tscte

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Metallurgical Engineering

Group Number :	1
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Mathematics

Section Id :	39090068
Section Number :	1
Section type :	Online
Mandatory or Optional:	Mandatory
Number of Questions:	10
Number of Questions to be attempted:	10
Section Marks:	10
Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:	1
Sub-Section Id:	39090068
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 3909004321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For matrices A, B, and C, which of the following is TRUE?

Options :

1. $(AB)C = AC + BC$

2. $(ABC)^T = C^T B^T A^T$

3. $AB + C = A + BC$

4. $(A+B)C = AB + AC$

Question Number : 2 Question Id : 3909004322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The differential equation $\dfrac{d^3 y}{dx^3} - 2\left(\dfrac{d^2 y}{d^2 x}\right)^4 + 3y^2 = 0$ is of

Options :

1. Degree 4; Order 3

2. Degree 1; Order 3

3. Degree 4; Order 2

4. Degree 2; Order 4

Question Number : 3 Question Id : 3909004323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The central difference formula for $\dfrac{dy}{dx}$ is

Options :

1. $\dfrac{y_{i+1} - y_i}{\Delta x}$

2. $\dfrac{y_i - y_{i-1}}{\Delta x}$

3. $\dfrac{y_{i+1} - y_{i-1}}{2\Delta x}$

4. $\dfrac{y_{i+1} - y_{i-1}}{\Delta x}$

Question Number : 4 Question Id : 3909004324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If the determinant of matrix $\begin{bmatrix} \lambda & 6 & 2 \\ 4 & 5 & 9 \\ 6 & 9 & 5 \end{bmatrix}$ is 48, then λ is
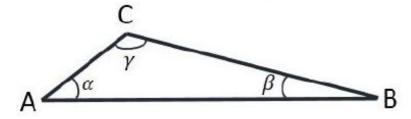
Options :

1. 3

2. 5

3. 9

4. 6

Question Number : 5 Question Id : 3909004325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the following triangle, which one is true?

Options :

1. $AB/BC = (\sin \beta)/(\sin \alpha)$

2. $AC/BC = (\sin \beta)/(\sin \alpha)$

3. $AB/AC = (\sin \gamma)/(\sin \alpha)$

4. $AB/BC = (\sin \alpha)/(\sin \gamma)$

Question Number : 6 Question Id : 3909004326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the distance of point (5,-2) from y-axis in a Cartesian plane?

Options :

1. 3

2. $\sqrt{29}$

3. 5

4. 0

Question Number : 7 Question Id : 3909004327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If $\widehat{f}(k)$ is the Fourier transform of $f(x)$ then the Fourier transform of $f''(x)$ is

Options :

1. $-k^2\widehat{f}(k)$

2. $-k\widehat{f}(k)$

3. $-k\left[\widehat{f}(k)\right]^2$

4. $-ik\widehat{f}(k)$

Question Number : 8 Question Id : 3909004328 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The directional derivative of the function $f(x, y, z)$ along the unit vector $\boldsymbol{a}$ is

Options :

1. $\boldsymbol{a} \cdot \nabla f$

2. $\boldsymbol{a} \cdot \nabla^2 f$

3. $\boldsymbol{a} \times \nabla f$

4. $\boldsymbol{a} \times \nabla^2 f$

Question Number : 9 Question Id : 3909004329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The number of initial and boundary conditions required to solve the Laplace equation $\nabla^2 f(x) = 0$, respectively are

Options :

1. 1 and 2

2. 1 and 0

3. 2 and 2

4. 0 and 2

Question Number : 10 Question Id : 3909004330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

$\sum_{n=0}^{\infty}(-1)^n \dfrac{x^{2n}}{(2n)!}$ is the series expansion for

Options :

1. $\cos(x)$

2. $\sin(x)$

3. $\cosh(x)$

4. $\sinh(x)$

Metallurgical Engineering

Section Id :	39090069
Section Number :	2
Section type :	Online
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Number of Questions:	110
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Display Number Panel:	Yes
Group All Questions:	No

Sub-Section Number:

Question Number : 11 Question Id : 3909004331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ultrasonic testing to detect flaws in objects uses

