Question Paper Preview

Notations :

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

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

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Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 5113469361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a number of forces act simultaneously on a particle then it is possible to replace them by

Options :

1. ✔ a single force

2. ✖ a single force passing through C.G

3. ✖ a couple

4. ✖ a single force and a couple

Question Number : 2 Question Id : 5113469362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the sum of all the forces acting on a body is zero, then the body said to be in equilibrium provided the forces are

Options :

1. ✔ concurrent

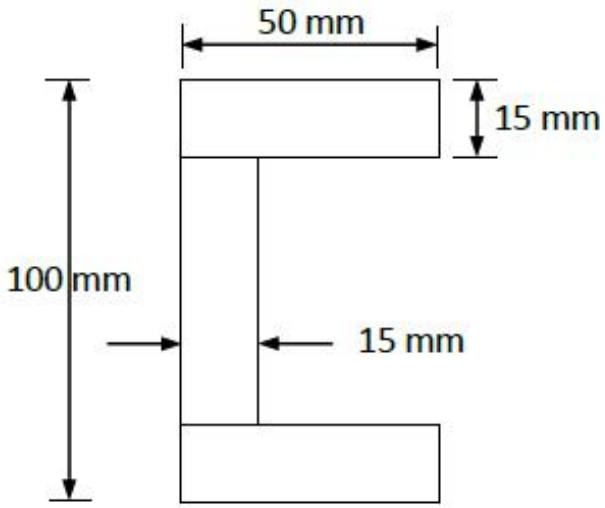
2. ✖ collinear

3. ✖ coplanar

4. ✖ coplanar and concurrent

Question Number : 3 Question Id : 5113469363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The center of gravity of a channel section 100 mm × 50 mm × 15 mm shown in figure is



Options :

1. ✖ (25, 50)

2. ✖ (7.5, 50)

3. ✔ (17.8, 50)

4. ✖ (17.5, 50)

Question Number : 4 Question Id : 5113469364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A circular hole of radius (r) is cut out from a circular disc of radius (2r) in such a way that the diagonal of the hole is the radius of the disc. The center of gravity of the section lies at

Options :

1. ✖ center of a disc

2. ✖ center of the hole

3. ✔ somewhere in the disc

4. ✖ somewhere in the hole

Question Number : 5 Question Id : 5113469365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The moment of inertia of a triangular section of base (b) and height (h) about its axis passing through its vertex and parallel to the base is _____ as that passing through its C.G and parallel to the base.

Options :

1. ✖ four times

2. ✖ six times

3. ✔ nine times

4. ✖ twelve times

Question Number : 6 Question Id : 5113469366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The concept of mass moment of Inertia (I) is useful in calculating

Options :

1. ✔ angular momentum

2. ✖ linear momentum

3. ✖ kinetics of linear motion

4. ✖ force equation

Question Number : 7 Question Id : 5113469367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The polar moment of inertia refers to

Options :

1. ✖ resistance of object to angular acceleration

2. ✔ resistance of object against torsion

3. ✖ shape of the object

4. ✖ distribution of mass of the object

Question Number : 8 Question Id : 5113469368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The relation $s = ut + \frac{1}{2}at^2$ is applicable to bodies

Options :

1. ✖ moving with any type of motion

2. ✖ moving with uniform velocity

3. ✔ moving with uniform acceleration

4. ✖ moving in curvilinear motion only

Question Number : 9 Question Id : 5113469369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The term 'virtual work' refers to

Options :

1. ✖ Actual work done by virtual forces

2. ✔ Virtual work done by actual forces

3. ✖ Actual work done by actual forces

4. ✖ Virtual work done by virtual forces

Question Number : 10 Question Id : 5113469370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The velocity of a particle moving with simple harmonic motion is maximum when its acceleration is

Options :

1. ✔ zero

2. ✖ maximum

3. ✖ average

4. ✖ minimum

Question Number : 11 Question Id : 5113469371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of acceleration due to gravity at poles as compared to at equator is

Options :

1. ✔ greater

2. ✖ lesser

3. ✖ same

4. ✖ unpredictable

Question Number : 12 Question Id : 5113469372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The masses of two balls are in the ratio of 2:1 and their respective velocities are in then ratio of 1:2 but in the opposite direction before impact. If the coefficient of restitution is 0.5, the velocity of separation of the balls is equal to

Options :

1. ✖ original velocity in the same direction

2. ✖ half the original velocity in the same direction

3. ✖ half the original velocity in the opposite direction

4. ✔ original velocity in the opposite direction

Question Number : 13 Question Id : 5113469373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Three perfectly elastic and similar balls are lying on floor. When one is struck with velocity 'v', it strikes second and onwards third. What will be the resultant velocity of the third ball.

