

Question Paper Preview

Question Paper Name:	Metallurgy 4th May 2019 S1
Subject Name:	Metallurgy
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Share Answer Key With Delivery Engine:	Yes
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	Metallurgy
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 2501071801 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The matrix $A = \begin{bmatrix} \cos \theta & \sin \theta \\ -\sin \theta & \cos \theta \end{bmatrix}$ is _____.

Options :

1. Orthogonal
2. unitary
3. symmetric
4. skew- symmetric

Question Number : 2 Question Id : 2501071802 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the sum of the eigen values of the matrix $A = \begin{bmatrix} 2 & 1 & 0 \\ 0 & 4 & 3 \\ 0 & 0 & k \end{bmatrix}$ is 5, then the value of k is _____.

Options :

1. 0
2. 1
3. -2
4. -1

Question Number : 3 Question Id : 2501071803 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In domain $(-\infty, \infty)$, the function $f(t) = t^3 e^{-t}$ has _____.

Options :

1. one maximum and one minimum
2. one maximum and no minimum
3. no maximum and one minimum
4. no maximum and no minimum

Question Number : 4 Question Id : 2501071804 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If S is any closed surface enclosing a volume V and $\vec{F} = x\vec{i} + 2y\vec{j} + 3z\vec{k}$ then $\iint_S \vec{F} \cdot \vec{N} \, ds = \underline{\hspace{2cm}}$.

Options :

1. V
2. 2V
3. 3V
4. 6V

The order and degree of the differential equation $\frac{d^3 y}{dx^3} + 4\sqrt{\left(\frac{dy}{dx}\right)^3} + y^2 = 0$ are respectively ____.

Options :

1. 3 and 1
2. 2 and 3
3. 1 and 3
4. 3 and 2

Question Number : 6 Question Id : 2501071806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The solution of $\frac{dy}{dx} = \frac{-x}{y}$ at $x=1$ and $y = \sqrt{3}$ is ____.

Options :

1. $x - y^2 = -2$
2. $x - y^2 = 4$
3. $x^2 - y^2 = -2$
4. $x^2 - y^2 = 4$

Question Number : 7 Question Id : 2501071807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The mean and variance of exponential random variable are ____ respectively.

Options :

1. $\lambda, \frac{1}{\lambda}$
2. $\frac{1}{\lambda}, \frac{1}{\lambda^2}$

3. λ, λ^2

4. λ^2, λ

Question Number : 8 Question Id : 2501071808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If two cards are drawn at a random from a pack of 52 cards then the probability of these two being aces is _____.

Options :

1. $\frac{2}{52}$

2. $\frac{1}{221}$

3. $\frac{1}{663}$

4. $\frac{2}{104}$

Question Number : 9 Question Id : 2501071809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following method has second order convergence while solving the equation $f(x) = 0$.

Options :

1. Secant method

2. Chord's method

3. Newton- Raphson's method

4. Bisection method

Question Number : 10 Question Id : 2501071810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The formula $y_{n+1} = y_n + hf(x_n, y_n), n = 0, 1, 2, \dots$ is _____ iteration formula for the solution of $y' = f(x, y), y(x_0) = y_0$.

Options :

1. Picard's

2. Taylor's

3. Euler's

4. Modified Euler's

Question Number : 11 Question Id : 2501071811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Second law of thermodynamics is concerned with

Options :

1. amount of energy transferred

2. direction of energy transfer

3. irreversible processes only

4. non-cyclic process only

Question Number : 12 Question Id : 2501071812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is true about Ellingham diagram?

Options :

1. It is a plot drawn between ΔG vs ΔH

2. It is a plot drawn between ΔG° vs E

3. It is a plot drawn between ΔG° vs ΔS

4. It is a plot drawn between ΔG° vs T

Question Number : 13 Question Id : 2501071813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Strain rate in Coble type creep is

Options :

1. directly proportional to (grain size)³

2. inversely proportional to (grain size)²

3. directly proportional to (grain size)³

4. inversely proportional to (grain size)³

Question Number : 14 Question Id : 2501071814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The value of entropy at 273° K is _____.