Options :

1. Sound waves

2. Visible light

3. Radio waves

4. Both sound and radio waves

Question Number : 12 Question Id : 3909004332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Beach marks are commonly observed on the fractured surfaces of metals in

Options :

1. Creep deformation

2. Fatigue deformation

3. Compression

4. Impact testing

Question Number : 13 Question Id : 3909004333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Jominy test is used to determine hardenability of

Options :

1. Brass

2. Alloy steels

3. Cu-Ni alloys

4. Si

Question Number : 14 Question Id : 3909004334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Metal powders are produced by

Options :

1. Casting

2. Electron beam physical vapour deposition

3. Atomization

4. Rolling

Question Number : 15 Question Id : 3909004335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a surface hardening method?

Options :

1. Carburizing

2. Normalizing

3. Induction hardening

4. Nitriding

Question Number : 16 Question Id : 3909004336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which one of the following phase transformations is not present in Iron-Iron carbide phase diagram?

Options :

1. Peritectic

2. Eutectic

3. Eutectoid

4. Peritectoid

Question Number : 17 Question Id : 3909004337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following phase diagram has highest number of peritectic transformations

Options :

1. Fe-Fe$_3$C

2. Al-Cu

3. Cu-Sn

4. Cu-Zn

Question Number : 18 Question Id : 3909004338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Pearlite is

Options :

1. A ceramic

2. Thermosetting plastic

3. Lamellar structure consisting of Ferrite and Cementite

4. Solid solution of carbon in Iron

Question Number : 19 Question Id : 3909004339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For a positive edge dislocation, the region immediately below the extra half plane is under

Options :

1. Bending

2. No stress

3. Compression

4. Tension

Question Number : 20 Question Id : 3909004340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If ε is the true strain and n is the strain hardening exponent of a work-hardening material, necking in a cylindrical specimen occurs when

Options :

1. $\varepsilon = n$

2. $\varepsilon = 2n$

3. $\varepsilon = n^2$

4. $\varepsilon = n^{1/2}$

Question Number : 21 Question Id : 3909004341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Dimples on a fracture surface are a signature of

Options :

1. Brittle failure

2. Ductile failure

3. Fatigue failure

4. Creep failure

Question Number : 22 Question Id : 3909004342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Miller indices of the direction common to the planes (110) and (111) in a
cubic system

Options :

1. $[101]$

2. $[111]$

3. $[\bar{1}11]$

4. $[\bar{1}10]$

**Question Number : 23 Question Id : 3909004343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

The total number of slip systems for BCC structure are

Options :

1. 12

2. 24

3. 36

4. 48

**Question Number : 24 Question Id : 3909004344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

Driving force for recrystallization is

Options :

1. Low temperature

2. Stored elastic energy of cold work

3. Grain boundary curvature

4. Vacancy concentration

**Question Number : 25 Question Id : 3909004345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

The "nose" of the characteristic C-curve in the CCT diagram of a steel is quite far from the Temperature axis. Which of the following is TRUE with this steel?

Options :

1. It has good hardenability

2. Martensite cannot be produced in this steel

3. Extremely high cooling rates are necessary to get Martensite

4. Always Pearlite is produced upon cooling

**Question Number : 26 Question Id : 3909004346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

Super plastic materials have an index of Strain-rate sensitivity 'm'

Options :

1. In the range of 0.4 – 0.9

2. In the range of 0.1 – 0.2

3. In the range of 1.5 – 2.0

4. More than 5.0

**Question Number : 27 Question Id : 3909004347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

Which of the below mentioned statements are TRUE?
A.   Fine grained powders provide higher sintering rates
B.   Sintering rates are usually high at low temperatures
C.   High green density leads to lower shrinkage during sintering
D.   Spherical powder particles have higher inter-particle friction
       compared to angular particles

Options :

1. A&B

2. B&C

3. A&D

4. A&C

Question Number : 28 Question Id : 3909004348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Heterogeneous nucleant is added to the melt for

Options :

1. Lowering melting point

2. Increasing melting point

3. Lowering contact angle

4. Increasing contact angle

Question Number : 29 Question Id : 3909004349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a defect of forging?