Options :

1. ✖ v

2. ✖ $v/2$

3. ✔ $v/3$

4. ✖ $v/4$

Question Number : 14 Question Id : 5113469374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The angular velocity of a particle changes from 69 to 71 rpm in 30 secs. Its angular acceleration in rev/min is equal to

Options :

1. ✖ 1

2. ✖ 2

3. ✔ 4

4. ✖ 8

Question Number : 15 Question Id : 5113469375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 4 kg mass hung at one end of a helical spring and is set to vibrate vertically. The mass makes 2 vibrations per second. The stiffness of the spring is

Options :

1. ✖ 321.5 N/m

2. ✖ 452.6 N/m

3. ✖ 530.6 N/m

4. ✔ 613.6 N/m

Question Number : 16 Question Id : 5113469376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The impact strength of a material is an index of its

Options :

1. ✔ toughness

2. ✖ tensile strength

3. ✖ hardness

4. ✖ fatigue strength

Question Number : 17 Question Id : 5113469377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In compression test, the fracture in cast iron specimen would occur along

Options :

1. ✖ the axis of load

2. ✖ perpendicular to the axis of load

3. ✔ on oblique plane

4. ✖ any direction

Question Number : 18 Question Id : 5113469378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A non-yielding support implies that the

Options :

1. ✖ support is frictionless

2. ✖ support can take any amount of reaction

3. ✖ support holds members firmly

4. ✔ slope of the beam at the support is zero

Question Number : 19 Question Id : 5113469379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a material is subjected to a tensile load, then to avoid the shear failure of a material along a plane inclined at 45° to the direction of the tensile stress, the material should have its shear strength at least equal to

Options :

1. ✖ its tensile strength

2. ✔ half the tensile strength

3. ✖ its compressive strength

4. ✖ principal stress

Question Number : 20 Question Id : 5113469380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Zero bending moment in a fixed beam of length '*l*' carrying uniformly distributed load will occur at

Options :

1. ✔ $l/2$

2. ✖ $l/3$

3. ✖ $l/4$

4. ✖ $l/6$

Question Number : 21 Question Id : 5113469381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two beams have same width but one beam has double depth of the other. The elastic strength of double depth beam compared to other beam will be

Options :

1. ✖ double

2. ✔ four time

3. ✖ six times

4. ✖ eight times

Question Number : 22 Question Id : 5113469382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If a shaft of radius r and polar moment of inertia J be subjected to bending moment M and torque T, then maximum combined shear and bending stress is equal to

Options :

1. ✔ $\frac{r}{J}\sqrt{M^2 + T^2}$

2. ✖ $\frac{J}{r}\sqrt{M^2 + T^2}$

3. ✖ $\frac{2r}{J}\sqrt{M^2 + T^2}$

4. ✖ $\frac{r}{J}\sqrt{\frac{M^2+T^2}{2}}$

Question Number : 23 Question Id : 5113469383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Stress in a beam and the second modulus

Options :

1. ✖ are directly proportional

2. ✔ are inversely proportional

3. ✖ are curvilinearly related

4. ✖ have unpredictable relationship

Question Number : 24 Question Id : 5113469384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The extremities of any diameter on Mohr's circle represents

Options :

1. ✖ principal stresses

2. ✔ normal stresses on planes at 45°

3. ✖ shear stresses on planes at 45°

4. ✖ normal and shear stresses on a plane

Question Number : 25 Question Id : 5113469385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In case of pure shear at a point, the sum of normal stresses on two orthogonal planes is equal to