Options :

1. zero

2. 1

- 3. -1
- 4. infinite

Question Number : 15 Question Id : 2501071815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is true?

Options :

- 1. $\Delta G^\circ = RT \ln K$
- 2. $\Delta G^\circ = -RT \ln K$
- 3. $\Delta G^\circ = R \ln K$
- 4. $\Delta G^\circ = -R \ln K$

Question Number : 16 Question Id : 2501071816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is an intensive property?

Options :

- 1. Entropy
- 2. Volume
- 3. Enthalpy
- 4. Molar enthalpy

Question Number : 17 Question Id : 2501071817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Maximum heat transfer rate is achieved in

Options :

1. co-current
2. counter-current
3. turbulent
4. laminar

Question Number : 18 Question Id : 2501071818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is the reason for the creation of surface energy for a material?

Options :

1. Shape of the material
2. Entropy
3. Broken bonds
4. Enthalpy

Question Number : 19 Question Id : 2501071819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Rate constant of a reaction depends on _____.

Options :

1. extent of reaction
2. time of reaction
3. temperature

initial concentration of species

4.

Question Number : 20 Question Id : 2501071820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Two fluids with densities ρ_1 and ρ_2 are flowing at velocities V_1 and V_2 , respectively, through smooth pipes of identical diameter and pressure per unit length. When the friction factor is same, the ratio of ρ_1/ρ_2 is equal to

Options :

1. $\frac{V_1}{V_2}$

2. $\left(\frac{V_1}{V_2}\right)^2$

3. $\left(\frac{V_2}{V_1}\right)^2$

4. $\left(\frac{V_2}{V_1}\right)^{\frac{1}{2}}$

Question Number : 21 Question Id : 2501071821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Gibbs free energies of system in states 1 and 2 are denoted by G_1 and G_2 respectively. The system will go spontaneously from state 1 to state 2, if and only if

Options :

1. $(G_1 - G_2) > 0$

2. $(G_1 - G_2) < 0$

3. $(G_1 - G_2) = 0$

4. $G_1 < 0$ and $G_2 < 0$

Question Number : 22 Question Id : 2501071822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For a spontaneous process

Options :

1. free energy is zero
2. free energy increases
3. free energy decreases and entropy increases
4. free energy and entropy both increase

Question Number : 23 Question Id : 2501071823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Unit of fugacity is same as that of the

Options :

1. pressure
2. temperature
3. volume
4. molar concentration

Question Number : 24 Question Id : 2501071824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Options :

1. $dQ = dE + dW$
2. $dQ = dE - dW$
3. $dE = dH + dW$
4. $dH = dE + dW$

Question Number : 25 Question Id : 2501071825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following do not corrode generally?

Options :

1. Metals and polymers
2. Polymers and Ceramics
3. Ceramics and all alloys
4. Composites and metals

Question Number : 26 Question Id : 2501071826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following diffuses faster at 933°K ?

Options :

1. Al
2. Pb

3. Si

4. Fe

Question Number : 27 Question Id : 2501071827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cathodic protection to steel can be provided by

Options :

1. Sacrificial anode

2. Painting

3. Non-metallic coating

4. Anodizing

Question Number : 28 Question Id : 2501071828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Diffusion coating of aluminium onto steel surface is called _____

Options :

1. sherardising

2. electroplating

3. calorising

4. hot dipping

Question Number : 29 Question Id : 2501071829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

An example of a sacrificial anode which is used in the protection

Options :

1. Steel
2. Platinum
3. Magnesium
4. Graphite

Question Number : 30 Question Id : 2501071830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Units for diffusivity is

Options :

1. $\text{m}^2 \text{sec}^1$
2. $\text{m}^2 \text{sec}^{-1}$
3. m sec^{-1}
4. m^{-2}sec

Question Number : 31 Question Id : 2501071831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In the reaction, $\text{ZnO}(s) + \text{H}_2(g) \rightarrow \text{Zn}(s) + \text{H}_2\text{O}(g)$,

$\Delta H_{500}^0 = +140 \text{ kJ mol}^{-1}$; $\Delta S_{500}^0 = +6 \text{ kJ K}^{-1}\text{mol}^{-1}$. The above reaction at 500°K _____.