Options :

1. Warping

2. Cold shut

3. Surface cracking

4. Internal crack

Question Number : 30 Question Id : 3909004350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a type of arc-welding method?

Options :

1. Plasma

2. Electro-slag

3. Submerged arc

4. Oxy-Acetylene

Question Number : 31 Question Id : 3909004351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A crown is provided to the rolls in order to

Options :

1. Decrease roll friction

2. Off-set roll bending

3. Decrease angle of bite

4. Produce smooth surface finish

Question Number : 32 Question Id : 3909004352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Weldability does NOT depend upon

Options :

1. Boiling point

2. Melting point

3. Thermal expansion

4. Thermal conductivity

Question Number : 33 Question Id : 3909004353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The length of internal cracks in two samples of the same metal is measured to be $a_1 = 0.5$ mm and $a_2 = 2$ mm. The ratio σ_{1c}/σ_{2c} of the fracture strength of the two samples is

Options :

1. 0.5

2. 0.25

3. 2

4. 4

Question Number : 34 Question Id : 3909004354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The true stress-true strain curve of an alloy can be characterized by:

$\sigma = K(\epsilon)^{0.2}$ until necking begins, At necking $\dfrac{d\sigma}{d\epsilon} = 725$ MPa.

The value of K is

Options :

1. 725.5 MPa

2. 1000.3 MPa

3. 525.6 MPa

4. 375.4 MPa

Question Number : 35 Question Id : 3909004355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Two statistically identical tensile specimens made of medium carbon steel are heated to austenitizing temperature, soaked for the same length of time. Subsequently, one of them is cooled in air while the other is allowed to cool with the furnace. Which of the following is TRUE?

Options :

1. The furnace-cooled specimen will have lower ductility

2. Both will have same strain hardening exponent

3. Grain size of the air-cooled specimen will be larger than that of the furnace cooled specimen.

4. Air-cooled specimen will be stronger than the furnace-cooled specimen

Question Number : 36 Question Id : 3909004356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following is NOT a non-destructive test

Options :

1. Radiography

2. Ultrasonic Inspection

3. Bulge test

4. Magnetic particle test

Question Number : 37 Question Id : 3909004357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is an equilibrium defect?

Options :

1. Dislocation

2. Grain boundary

3. Twin boundary

4. Vacancy

Question Number : 38 Question Id : 3909004358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Sudden sinking of the stock in the blast furnace caused by collapse of scaffold, wedging and hanging is called

Options :

1. Pillaring

2. Slipping

3. Breakout

4. Channelling

Question Number : 39 Question Id : 3909004359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
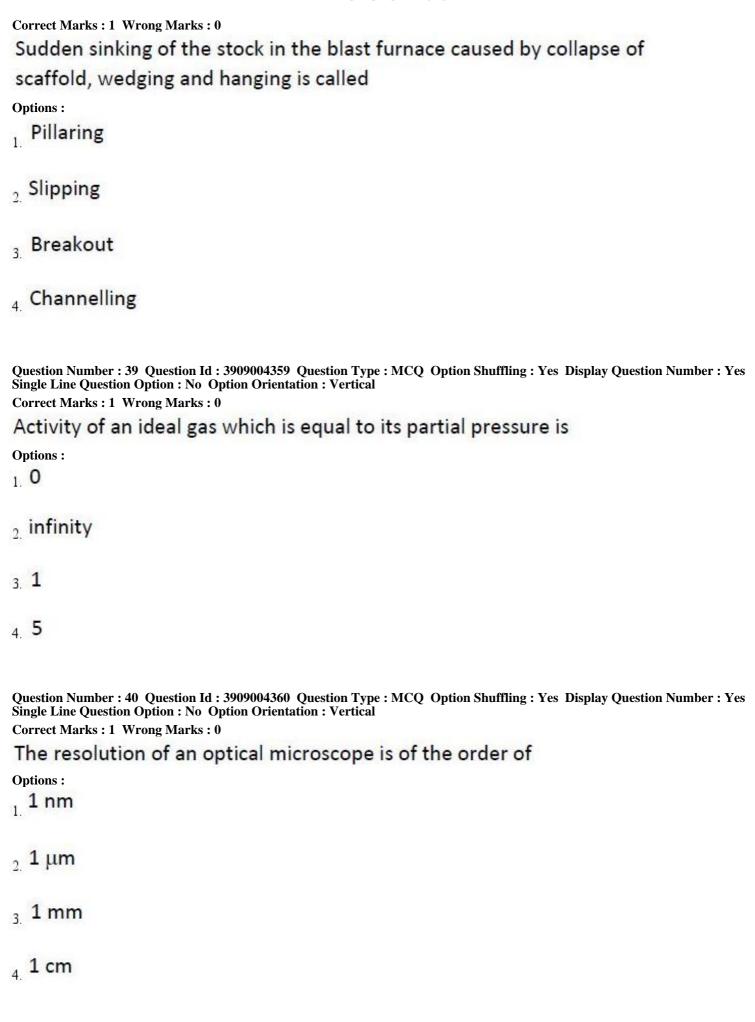
Correct Marks : 1 Wrong Marks : 0