Options :

1. ✖ maximum shear stress

2. ✖ twice the maximum shear stress

3. ✖ half the maximum shear stress

4. ✔ zero

Question Number : 26 Question Id : 5113469386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The increase in temperature results in

Options :

1. ✖ increase in viscosity of gas

2. ✖ increase in viscosity of liquid

3. ✖ decrease in viscosity of gas

4. ✔ decrease in viscosity of liquid

Question Number : 27 Question Id : 5113469387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Choose the correct relationship

Options :

1. ✖ specific gravity = gravity × density

2. ✔ dynamic viscosity = kinematic viscosity × density

3. ✖ gravity = specific gravity × density

4. ✖ kinematic viscosity = dynamic viscosity × density

Question Number : 28 Question Id : 5113469388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If mercury in a barometer is replaced by water, the height of 3.75 cm of mercury will be equal to water of

Options :

1. ✔ 51 cm

2. ✖ 50 cm

3. ✖ 52 cm

4. ✖ 51.7 cm

Question Number : 29 Question Id : 5113469389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For measuring flow by a venturimeter, it should be installed in

Options :

1. ✖ vertical line

2. ✖ horizontal line

3. ✖ inclined

4. ✔ in any direction and in any location

Question Number : 30 Question Id : 5113469390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Non uniform flow occurs when

Options :

1. ✖ the direction and magnitude of the velocity at all points are identical

2. ✖ the velocity of successive fluid particles, at any point, is the same at successive periods of time

3. ✖ the magnitude and direction of the velocity do not change from point to point in the fluid

4. ✔ velocity, depth, pressure, etc change from point to point in the fluid flow.

Question Number : 31 Question Id : 5113469391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During the opening of a valve in a pipe line, the flow is

Options :

1. ✖ steady

2. ✔ unsteady

3. ✖ uniform

4. ✖ laminar

Question Number : 32 Question Id : 5113469392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The flow in which the velocity of fluid particles vary from point to point in magnitude and direction as well as from instant to instant, is known as

Options :

1. ✖ one dimensional flow

2. ✖ uniform flow

3. ✖ steady flow

4. ✔ turbulent flow

Question Number : 33 Question Id : 5113469393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The total energy of each particle at various places in the case of perfect incompressible fluid flowing in continuous stream

Options :

1. ✖ keeps on increasing

2. ✖ keeps on decreasing

3. ✔ remains constant

4. ✖ may increase/decrease

Question Number : 34 Question Id : 5113469394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Bernoulli's equation for steady ideal fluid flow

Options :

1. ✖ principle of conservation of mass holds

2. ✖ velocity and pressure are inversely proportional

3. ✖ total energy is constant throughout

4. ✔ energy is constant along a stream line but may vary across stream lines

Question Number : 35 Question Id : 5113469395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Froude number is significant in

Options :

1. ✖ supersonic, as with projectile and jet propulsion

2. ✖ full immersion or completely enclosed flow, as with pipes, aircrafts wings, nozzles etc.

3. ✔ simultaneous motion through two fluids where there is a surface of discontinuity, gravity forces, and wave making effect, as with ship's hull.

4. ✖ subsonic flows, as in flow over streamlined body

Question Number : 36 Question Id : 5113469396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The non-dimensional factor governing viscous or frictional resistance is

Options :

1. ✖ Reynolds number

2. ✖ Weber number

3. ✖ Froude number

4. ✔ Mach number

Question Number : 37 Question Id : 5113469397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cavitation will occur when

Options :

1. ✔ the pressure at any location reaches an absolute pressure equal to the saturation vapour pressure of the liquid

2. ✖ pressure becomes more than critical pressure

3. ✖ flow is increased

4. ✖ pressure is increased

Question Number : 38 Question Id : 5113469398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The region downstream from the streamline where separation takes place from the boundary is known as

Options :

1. ✔ wake

2. ✖ lift

3. ✖ drag

4. ✖ cavitation

Question Number : 39 Question Id : 5113469399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Choose the wrong statement about flow nets

Options :

1. ✔ flow nets are drawn to indicate flow patterns in case of one dimensional flow