Options :

1. is feasible
2. is not feasible
3. is equally feasible for both forward and backward reaction

the feasibility of which can't be determined

4.

Question Number : 32 Question Id : 2501071832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Isobaric process is related to constant _____.

Options :

1. pressure

2.

2. temperature

3.

3. enthalpy

4.

4. entropy

5.

Question Number : 33 Question Id : 2501071833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Gases relation $PV = nRT$ is valid for the combination of

Options :

1. high temperature and high pressure

2.

2. low temperature and high pressure

3.

3. low temperature and low pressure

4.

4. high temperature and low pressure

5.

Question Number : 34 Question Id : 2501071834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For the condensed phase reactions at 0° K ,

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

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

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

4. $\Delta G^0 = 0, \Delta C_P^0 = 0$

Question Number : 35 Question Id : 2501071835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The order of a chemical reaction

Options :

1. can be determined experimentally

2. is known from stoichiometry of the reaction

3. cannot be zero

4. cannot be fractional

Question Number : 36 Question Id : 2501071836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following are widely used for concentration of gold?

Options :

1. Gravity concentration

2. Froth Flotation

3. Magnetic Particle concentration

Jaw crusher

4.

Question Number : 37 Question Id : 2501071837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the main source of sulphur in a blast furnace?

Options :

Limestone

1.

Coke

2.

Iron ore lumps

3.

Sinters

4.

Question Number : 38 Question Id : 2501071838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

High top pressure in a blast furnace operation

Options :

favours the solution loss reaction

1.

suppresses the solution loss reaction

2.

decreases gas solid contact time

3.

increases coke rate

4.

Question Number : 39 Question Id : 2501071839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following conditions favour desulphurization in steel making?

Options :

1. Oxidizing and acidic slag
2. Oxidizing and basic slag
3. Reducing and basic slag
4. Reducing and acidic slag

Question Number : 40 Question Id : 2501071840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following has an enhanced effect in homogenizing the steel in LD Converter?

Options :

1. Bottom purging
2. Top lancing
3. Side blowing
4. Inclined blowing

Question Number : 41 Question Id : 2501071841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The hearth lining today being used is made of

Options :

1. Zirconia based refractory
2. Low duty fire bricks
3. High duty fire bricks
4. Carbon blocks

Open hearth process used for steel making

Options :

1. is autogenous
2. is external energy consumption
3. can run by both modes
4. cannot be used for steel making

What is the typical size of coke used in blast furnace?

Options :

1. 10 – 30 mm
2. 20 – 45 mm
3. 45 – 50 mm
4. 40 – 80 mm

The process used for extraction of titanium is _____.

Options :

1. Kroll's process
2. Pidgeon Process

Navier stokes process

3.

vacuum arc melting

4.

Question Number : 45 Question Id : 2501071845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In froth flotation, collector refers to reagent which primarily _____.

Options :

promotes bubble break-up and stabilizes the foam

1.

adsorbs on the surface of the mineral and makes it hydrophobic

2.

promotes separation of the particles from the froth

3.

adsorbs on the unwanted mineral and makes it sink

4.

Question Number : 46 Question Id : 2501071846 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following conditions are favourable for dephosphorisation?

Options :

Acid slag and oxidizing atmosphere

1.

Basic slag and oxidizing atmosphere

2.

Acid slag and reducing atmosphere

3.

Basic slag and reducing atmosphere

4.