Activity of an ideal gas which is equal to its partial pressure is

Options :

1. 0

2. infinity

3. 1

4. 5

Question Number : 40 Question Id : 3909004360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The resolution of an optical microscope is of the order of

Options :

1. 1 nm

2. 1 μm

3. 1 mm

4. 1 cm

Question Number : 41 Question Id : 3909004361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following tests is used for the study of breakdown of charge materials due to thermal shock?

Options :

1. Chiba test

2. Decrepitation test

3. Compression test

4. Archimedes principle

Question Number : 42 Question Id : 3909004362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is a solid-state welding process?

Options :

1. Flux cored arc welding

2. Gas metal arc welding

3. Friction stir welding

4. Oxyacetylene welding

Question Number : 43 Question Id : 3909004363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following measure is used in controlling intergranular corrosion of 18-8 stainless steel.

Options :

1. increasing carbon content

2. very slow cooling from high temperature

3. adding strong carbide forming elements

4. increase sulphur content

Question Number : 44 Question Id : 3909004364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

With respect to the matrix of Al-Cu alloys, G-P zones are

Options :

1. Incoherent

2. Semi-coherent

3. Coherent

4. Chemically indistinguishable

Question Number : 45 Question Id : 3909004365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Fick's second law of diffusion is

Options :

1. $\partial C/\partial t = D.\partial^2 x/\partial C^2$

2. $\partial t/\partial C = D.\partial^2 x/\partial C^2$

3. $\partial C/\partial t = D.\partial^2 C/\partial x^2$

4. $\partial t/\partial C = D.\partial^2 C/\partial x^2$

Question Number : 46 Question Id : 3909004366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The following binary system is an isomorphous system

Options :

1. Cu-Ni

2. Zn-Al

3. Cu-Zn

4. Fe-Ni

Question Number : 47 Question Id : 3909004367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The c/a ratio of an ideal HCP system is

Options :

1. 1.414

2. 2

3. 1.633

4. 0.5

Question Number : 48 Question Id : 3909004368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In Cu-Al system, the maximum solubility of Al in Cu at room temperature is about 10% while the solubility of Cu in Al is less than 1%. Which of the Hume-Rothery rules justify this?

Options :

1. Valency

2. Size factor

3. Electronegativity

4. Crystal structure

Question Number : 49 Question Id : 3909004369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ni when added to steels acts as an

Options :

1. Austenite stabilizer

2. Ferrite Stabilizer

3. Carbide former

4. Sulphide former

Question Number : 50 Question Id : 3909004370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

This is NOT a part of a gating system

Options :

1. Sprue

2. Runner

3. Riser

4. Core

Question Number : 51 Question Id : 3909004371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For obtaining a sound casting without shrinkage defects, the last metal to solidify is in

Options :

1. Runners

2. Ingates

3. Risers

4. Vents

Question Number : 52 Question Id : 3909004372 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A layered composite, of two materials A and B with volume fractions f_A and f_B, and Young's Moduli E_A and E_B, respectively, is loaded perpendicular to the layers. The effective elastic modulus of the composite in this direction is

Options :