2. ✖ flow net consists of a system of streamlines so spaced that the rate of flow is the same between each successive pair of lines

3. ✖ flow net consists of another system of lines normal to the streamlines and so spaced that the distance between the normal lines equals the distance between adjacent streamlines

4. ✖

an infinite number of streamlines are required to describe completely the flow under given boundary conditions

Question Number : 40 Question Id : 5113469400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function of a surge tank is to

Options :

1. ✔ relieve the pipe line of excessive pressure produced by water hammer

2. ✖ smoothen flow

3. ✖ act as reservoir for emergency conditions

4. ✖ avoid reverse flow

Question Number : 41 Question Id : 5113469401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For an irrotational flow, $\frac{\partial^2 \emptyset}{\partial x^2} + \frac{\partial^2 \emptyset}{\partial y^2} = 0$ is the equation given by

Options :

1. ✖ Cauchy-Riemaan

2. ✔ Laplace

3. ✖ Reynold

4. ✖ Bernoulli

Question Number : 42 Question Id : 5113469402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In laminar flow

Options :

1. ✖ the velocity is of no consideration

2. ✔ Newton's law of viscosity applies

3. ✖ losses are proportional to square of velocity

4. ✖ generally occurs in practice

Question Number : 43 Question Id : 5113469403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The thermal conductivity of non-metallic amorphous solids with decrease in temperature

Options :

1. ✖ increases

2. ✔ decreases

3. ✖ remains constant

4. ✖ unpredictable

Question Number : 44 Question Id : 5113469404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Thermal diffusivity is

Options :

1. ✖ a dimensionless parameter

2. ✖ function of temperature

3. ✔ a physical property of the material

4. ✖ useful in case of heat transfer by radiation

Question Number : 45 Question Id : 5113469405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the heat flow equation $Q = \frac{kA(t_1 - t_2)}{x}$ the term $\frac{x}{kA}$ is known as

Options :

1. ✔ thermal resistance

2. ✖ thermal coefficient

3. ✖ thermal gradient

4. ✖ thermal conductivity

Question Number : 46 Question Id : 5113469406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Absorptivity of a body will be equal to its emissivity

Options :

1. ✖ at all temperatures

2. ✖ at one particular temperature

3. ✔ when system is under thermal equilibrium

4. ✖ at critical temperature

Question Number : 47 Question Id : 5113469407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In heat exchangers, degree of approach is defined as the difference between temperatures of

Options :

1. ✖ Cold water inlet and outlet

2. ✖ Hot medium inlet and outlet

3. ✖ Hot medium outlet and cold water inlet

4. ✔ Hot medium outlet and cold water outlet

Question Number : 48 Question Id : 5113469408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Units of Thermal diffusivity is

Options :

1. ✔ m^2/hr

2. ✖ $m^2/hr\ ^oC$

3. ✖ $kcal/m^2hr$

4. ✖ $kcal/\ m^2\ hr\ ^oC$

Question Number : 49 Question Id : 5113469409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is expected to have highest thermal conductivity

Options :

1. ✖ steam

2. ✔ solid ice

3. ✖ melting ice

4. ✖ water

Question Number : 50 Question Id : 5113469410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cermets belong to which of the following category of material

Options :

1. ✖ metals

2. ✖ polymers

3. ✖ ceramics

4. ✔ composites

Question Number : 51 Question Id : 5113469411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Ionic compounds possess which of the following property

Options :

1. ✖ low melting point

2. ✔ poor conductors

3. ✖ have open structure

4. ✖ low hardness

Question Number : 52 Question Id : 5113469412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of bravais lattices in two dimensions is

Options :

1. ✖ four

2. ✔ five

3. ✖ seven

4. ✖ fourteen

Question Number : 53 Question Id : 5113469413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Miller indices in a crystal are

Options :

1. ✖ Coordinates of lattice points

2. ✖ directions of lines connecting lattice points

3. ✔ planes in a crystal

4. ✖ translation vectors

Question Number : 54 Question Id : 5113469414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following structure has highest packing factor

Options :