Increase in alumina content of blast furnace slag _____.

Options :

1. increases its melting point, but decreases its viscosity
2. increases both its melting point and viscosity
3. decreases its melting point but increases its viscosity
4. does not affect its melting point but increases its viscosity

The reaction of $C + CO_2 \rightarrow 2CO$ occurring in the blast furnace is called

Options :

1. reduction reaction
2. Naumann reaction
3. solution loss reaction
4. calcination reaction

Which of the following is not an iron blast furnace irregularity?

Options :

1. Slip

- 2. Blowing in
- 3. Channeling
- 4. Pillering

Question Number : 50 Question Id : 2501071850 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Cassiterite is an important source for _____.

Options :

- 1. Tin
- 2. Titanium
- 3. Thorium
- 4. Molybdenum

Question Number : 51 Question Id : 2501071851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a continuous steel making process?

Options :

- 1. WORCRA
- 2. Spray steel making
- 3. SIP process
- 4. IRSID

Titanium is produced by

Options :

1. electrolytic reduction of TiCl_4
2. calcium reduction of TiCl_4
3. magnesium reduction of TiCl_4
4. thermal dissociation of TiCl_4

Question Number : 53 Question Id : 2501071853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The main constituent in coke ash is

Options :

1. SiO_2
2. Al_2O_3
3. MgO
4. K_2O

Question Number : 54 Question Id : 2501071854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Tap to tap time is maximum in the case of

Options :

1. LD converter
2. Kaldo process

3. Bessemer converter

4. Open hearth

Question Number : 55 Question Id : 2501071855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A typical collector used in Sulphide mineral floatation is

Options :

1. Pine Oil

2. Potassium ethyl Xanthate

3. Oleic Acid

4. Polyacrilamide

Question Number : 56 Question Id : 2501071856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following refers to the condition of solution heat treated and artificially aged for aluminium alloys?

Options :

1. T2

2. T6

3. T8

4. T10

Question Number : 57 Question Id : 2501071857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is true regarding pearlite?

1. It is a single phase.
2. It is a mixture of phases.
3. It is obtained by rapid cooling.
4. It has acicular structure.

Question Number : 58 Question Id : 2501071858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The crystal structure of cementite is _____.

Options :

1. cubic
2. hexagonal
3. orthorhombic
4. triclinic

Question Number : 59 Question Id : 2501071859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is meant by habit plane in martensite?

Options :

1. A plane on which complete distortion occurs
2. A plane on which distortion is absent
3. A plane on which slip occurs

Habit planes do not exist in martensite

4.

Question Number : 60 Question Id : 2501071860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Dual-phase steel contains

Options :

1. ferrite and pearlite
2. tempered martensite
3. ferrite and martensite
4. ferrite and cementite

Question Number : 61 Question Id : 2501071861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The alloying element which shifts the nose of the C-curve to the left is

Options :

1. chromium
2. manganese
3. nickel
4. cobalt

Question Number : 62 Question Id : 2501071862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which one of the following alloy system exhibits complete solid solubility?

Options :

1. Cu-Ni

2. Fe-Cu

3. Pb-Sn

4. Cu-Zn

Question Number : 63 Question Id : 2501071863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The peritectic reaction in binary system is given by

Options :

1. $L = \alpha + \beta$

2. $\alpha = L + \beta$

3. $\gamma = \alpha + \beta$

4. $L + \alpha = \beta$

Question Number : 64 Question Id : 2501071864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following phase is not appearing on TTT diagram?

Options :

1. Pearlite

2. Ledeburite

3. Martensite

4. Austenite

Question Number : 65 Question Id : 2501071865 Question Type : MCO Option Shuffling : Yes

The size of the GP- II phase particles is _____.