1. $f_A E_A + f_B E_B$

2. $[f_A/E_A + f_B/E_B]^{-1}$

3. $f_A E_A - f_B E_B$

4. $[f_A/E_A + f_B/E_B]$

Question Number : 53 Question Id : 3909004373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Coring in alloys can develop due to

Options :

1. High pouring temperature

2. Fast cooling during solidification

3. Small difference between the solidus and liquidus temperatures

4. Presence of dissolved gases

Question Number : 54 Question Id : 3909004374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The following metal is produced by fused salt electrolysis method

Options :

1. Cu

2. Ti

3. Pb

4. Al

Question Number : 55 Question Id : 3909004375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

At absolute zero temperature, for any reaction involving condensed phases

Options :

1. $\Delta G^0 = 0, \Delta H^0 = 0$

2. $\Delta H^0 = 0, \Delta S^0 = 0$

3. $\Delta S^0 = 0, \Delta E^0 = 0$

4. $\Delta S^0 = 0, \Delta Cp^0 = 0$

Question Number : 56 Question Id : 3909004376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Dephosphorization of steels is enhanced under

Options :

1. High temperature

2. Low FeO levels in slag

3. Highly basic slag

4. Oversaturation of slag with CaO and MgO

Question Number : 57 Question Id : 3909004377 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The highest creep resistance is offered when the component is made out of

Options :

1. Columnar grains

2. Single crystal

3. Fine-grained equiaxed

4. Coarse-grained equiaxed

Question Number : 58 Question Id : 3909004378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Kroll's process is used to produce

Options :

1. Titanium

2. Aluminium

3. Gold

4. Lead

Question Number : 59 Question Id : 3909004379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

$\left(\dfrac{\partial S}{\partial P}\right)_T$ is equal to

Options :

1. $-\left(\dfrac{\partial V}{\partial T}\right)_P$

2. $\left(\dfrac{\partial V}{\partial S}\right)_P$

3. $-\left(\dfrac{\partial P}{\partial T}\right)_V$

4. $\left(\dfrac{\partial T}{\partial P}\right)_S$

Question Number : 60 Question Id : 3909004380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Most important property of steel for use in automobile bodies is

Options :

1. formability

2. yield strength

3. toughness

4. resilience

Question Number : 61 Question Id : 3909004381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

At high temperatures, the driving force for grain coarsening is

Options :

1. Reduction in residual stresses

2. Minimization of energy by reducing grain boundary area

3. Chemical homogenization

4. Increase in residual stress

Question Number : 62 Question Id : 3909004382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following statements does not belong to Pidgeon's Process?

Options :

1. Calcination of Dolomite

2. Extraction of Calcium

3. Heating to high temperatures > 1200^0C

4. Pressure in the system is less than the equilibrium pressure

Question Number : 63 Question Id : 3909004383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Two phases, A and B, of a binary alloy are in equilibrium with each other. If μ_j^i represents the chemical potential of component j in phase i, then

Options :

1. $\mu_1^A = \mu_1^B$ and $\mu_2^A = \mu_2^B$

2. $\mu_1^A = \mu_2^A$ and $\mu_1^B = \mu_2^B$

3. $\mu_1^A < \mu_1^B$ and $\mu_2^A < \mu_2^B$

4. $\mu_1^A < \mu_2^A$ and $\mu_1^B < \mu_2^B$

Question Number : 64 Question Id : 3909004384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following processes is not preferred for stainless steel making?

Options :

1. LD

2. AOD

3. VOD

4. CLU

Question Number : 65 Question Id : 3909004385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A pH versus potential diagram is known as

Options :

1. Ellingham diagram

2. Pourbiax diagram

3. Latimer diagram

4. Frost diagram

Question Number : 66 Question Id : 3909004386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which one of the following microstructures can NOT be obtained by continuous cooling in eutectoid steels?