1. ✖ Diamond

2. ✖ simple cube

3. ✖ BCC

4. ✔ FCC

Question Number : 55 Question Id : 5113469415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of equivalent directions in the group <1 1 0> is

Options :

1. ✖ six

2. ✖ eight

3. ✖ ten

4. ✔ twelve

Question Number : 56 Question Id : 5113469416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following crystal structure has four atoms per unit cell

Options :

1. ✖ Simple cube

2. ✖ BCC

3. ✔ FCC

4. ✖ Diamond

Question Number : 57 Question Id : 5113469417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Griffith's theory deals with the analysis of

Options :

1. ✖ ductile materials

2. ✔ brittle materials

3. ✖ rubber materials

4. ✖ elastomers

Question Number : 58 Question Id : 5113469418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following combination ensures best creep properties

Options :

1. ✔ low temperature fine grains

2. ✖ low temperature course grains

3. ✖ high temperature fine grains

4. ✖ fine grain at any temperature

Question Number : 59 Question Id : 5113469419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following disturbance of the atomic arrangement in a crystal leads to dislocation

Options :

1. ✔ linear

2. ✖ angular

3. ✖ cylindrical

4. ✖ spherical

Question Number : 60 Question Id : 5113469420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Impurities such as slag causes

Options :

1. ✖ volume defects

2. ✖ area defects

3. ✖ line defects

4. ✔ point defects

Question Number : 61 Question Id : 5113469421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Crystal dislocation is caused due to

Options :

1. ✖ edge dislocation only

2. ✖ screw dislocation only

3. ✖ either edge or screw dislocation

4. ✔ both edge and screw dislocation together

Question Number : 62 Question Id : 5113469422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The interaction between to unlike dislocations on the same plane leads to

Options :

1. ✖ vacancy defect

2. ✖ interstitial defect

3. ✔ perfect lattice

4. ✖ substitutional defect

Question Number : 63 Question Id : 5113469423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Quenching from high temperature can lead to

Options :

1. ✔ point defects

2. ✖ line defects

3. ✖ surface defects

4. ✖ volume defects

Question Number : 64 Question Id : 5113469424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The movement of dislocation is termed as dislocation climb when dislocation moves in a direction

Options :

1. ✔ perpendicular to slip plane

2. ✖ parallel to slip plane

3. ✖ 45^{o} to the slip plane

4. ✖ 30^{o} to the slip plane

Question Number : 65 Question Id : 5113469425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The portion of the grain which is the mirror image of the original lattice is called

Options :

1. ✖ Slip

2. ✔ Twinning

3. ✖ Tilt

4. ✖ Jog

Question Number : 66 Question Id : 5113469426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The thermal and electrical conductivity of metals and alloys are affected by the presence of

Options :

1. ✔ interstitial defects

2. ✖ substitutional defects

3. ✖ edge dislocations

4. ✖ stacking faults

Question Number : 67 Question Id : 5113469427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following methods increases the strength of the material

Options :

1. ✖ annealing

2. ✔ decreasing the grain size

3. ✖ increasing the grain size

4. ✖ single crystal

Question Number : 68 Question Id : 5113469428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What happens during the recovery phase of heat treatment

Options :

1. ✔ stresses are relieved

2. ✖ new grains are formed

3. ✖ small grains join to form large grains

4. ✖ larger grains are split into small grains

Question Number : 69 Question Id : 5113469429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Burge vector defines

Options :

1. ✖ magnitude of slip

2. ✖ direction of slip

3. ✔ both magnitude and direction of slip

4. ✖ point of slip

Question Number : 70 Question Id : 5113469430 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The increase in tensile strength and hardness due to cold working of metal is called

Options :

1. ✖ precipitation hardening

2. ✖ solute hardening

3. ✔ strain hardening

4. ✖ diffusion hardening

Question Number : 71 Question Id : 5113469431 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area under the stress-strain diagram upto the elastic limit defines

Options :

1. ✖ toughness

2. ✖ hardness

3. ✖ resilience

4. ✔ strain energy

Question Number : 72 Question Id : 5113469432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The peak point in the stress-strain diagram of mild steel represents

Options :

