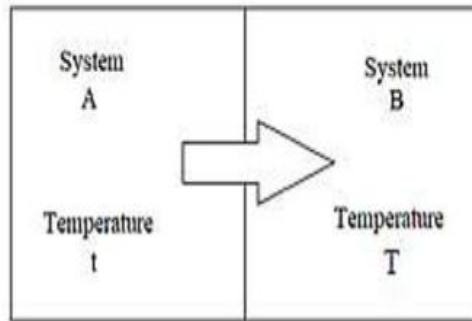
Options :

1. ✖ One
2. ✖ Two
3. ✔ Three
4. ✖ Four

Question Number : 103 Question Id : 28393610463 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider system A at uniform temperature t and system B at another uniform temperature T ($t > T$) as shown in figure. Let the two systems be brought into contact and be thermally insulated from their surroundings but not from each other. Energy will flow from system A to system B due to ____.



Options :

1. ✖ Energy difference
2. ✔ Temperature difference
3. ✖ Mass difference
4. ✖ Volumetric difference

Question Number : 104 Question Id : 28393610464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An oil cooler in a high performance engine has an outside surface area 0.12 m^2 and surface temperature of 65°C . At any intermediate time, air moves over the surface of the cooler at a temperature of 30°C , gives rise to a surface coefficient equal to 45.4 W/mK . The heat transfer rate is _____.

Options :

1. ✔ 190.68 W

2. ✖ 238.43 W

3. ✖ 543.67 W

4. ✖ 675.98 W

Question Number : 105 Question Id : 28393610465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Convective heat transfer coefficient doesn't depend on _____.

Options :

1. ✖ Space

2. ✖ Time

3. ✔ Surface area

4. ✖ Orientation of solid surface

Question Number : 106 Question Id : 28393610466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Thermal conductivity is maximum for the following substance _____.

Options :

1. ✖ Silver
2. ✖ Ice
3. ✖ Aluminum
4. ✔ Diamond

Question Number : 107 Question Id : 28393610467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A designer chooses the values of fluid flow rates and specific heats in such a manner that the Heat capacities of the two fluids are equal. A hot fluid enters the counter flow heat exchanger at 100°C and leaves at 60°C . A cold fluid enters the heat exchanger at 40°C . What is the mean temperature difference between the two fluids?

Options :

1. ✔ 20°C
2. ✖ 30°C
3. ✖ 40°C
4. ✖ 50°C

Question Number : 108 Question Id : 28393610468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The unit of overall coefficient of heat transfer is _____.

Options :

1. ✖ W/m^2

2. ✖ W/mK

3. ✖ W/m

4. ✔ $\text{W/m}^2\text{K}$

Question Number : 109 Question Id : 28393610469 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

LMTD in case of counter flow heat exchanger as compared to parallel flow heat exchanger will be _____.

Options :

1. ✖ Lower

2. ✔ Higher

3. ✖ Same

4. ✖ Depends on the area of heat exchanger

Question Number : 110 Question Id : 28393610470 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When heat is transferred by molecular collision, then heat transfer is referred as _____.

Options :

1. ✖ Conduction

2. ✔ Convection

3. ✖ Radiation

4. ✖ Scattering

Question Number : 111 Question Id : 28393610471 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the latent heat of steam at atmospheric pressure?

Options :

1. ✖ 1535 kJ/kg

2. ✖ 1875 kJ/kg

3. ✔ 2257 kJ/kg

4. ✖ 2685 kJ/kg

Question Number : 112 Question Id : 28393610472 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Carnot cycle comprises of _____

Options :

1. ✓ Two isothermal and two reversible adiabatic processes
2. ✗ Two constant volume and two reversible adiabatic processes
3. ✗ Two constant pressure and two reversible adiabatic processes
4. ✗ One constant volume, one constant pressure and two reversible adiabatic processes

Question Number : 113 Question Id : 28393610473 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A refrigerator has a performance coefficient of 5. What is the ambient heat discharged if the temperature inside the freezer is -20°C ?

Options :

1. ✗ 11°C
2. ✗ 21°C
3. ✓ 31°C

4. ✖ 41°C

Question Number : 114 Question Id : 28393610474 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 10 g of ice at 0°C is converted to water at the same temperature, What will be the change in entropy? (Latent heat 80 cal/g)

Options :

1. ✔ 2.93 cal/K

2. ✖ 3.29 cal/K

3. ✖ 32.9 cal/K

4. ✖ 29.3 cal/K

Question Number : 115 Question Id : 28393610475 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gibbs phase rule defines the relationship between degrees of freedom (F) of a system, number of phases (P) and the number of components (c). The equation is _____.

Options :

1. ✖ $F + P = C$

2. ✖ $F + P = C + 1$

3. ✖ $F - P = C$

4. ✔ $F + P = C + 2$

Question Number : 116 Question Id : 28393610476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is correct statement?

[A = Helmholtz function (Helmholtz Free Energy), G = Gibbs function (Gibbs free energy),
U = Internal energy, H = Enthalpy, T = Absolute temperature, S = Entropy]

Options :

1. ✖ $A = H - TS ; G = H + TS$

2. ✔ $A = U - TS ; G = H - TS$

3. ✖ $A = U + TS ; G = H - TS$

4. ✖ $A = U + TS ; G = H + TS$

Question Number : 117 Question Id : 28393610477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The standard heat of combustion of ethanol (C_2H_5OH) is 1372 kJ/mol. By completely burning a 20g Sample, how much heat (in kJ) will be liberated?

Options :

1. ✖ 469 kJ
2. ✔ 597 kJ
3. ✖ 686 kJ
4. ✖ 786 kJ

Question Number : 118 Question Id : 28393610478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A system suffers an increase in internal energy of 80 J and at the same time has 50 J of work done on it. The heat change of the system is _____.

Options :

1. ✖ -30 J
2. ✔ +30 J
3. ✖ +130 J
4. ✖ -130 J

Question Number : 119 Question Id : 28393610479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 30 J of energy is added to water in the form of heat at 27 °C, the change in entropy of water is _____

Options :

1. ✖ 2.5 J/K
2. ✖ 9.5 J/K
3. ✖ 45 J/K
4. ✔ 100 J/K

Question Number : 120 Question Id : 28393610480 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following thermodynamic quantities is not a state function?

Options :

1. ✖ Gibbs free energy
2. ✖ Enthalpy
3. ✖ Entropy
4. ✔ Work