Options :

1. Thickness: 4-6 $\text{\AA}$, Diameter = 80-100 $\text{\AA}$
2. Thickness: 10-40 $\text{\AA}$, Diameter = 100-1000 $\text{\AA}$
3. Thickness: 20-30 $\text{\AA}$, Diameter = 80-100 $\text{\AA}$
4. Thickness: 15-20 $\text{\AA}$, Diameter = 100-200 $\text{\AA}$

Question Number : 66 Question Id : 2501071866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following microstructures is used for creep applications?

Options :

1. Lamellar
2. Coarse grain
3. Fine grain
4. Spheroidal

Question Number : 67 Question Id : 2501071867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a binary phase diagram at the invariant point, number of phases (P) and degrees of freedom (F) respectively are _____.

Options :

1. 3 and 1
2. 3 and 0

3. 2 and 2

4. 2 and 1

Question Number : 68 Question Id : 2501071868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Spark plugs are made of _____.

Options :

1. high alumina ceramics

2. metallic carbides

3. corundum

4. carborundum

Question Number : 69 Question Id : 2501071869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

A liquid alloy of eutectic composition (L) undergoes the eutectic reaction to give α and β phases of compositions a & b respectively. The ratio of the relative amounts of α and β phases is

Options :

1. $(b - L) / (L - a)$

2. $(L - a) / (b - L)$

3. $(b - L) / (b - a)$

4. $(L - a) / (b - a)$

Question Number : 70 Question Id : 2501071870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Schottky and Frankel imperfections are _____ crystals

Options :

1. vacancies in ionic
2. dislocations in ionic
3. vacancies in covalent
4. grain boundaries in covalent

Question Number : 71 Question Id : 2501071871 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Treatment to improve machinability of hyper eutectoid steel is _____.

Options :

1. annealing
2. normalizing
3. hardening
4. spheroidizing

Question Number : 72 Question Id : 2501071872 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Nitriding treatment is suitable for _____ steels.

Options :

1. low carbon
2. medium carbon
3. high carbon

4. alloy

Question Number : 73 Question Id : 2501071873 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Treatment to produce pearlite with finest lamellar spacing is _____.

Options :

1. austempering

2. patenting

3. tempering

4. martempering

Question Number : 74 Question Id : 2501071874 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Babbitts are used for _____.

Options :

1. tools making

2. corrosion resistant material

3. bearings

4. construction material

Question Number : 75 Question Id : 2501071875 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Common high speed steel is also called as

Options :

1. 14:3:2
2. 18:4:3
3. 16:7:3
4. 18:4:1

Question Number : 76 Question Id : 2501071876 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following represents their indirect presence in Stress –Strain curve by the appearance of serrations?

Options :

1. Slip
2. Twinning
3. Fracture
4. Ostwald ripening

Question Number : 77 Question Id : 2501071877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

What is the minimum dislocation density that can be observed using etch pitch technique?

Options :

1. 10^3 cm^{-2}
2. 10^5 cm^{-2}

3. 10^6 cm^{-2}

4. 10^8 cm^{-2}

Question Number : 78 Question Id : 2501071878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

High angle grain boundary consists of an array of _____.

Options :

1. screw dislocations

2. edge dislocations

3. 50% screw and 50% edge dislocation

4. 30% screw and 70% edge dislocation

Question Number : 79 Question Id : 2501071879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is true regarding dislocations when moved through a crystal lattice?

Options :

1. Screw dislocations move faster than edge dislocations

2. Screw dislocations move equally to edge dislocation

3. Screw dislocations move slower than edge dislocations

4. Neither edge nor screw dislocations move during slip

How many number of independent slip systems are required for a shape change by slip?

Options :

1. 4
2. 5
3. 6
4. 3

Question Number : 81 Question Id : 2501071881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following has least Young's modulus?

Options :

1. Aluminium
2. Copper
3. Iron
4. Steel

Question Number : 82 Question Id : 2501071882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

_____ test measures microhardness.

Options :

1. Rockwell
2. Brinell

Knoop

3.

Meyer

4.