1. ✖ upper yield point

2. ✖ lower yield point

3. ✔ ultimate stress

4. ✖ fracture

Question Number : 73 Question Id : 5113469433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following property is relevant to cast iron

Options :

1. ✖ low carbon content

2. ✔ high compressive strength

3. ✖ high tensile strength

4. ✖ easily welded

Question Number : 74 Question Id : 5113469434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cold worked material possess

Options :

1. ✖ refined coarse grains

2. ✖ improved ductility

3. ✖ better resistance to impact loading

4. ✔ good surface finish

Question Number : 75 Question Id : 5113469435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Hall Petch equation relates

Options :

1. ✔ yield strength to grain size

2. ✖ Temperature to the surface finish

3. ✖ strain hardening to hardness

4. ✖ temperature to grain size

Question Number : 76 Question Id : 5113469436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of Proof stress is usually taken as

Options :

1. ✖ 0.8 to 1% of plastic strain

2. ✖ 0.6 to 0.8 % of plastic strain

3. ✖ 0.3 to 0.5 % of plastic strain

4. ✔ 0.1 to 0.2 % of plastic strain

Question Number : 77 Question Id : 5113469437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Charles law for a perfect gas

Options :

1. ✖ $\frac{T_2}{T_1} = \frac{P_2}{P_1}$, if V is kept constant

2. ✔ $\frac{T_2}{T_1} = \frac{V_2}{V_1}$, if P is kept constant

3. ✖ $\frac{PV}{T} = constant$

4. ✖ $\frac{V_1}{V_2} = \frac{P_2}{P_1}$, If T is kept constant

Question Number : 78 Question Id : 5113469438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is the limitation of classical thermodynamics

Options :

1. ✔ it is applicable to state of equilibrium in closed system

2. ✖ it is applicable to state of non-equilibrium in closed system

3. ✖ it is applicable to state of equilibrium in open system

4. ✖ it is applicable to state of non-equilibrium in open system

Question Number : 79 Question Id : 5113469439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Work done in a free expansion process is

Options :

1. ✖ +ve

2. ✖ -ve

3. ✔ zero

4. ✖ maximum

Question Number : 80 Question Id : 5113469440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following quantities is not a property of the system

Options :

1. ✖ pressure

2. ✖ temperature

3. ✖ specific volume

4. ✔ heat

Question Number : 81 Question Id : 5113469441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Heat and work are

Options :

1. ✖ point functions

2. ✔ path functions

3. ✖ intensive properties

4. ✖ extensive properties

Question Number : 82 Question Id : 5113469442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is true for reversible polytropic process

Options :

1. ✖ temperature remains constant

2. ✖ entropy remains constant

3. ✖ internal energy remains constant

4. ✔ some heat transfer takes place

Question Number : 83 Question Id : 5113469443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The polytropic index of expansion n in the equation $pv^n = c$ for isobaric process is

Options :

1. ✖ 1

2. ✖ 1.4

3. ✖ ∞

4. ✔ 0

Question Number : 84 Question Id : 5113469444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For reversible adiabatic process, change in entropy is

Options :

1. ✖ maximum

2. ✖ minimum

3. ✔ zero

4. ✖ unpredictable

Question Number : 85 Question Id : 5113469445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Under ideal conditions, isothermal, isobaric, isochoric and adiabatic process are

Options :

1. ✖ static process

2. ✖ dynamic process

3. ✔ quasi-static process

4. ✖ stable process

Question Number : 86 Question Id : 5113469446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

First law of thermodynamics furnishes the relationship between

Options :

1. ✖ heat and work

2. ✔ heat, work and entropy

3. ✖ enthalpy and entropy

4. ✖ various thermodynamic processes

Question Number : 87 Question Id : 5113469447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Measurement of temperature is based on

Options :

1. ✖ Joules law

2. ✔ zeroth law of thermodynamics

3. ✖ first law of thermodynamics

4. ✖ second law of thermodynamics

Question Number : 88 Question Id : 5113469448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In carnot cycle, heat is transferred at

Options :

1. ✖ constant pressure

2. ✖ constant volume

3. ✔ constant temperature

4. ✖ constant enthalpy

Question Number : 89 Question Id : 5113469449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\sum \frac{dQ}{T}$ for reversible process is equal to