Options :

1. Fully martensitic

2. Pearlitic + bainitic

3. Fully bainitic

4. Austenitic

Question Number : 67 Question Id : 3909004387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following is commonly added to form nodules of graphite in ductile iron

Options :

1. Magnesium

2. Aluminium

3. Carbon

4. Nickel

Question Number : 68 Question Id : 3909004388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The ratio of the number of tetrahedral voids to the atoms in an FCC unit cell is

Options :

1. 2:1

2. 4:1

3. 3:1

4. 5:1

Question Number : 69 Question Id : 3909004389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The stress concentration factor K_t for a circular hole in the centre of a plate is

Options :

1. 0

2. 2

3. 3

4. tends to ∞

Question Number : 70 Question Id : 3909004390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If D_L, D_{GB}, and D_S are the diffusion coefficients for lattice, grain boundary and free surface diffusion, respectively, which of the following is TRUE?

Options :

1. $D_L < D_S < D_{GB}$

2. $D_L < D_{GB} < D_S$

3. $D_S < D_{GB} < D_L$

4. $D_S < D_L < D_{GB}$

**Question Number : 71 Question Id : 3909004391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

Zn is commercially extracted from the mineral

Options :

1. Magnetite

2. Chalcopyrite

3. Ilmenite

4. Sphalerite

**Question Number : 72 Question Id : 3909004392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

The appearance of inter-crystalline fracture suggests that the following mechanism is responsible for the failure

Options :

1. High temperature creep failure

2. Ductile fracture

3. Brittle cleavage fracture

4. Fatigue failure

**Question Number : 73 Question Id : 3909004393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**

Correct Marks : 1 Wrong Marks : 0

Aluminium beverage cans are typically produced by

Options :

1. Rolling

2. Forging

3. Deep drawing

4. Extrusion

Question Number : 74 Question Id : 3909004394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A material is subjected to a stress of $\sigma_{ij} = \begin{bmatrix} 45 & 0 & 0 \\ 0 & 45 & 0 \\ 0 & 0 & 45 \end{bmatrix}$ MPa. The maximum

shear stress experienced by the material is

Options :

1. 45 MPa

2. 0 MPa

3. 52.5 MPa

4. 72 MPa

Question Number : 75 Question Id : 3909004395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The impurity that gets removed very early in the oxygen blow in a LD
converter is

Options :

1. Carbon

2. Silicon

3. Phosphorous

4. Sulphur

Question Number : 76 Question Id : 3909004396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Direct compression consists of the following process:

Options :

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1. Forging and Rolling

2. Wire drawing and Tube drawing

3. Stretch forming

4. Extrusion

Question Number : 77 Question Id : 3909004397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the manufacture of thin foils of aluminium, which one of the following rolling mill is used?

Options :

1. Three high rolling mill

2. Sendzimir mill

3. Four stand continuous mill

4. Planetary mill

Question Number : 78 Question Id : 3909004398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Creep resistance and tensile strength can both be increased at the same time by

Options :

1. decreasing the grain size

2. increasing the grain size

3. Annealing

4. adding dispersoids

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**Question Number : 79 Question Id : 3909004399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

The defect bounded by two mirror planes is

Options :

1. Edge dislocation

2. Twin

3. Grain boundary

4. Screw dislocation

**Question Number : 80 Question Id : 3909004400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

The correct mechanism linking stacking fault energy (SFE) and work hardenability

Options :

1. High SFE → easy cross-slip →high work hardening

2. High SFE → difficult to cross-slip → high work hardening

3. Low SFE → easy cross-slip → low work hardening

4. Low SFE → difficult to cross-slip → high work hardening

**Question Number : 81 Question Id : 3909004401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical**
Correct Marks : 1 Wrong Marks : 0

Interplanar spacing of (110) planes in a Cu crystal with a lattice constant of 3.615 Å is

Options :

1. 2.556 Å

2. 1.808 Å

3. 3.615 Å

4. 7.23 Å

Question Number : 82 Question Id : 3909004402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Liquid metal is poured into sand mould cavity at 1500°C. The mould is open at the top exposing the top surface of the casting to air. Heat loss from the liquid occurs by

Options :

1. Conduction

2. Conduction, radiation

3. Conduction, convection

4. Conduction, convection, radiation

Question Number : 83 Question Id : 3909004403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

As temperature is increased, the electrical resistivity of intrinsic semiconductors

Options :