Question Number : 83 Question Id : 2501071883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For cyclic softening, the strain hardening exponent 'n' should be_____.

Options :

1. < 0.15

2. < 0.7

3. < 0.9

4. < 0.5

Question Number : 84 Question Id : 2501071884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Low temperature fatigue is associated with_____.

Options :

1. vacancy formation

2. condensation

3. vacancy formation and condensation

4. grain boundary migration

Question Number : 85 Question Id : 2501071885 Question Type : MCQ Option Shuffling : Yes Display Qu
Single Line Question Option : No Option Orientation : Vertical

The fatigue limit of a material is decreased by _____.

Options :

1. decarburizing
2. carburizing
3. cold working
4. shot peening

Question Number : 86 Question Id : 2501071886 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The engineering stress-strain curve for ceramic materials is _____.

Options :

1. parabolic
2. exponential
3. logarithmic
4. linear

Question Number : 87 Question Id : 2501071887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The inequality of diffusion of components in a binary solution of alloys is given by _____.

Options :

1. Graham's law
2. Fick's law
3. Cottrell effect

Kirkendall effect

4.

Question Number : 88 Question Id : 2501071888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Low stacking - fault energy metal exhibits _____.

Options :

1. high work hardening

2. low work hardening

3. no work hardening

4. moderate work hardening

Question Number : 89 Question Id : 2501071889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The material with high 'n' _____ to necking.

Options :

1. is less prone

2. is highly prone

3. is moderately prone

4. is irrelevant

Question Number : 90 Question Id : 2501071890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Larger grain sizes _____ DBTT.

Options :

1. increase

- 2. decrease
- 3. do not effect
- 4. do not have

Question Number : 91 Question Id : 2501071891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The maximum working temperature is determined by _____.

Options :

- 1. melting point
- 2. hot shortness temperature
- 3. recrystallization temperature
- 4. work-hardening

Question Number : 92 Question Id : 2501071892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following refers to the ability of a material to absorb energy when deformed plastically?

Options :

- 1. Toughness
- 2. Fracture
- 3. Hardness
- 4. Resilience

Question Number : 93 Question Id : 2501071893 Question Type : MCQ Option Shuffling : Yes Display Qu
Single Line Question Option : No Option Orientation : Vertical

Vickers hardness testing uses _____ indenter.

Options :

1. 10 mm steel ball
2. 1/16" steel ball
3. square base diamond pyramid
4. Brale

Question Number : 94 Question Id : 2501071894 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is not contributing to increase in the strength of the alloy in solid solution strengthening mechanism?

Options :

1. Elastic interaction
2. Electrical interaction
3. Suzuki interaction
4. Long range order interaction

Question Number : 95 Question Id : 2501071895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

If the volume of a material does not change during deformation, then the Poisson's ratio should be

Options :

1. 0.25
2. 0.50

3. 0.67

4. 1.00

Question Number : 96 Question Id : 2501071896 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

To make a hole in the casting, _____ core is/are used.

Options :

1. cover

2. wing

3. balanced

4. cover and wing

Question Number : 97 Question Id : 2501071897 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is the best suitable method to encounter arc blow problem?

Options :

1. DC

2. AC

3. Either DC or AC

4. It is unavoidable by any method

Question Number : 98 Question Id : 2501071898 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In which of the following welding processes do we have a wine shape

1. GTAW
2. SMAW
3. MIG
4. Plasma Arc Welding

Question Number : 99 Question Id : 2501071899 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following processes gives the best surface finish?

Options :

1. Sand Casting
2. Die casting
3. Investment casting
4. Centrifugal casting

Question Number : 100 Question Id : 2501071900 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following is true regarding Chrovinov's rule?

Options :

1. It considers only surface area of the casting.
2. It considers total surface area of the casting.
3. It is independent of surface area of the casting.

4. It considers only volume and the amount of metal poured.

Question Number : 101 Question Id : 2501071901 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Loose piece pattern is used for manufacturing of which of the following products?