Options :

1. ✖ + ve value

2. ✖ – ve value

3. ✔ zero

4. ✖ unity

Question Number : 90 Question Id : 5113469450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Efficiency of a Carnot cycle is 0.75. The cycle direction is reversed, COP of reversed carnot cycle will be

Options :

1. ✖ 0.25

2. ✖ 0.5

3. ✖ 1.25

4. ✔ 1.33

Question Number : 91 Question Id : 5113469451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Kelvin Plank's law deals with

Options :

1. ✖ conservation of heat

2. ✖ conservation of work

3. ✔ conversion of heat into work

4. ✖ conversion of work into heat

Question Number : 92 Question Id : 5113469452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The charge of a n-type semiconductor is

Options :

1. ✖ positive

2. ✖ negative

3. ✔ neutral

4. ✖ none of the above

Question Number : 93 Question Id : 5113469453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In superconductive materials

Options :

1. ✔ electrical resistivity suddenly drops to zero as temperature approaches absolute zero

2. ✖ electrical conductivity increases above critical transition temperature

3. ✖ electrical resistivity increases below critical transition temperature

4. ✖ electrical resistivity decreases with increase of temperature

Question Number : 94 Question Id : 5113469454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of magnetization to the magnetic field is known as

Options :

1. ✖ magnetic field strength

2. ✖ magnetic flux density

3. ✖ magnetic permeability

4. ✔ magnetic susceptibility

Question Number : 95 Question Id : 5113469455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The efficiency of the solar cell does not depend on

Options :

1. ✖ the energy gap of the emitter/absorber material

2. ✖ the absorption coefficient of the absorber

3. ✖ the diffusion length of the minority carrier

4. ✔ size of the solar panel

Question Number : 96 Question Id : 5113469456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Light Emitting Diode emits light when

Options :

1. ✔ a *p-n* junction is forward biased

2. ✖ a *p-n* junction is reversed biased

3. ✖ a *p-n* junction is neutral

4. ✖ a *n-p* junction is forward biased

Question Number : 97 Question Id : 5113469457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following material is anisotropic in nature

Options :

1. ✖ Iron

2. ✖ copper

3. ✔ Plastic

4. ✖ Composites

Question Number : 98 Question Id : 5113469458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Temperature at which spontaneous polarization disappears is called ferroelectric

Options :

1. ✖ absolute temperature

2. ✖ rankine temperature

3. ✔ curie temperature

4. ✖ polarization temperature

Question Number : 99 Question Id : 5113469459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Nylon threads are made of

Options :

1. ✖ polyethylene polymer

2. ✖ polyvinyl polymer

3. ✖ polyester polymer

4. ✔ polyamide polymer

Question Number : 100 Question Id : 5113469460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following statement is true with respect to nanomaterials?

Options :

1. ✖ Large density

2. ✔ Volume to surface area is large

3. ✖ Chemically inactive

4. ✖ Grain size is of the order of 10^{-12} m

Question Number : 101 Question Id : 5113469461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Bakelite is obtained from phenol by reacting with

Options :

1. ✔ HCHO

2. ✖ $(CH_2OH)_2$

3. ✖ CH_3CHO

4. ✖ CH_3COCH_3

Question Number : 102 Question Id : 5113469462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is not a condensation polymer?

Options :

1. ✖ Dacron

2. ✔ Neoprene

3. ✖ Melamine

4. ✖ Giyptal

Question Number : 103 Question Id : 5113469463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Composite materials are defined as

Options :

1. ✖ two or more materials combined on microscopic scale

2. ✔ two or more materials combined on macroscopic scale

3. ✖ chemical combination of two or more materials on microscopic scale

4. ✖ chemical compound of two or more materials on macroscopic scale

Question Number : 104 Question Id : 5113469464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an example of amorphous solids

Options :

1. ✖ precious stones

2. ✖ pottery

3. ✖ porcelain

4. ✔ glass

Question Number : 105 Question Id : 5113469465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following process is used for making nanoceramics?