1. Increases

2. Decreases

3. Remain unaffected

4. First increases and then decreases

Question Number : 84 Question Id : 3909004404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The hardness of Martensite in a steel is a function of

Options :

1. Cooling rate

2. 'Ni' content

3. 'C' content

4. Nose location

Question Number : 85 Question Id : 3909004405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Crystal structure of Martensite is

Options :

1. BCC

2. FCC

3. BCT

4. Diamond Cubic

Question Number : 86 Question Id : 3909004406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Basic slag is a donor of

Options :

1. SiO_2

2. O^{2-}

3. P_2O_5

4. OH^-

Question Number : 87 Question Id : 3909004407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

The ceramic reinforcements in metal matrix composites lead to

Options :

1. Higher tensile strength

2. Higher fracture toughness

3. Higher ductility

4. Lower Elastic Modulus

Question Number : 88 Question Id : 3909004408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The Larson-Miller parameter P connecting the temperature T and the rupture time t_t is given by:

Options :

1. $P = T \times (\log t_r + C)$

2. $P = \log t_r - C/T$

3. $P = (C - T)/t_r$

4. $P = T \times \log t_r$

Question Number : 89 Question Id : 3909004409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Flange wrinkling is the defect found in

Options :

1. rolling

2. forging

3. bending

4. deep drawing

Question Number : 90 Question Id : 3909004410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Typical dislocation density in a well annealed metal is

Options :

1. 10^2 m^{-2}

2. 10^{16} m^{-2}

3. 1 m^{-2}

4. 10^{12} m^{-2}

Question Number : 91 Question Id : 3909004411 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following does NOT occur during recovery?

Options :

1. Grain size increases significantly

2. Some strain energy relieved due to dislocation motion

3. Electrical conductivity restored to the pre-worked condition

4. Dislocation rearrangement takes place

Question Number : 92 Question Id : 3909004412 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Carbonyl process is used to purify

Options :

1. Nickel

2. Lead

3. Zinc

4. Zirconium

Question Number : 93 Question Id : 3909004413 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

ZnS is roasted to get ZnO before leaching because

Options :

1. ZnS is explosive

2. ZnS cannot be dissolved in acid

3. ZnS precipitates out of acid

4. ZnS rate of dissolution in acid is very slow

Question Number : 94 Question Id : 3909004414 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Red mud is

Options :

1. High silica insoluble residue after leaching of Bauxite

2. Residue after leaching Copper ores

3. Iron Ore

4. Silica slag

Question Number : 95 Question Id : 3909004415 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Age hardening of nonferrous alloys is possible when

Options :

1. Phase diagram contains peritectic reaction

2. The phase diagram must show partial solid solubility

3. Single phase alloys

4. Both phases have the same crystal structure

Question Number : 96 Question Id : 3909004416 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ledeburite is

Options :

1. Eutectic mixture of Ferrite and Cementite

2. Eutectoid mixture of Ferrite and Cementite

3. Eutectic mixture of Austenite and cementite

4. Eutectoid mixture of Austenite and Cementite

Question Number : 97 Question Id : 3909004417 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The carbon wt % in hyper eutectoid steels is

Options :

1. 0 – 0.8

2. 0.8 – 2.0

3. 2.0 – 4.3

4. 0.8 – 4.3

Question Number : 98 Question Id : 3909004418 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Hardenability curves are drawn as

Options :

1. percent Martensite versus time

2. hardness versus distance from quenched end

3. Quenched end temperature versus time

4. Temperature versus distance from quenched end

Question Number : 99 Question Id : 3909004419 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Case hardening is done in case of

Options :

1. Steel pipes

2. Structural columns

3. Steel sheets

4. Gears

Question Number : 100 Question Id : 3909004420 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In case of martensite formation, increasing Carbon content

Options :

1. Decreases M_s temperature

2. Increases M_s temperature

3. Has no effect

4. decreases retained austenite

Question Number : 101 Question Id : 3909004421 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Fine grained microstructure results in solidification due to

Options :

1. Low nucleation rate and high growth rates

2. High nucleation rate and high growth rates

3. Low nucleation rate and low growth rates

4. High nucleation rate and low growth rates

Question Number : 102 Question Id : 3909004422 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The plastic zone size at the crack tip is proportional to