Options :

1. Heavy machinery
2. A cup
3. A bucket
4. A bottle

Question Number : 102 Question Id : 2501071902 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Which of the following sintering processes give enhanced diffusion?

Options :

1. Large particle Solid phase sintering
2. Liquid phase sintering
3. Semi solid phase sintering
4. Small solid particle phase sintering

Question Number : 103 Question Id : 2501071903 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Alligatoring is a common defect in _____.

Options :

1. forging

- 2. extrusion
- 3. rolling
- 4. sheet metal drawing

Question Number : 104 Question Id : 2501071904 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Forging pressure increases with _____.

Options :

- 1. increasing flash thickness and increasing flash land width
- 2. decreasing flash thickness and increasing flash land width
- 3. increasing flash thickness and decreasing flash land width
- 4. decreasing flash thickness and decreasing flash land width

Question Number : 105 Question Id : 2501071905 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The semi die angle for most extrusions is _____.

Options :

- 1. between 2° - 12°
- 2. between 15° - 30°
- 3. between 30° - 45°
- 4. between 45° - 60°

Bottom making material used in soaking pit is generally _____.

Options :

1. alumina
2. coke breeze
3. Fuller's earth
4. pulverized coking coal

Which process is extensively used in aircraft industry?

Options :

1. Rubber forming
2. Spinning
3. Slitting
4. Extrusion

Which of the following energy source is used for Thermit welding?

Options :

1. Electrical energy
2. Chemical energy

3. Energy of high velocity electrons

4. Heat due to friction

Question Number : 109 Question Id : 2501071909 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Rat tail is a casting defect which is due to _____.

Options :

1. too low pouring temperature

2. more moisture content in moulding sand

3. poor expansion properties of moulding sand

4. non-uniform ramming of mould

Question Number : 110 Question Id : 2501071910 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Sweep pattern is used for moulding parts having _____ shape.

Options :

1. elliptical

2. complicated

3. rectangular

4. uniform symmetrical

The ideal theoretical shape of a riser is _____.

Options :

1. spherical
2. conical
3. cylindrical
4. cubical

Question Number : 112 Question Id : 2501071912 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

In a brazing process, the liquid metal fills the gap using which one of the following processes?

Options :

1. Capillary infiltration
2. Gravity infiltration
3. Pressure infiltration
4. Vacuum infiltration

Question Number : 113 Question Id : 2501071913 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 solid state welding process?

Options :

1. Friction Stir welding
2. Ultrasonic welding

3. Explosive welding

4. Flux cored arc welding

Question Number : 114 Question Id : 2501071914 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

X-ray radiography is used to determine the _____.

Options :

1. soundness of casting

2. chemical composition

3. crystal structure

4. phase present

Question Number : 115 Question Id : 2501071915 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The NDT technique used to detect deep lying defects in a large sized castings is _____.

Options :

1. liquid penetrant inspection

2. magnetic particle inspection

3. ultrasonic inspection

4. eddy current inspection

Question Number : 116 Question Id : 2501071916 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

For designing a pressurized gating system in sand casting, the gating ratio should be _____.

Options :

1. 1.0: 0.75: 0.50

2. 1: 1: 1

3. 1: 2: 4

4. 1: 3: 3

Question Number : 117 Question Id : 2501071917 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

The top part in a sand mould is called as _____.

Options :

1. drag

2. cope

3. cheek

4. sprue

Question Number : 118 Question Id : 2501071918 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Hot strength of the mould increases with addition of the _____.

Options :

1. coal dust

2. iron oxide

3. wood flour

4. dextrin

Which tool used for making or repairing corners in mould?

Options :

1. Slick
2. Trowel
3. Vent wire
4. Cloth

High temperature properties of the sand specimen are studied using _____.

Options :

1. permeability meter
2. sand muller
3. dilatometer
4. universal sand test machine