Options :

1. ✖ two-photon lithography

2. ✖ sintering

3. ✔ Sol-gel

4. ✖ attrition

Question Number : 106 Question Id : 5113469466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following statement is true

Options :

1. ✖ bulk of the materials are free from defects

2. ✔ fiber form of material has superior strength over its bulk form

3. ✖ Glass fibers are expensive than carbon fibers

4. ✖ Glass-epoxy composites are used for high temperature applications

Question Number : 107 Question Id : 5113469467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The hygroscopic property is observed in

Options :

1. ✖ ceramics

2. ✔ polymers

3. ✖ metals

4. ✖ carbon

Question Number : 108 Question Id : 5113469468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following fiber has high specific modulus

Options :

1. ✖ glass

2. ✖ kevlar

3. ✔ carbon

4. ✖ aramide

Question Number : 109 Question Id : 5113469469 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The electric conductivity of a nanotube is _____ times that of copper

Options :

1. ✖ 1/100

2. ✖ 100

3. ✔ 1000

4. ✖ 1/1000

Question Number : 110 Question Id : 5113469470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The tensile strength of Multiwalled carbon Nano Tube is

Options :

1. ✔ 630×10^8 MPa

2. ✖ 630×10^7 MPa

3. ✖ 630×10^6 MPa

4. ✖ 630×10^5 MPa

Question Number : 111 Question Id : 5113469471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Nano science can be studied with the help of

Options :

1. ✖ micromechanics

2. ✖ statistical mathematics

3. ✔ Newtonian mechanics

4. ✖ quantum mechanics

Question Number : 112 Question Id : 5113469472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following is a top-down approach in making nano particles?

Options :

1. ✖ Colloidal dispersion

2. ✖ Attrition

3. ✔ Chemical vapour deposition

4. ✖ Sol-gel process

Question Number : 113 Question Id : 5113469473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following nanoparticle can be used for antibacterial activity?

Options :

1. ✖ Gold

2. ✔ Silver

3. ✖ Platinum

4. ✖ Cerium oxide

Question Number : 114 Question Id : 5113469474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The width of carbon nanotube in nanometers is

Options :

1. ✖ 1

2. ✔ 1.3

3. ✖ 1.55

4. ✖ 10

Question Number : 115 Question Id : 5113469475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Heat capacity is measured in

Options :

1. ✔ $\frac{J}{Kg°C}$

2. ✖ $\frac{JKg}{°C}$

3. ✖ $\frac{J}{°C}$

4. ✖ $\frac{Kg}{J°C}$

Question Number : 116 Question Id : 5113469476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the thermal conductivity of a material through which heat is transferred is increased by a factor of 5, then the rate of heat transfer is

Options :

1. ✖ Decreased by a factor 5

2. ✔ Increased by a factor 5

3. ✖ Decreased by a factor 2.5

4. ✖ Increased by a factor 2.5

Question Number : 117 Question Id : 5113469477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If there are no externally induced flow velocities, then the Nusselt Number (N_n) does not depend upon

Options :

1. ✔ Reynolds Number (R_e)

2. ✖ Grashof Number (G_r)

3. ✖ Prandtl Number (P_r)

4. ✖ Weber Number (W_e)

Question Number : 118 Question Id : 5113469478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following condition is correct for natural convection

Options :

1. ✖ $\frac{Gr}{\sqrt{Re}} = 1$

2. ✔ $\frac{Gr}{Re^2} \gg 1$

3. ✖ $\frac{Gr}{\sqrt{Re}} \gg 1$

4. ✖ $\frac{Gr}{Re^2} = 1$

Question Number : 119 Question Id : 5113469479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general heat conduction equation in an isotropic solid reduces to Laplace equation

Options :

1. ✔ If the body is in steady-state with no heat generation

2. ✖ If the body is in unsteady-state with heat generation

3. ✖ If the body is in unsteady-state with no heat generation

4. ✖ If the body is in steady-state with heat generation

Question Number : 120 Question Id : 5113469480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The reciprocal of the scale heat transfer coefficient in called as

Options :

1. ✖ Resistant factor

2. ✖ Forming factor

3. ✔ Fouling factor

4. ✖ Scaling factor