Options :

1. yield stress

2. the square of the yield stress

3. inverse of the yield stress

4. inverse of the square of the yield stress

Question Number : 103 Question Id : 3909004423 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The mode I plane stress fracture toughness is _____ the mode I plane strain fracture toughness

Options :

1. same as

2. larger than

3. less than

4. not related to

Question Number : 104 Question Id : 3909004424 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Ceramics are brittle since

Options :

1. They contain numerous microcracks

2. Interatomic bond strength is very low

3. They have high melting points

4. They possess low electrical conductivity

Question Number : 105 Question Id : 3909004425 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Crazing is associated with

Options :

1. Steels

2. Ceramics

3. Polymers

4. Superalloys

Question Number : 106 Question Id : 3909004426 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Thermal tempering of glass

Options :

1. Induces large compressive stresses near the surface and relatively low tensile stresses in the core

2. Induces large tensile stresses near the surface and relatively low compressive stresses in the core

3. Induces small tensile stresses near the surface and relatively large compressive stresses in the core

4. Induces small compressive stresses near the surface and relatively high tensile stresses in the core

Question Number : 107 Question Id : 3909004427 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In investment casting the pattern is made of

Options :

1. Aluminium

2. Wax

3. Polystyrene

4. Wood

Question Number : 108 Question Id : 3909004428 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which one of the following metals or their alloys can NOT be die-cast?

Options :

1. Aluminium

2. Zinc

3. Magnesium

4. Titanium

Question Number : 109 Question Id : 3909004429 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Alloys of the following metal are used in cladding of Uranium in nuclear reactors.

Options :

1. Ti alloys

2. Zr alloys

3. Ni alloys

4. Ta alloys

Question Number : 110 Question Id : 3909004430 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

During cooling, solid and liquid transform to a new solid. This phase transformation is called as

Options :

1. Eutectic reaction

2. Peritectic reaction

3. Eutectoid reaction

4. Peritectoid reaction

Question Number : 111 Question Id : 3909004431 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

"Solubility of a diatomic gas in metal is proportional to the square root of the partial pressure of the gas in thermodynamic equilibrium." This is the statement of

Options :

1. Roult's law

2. Charles' law

3. Sievert's law

4. Dalton's law

Question Number : 112 Question Id : 3909004432 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In Nabarro-Herring creep, the flow of the vacancies is through

Options :

1. lattice

2. grain boundaries

3. dislocation lines

4. surface

Question Number : 113 Question Id : 3909004433 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The type of creep in which the strain rate does not depend on the grain size

Options :

1. Nabarro-Herring

2. Coble

3. Harper-Dorn

4. Dislocation creep

Question Number : 114 Question Id : 3909004434 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Shore Scleroscope is a

Options :

1. A type of upright microscope

2. Display in an electron microscope

3. Magnifier lens for measuring indentation size

4. Dynamic hardness tester

Question Number : 115 Question Id : 3909004435 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The softest material on the Mohs relative hardness scale is

Options :

1. Talc

2. Calcite

3. Quartz

4. Diamond

Question Number : 116 Question Id : 3909004436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Nital is a

Options :

1. Ni-Ti alloy

2. Etchant for steels

3. Polymer

4. Tough ceramic

Question Number : 117 Question Id : 3909004437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following objects are produced by powder metallurgy

Options :

1. Gas turbine blades

2. Engine block of an automobile

3. Self-lubricating bearings

4. Air craft landing gear

Question Number : 118 Question Id : 3909004438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following material is protected by passivation (formation of thin adherent surface film) from corrosion

Options :

1. High carbon steels

2. Mild steel

3. Cu alloys

4. Al alloys

Question Number : 119 Question Id : 3909004439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The following phase results upon tempering of hardened steels

Options :

1. Sigma phase

2. δ ferrite

3. ε – Carbide

4. Martensite

Question Number : 120 Question Id : 3909004440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Thermal energy carriers in metals are

Options :

1. Electrons only

2. Phonons and Photons

3. Electrons and Phonons

4. Photons and Electrons