

Telangana State Council Higher Education

Notations :

- 1.Options shown in green color and with ✓ icon are correct.
- 2.Options shown in red color and with ✗ icon are incorrect.

Question Paper Name :	Metallurgical Engineering 31st May 2023 Shift 2
Subject Name :	Metallurgical Engineering
Creation Date :	2023-05-31 16:35:23
Duration :	120
Total Marks :	120
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

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

Metallurgical Engineering

Group Number :	1
Group Id :	28393673
Group Maximum Duration :	0
Group Minimum Duration :	120
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	120
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	283936195
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	10
Section Marks :	10
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

Sub-Section Number : 1
Sub-Section Id : 283936195
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 1 Question Id : 28393610121 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 2019 & 2020 & 2021 \\ 2020 & 2021 & 2022 \\ 2021 & 2022 & 2023 \end{bmatrix}$ then $|A| =$

Options :

1. ✘ 3

2. ✘ 2

3. ✘ 1

4. ✔ 0

Question Number : 2 Question Id : 28393610122 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let A be 3×3 matrix with eigenvalues 0, 0, 14, which of the following is true?

Options :

1. ✘ $A^2 - 14A =$

2. ✘ $A^3 + 14A = 0$

3. ✔ $A^3 - 14A^2 = 0$

4. ✘ $A^3 - 14A = 0$

Question Number : 3 Question Id : 28393610123 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\vec{f} = 3xy\hat{i} - y^2\hat{j}$, then $\int_C \vec{f} \cdot d\vec{r}$ where C is the curve $y = 2x^2$ in xy -plane from $(0, 0)$ to
 $(1, 2)$ is

Options :

1. ✔ $\frac{-7}{6}$

2. ✘ $\frac{7}{6}$

3. ✘ $\frac{6}{7}$

4. ✘ $\frac{-6}{7}$

Question Number : 4 Question Id : 28393610124 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The series $x + 2x^2 + 3x^3 + 4x^4 + \dots$ is

Options :

1. ✘ convergent when $x \geq 1$ and divergent when $x < 1$

2. ✔ divergent when $x \geq 1$ and convergent $x < 1$

3. ✘ convergent when $\frac{1}{x} \geq 1$ and divergent $\frac{1}{x} < 1$

4. ✘ divergent when $\frac{2}{x} \leq 1$ and convergent $\frac{2}{x} < 1$

Question Number : 5 Question Id : 28393610125 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Fourier series of an odd function of period $2l$ is

Options :

1. ✔ $f(x) = \sum_{n=1}^{\infty} b_n \sin \frac{n\pi x}{l}, b_n = \frac{1}{l} \int_0^{2l} f(x) \sin \frac{n\pi x}{l}$

2. ✘ $f(x) = \sum_{n=1}^{\infty} a_n \cos \frac{n\pi x}{l} + \frac{a_0}{2}, a_n = \frac{1}{l} \int_0^{2l} f(x) \cos \frac{n\pi x}{l} dx$

3. ✘ $f(x) = \sum_{n=0}^{\infty} a_n \cos nx + b_n \sin nx, a_n = 0, b_n = \frac{1}{l} \int_0^l f(x) \sin x dx$

4. ✘

$$f(x) = \sum_{n=1}^{\infty} b_n \sin nx, \quad b_n = \frac{1}{l} \int_0^{2l} f(x) \sin nx \, dx$$

Question Number : 6 Question Id : 28393610126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If from a group of 10 dozens of match boxes, selecting 5 match boxes successively with replacement is a random experiment, then the number of elements in sample space is

Options :

1. ✘ 10^5

2. ✔ 120^5

3. ✘ 12^5

4. ✘ 102^5

Question Number : 7 Question Id : 28393610127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let X be a random variable that follows the Binomial distribution with expectation $E(X) = 4$ and the variance $V(X) = 3$ then the ratio between the probability of success p and its mode is

Options :

1. ✘ $1:4$

2.

✘ 4 : 1

3. ✔ 1 : 16

4. ✘ 16 : 1

Question Number : 8 Question Id : 28393610128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the differential equation $(x^3 D^3 + 3x^2 D^2 + xD + 8)y = \cos(\log x)$ where $D^n = \frac{d^n}{dx^n}$ is reduced to a differential equation with constant coefficients, then its auxiliary equation is

Options :

1. ✔ $m^3 + 8 = 0$

2. ✘ $m^3 - 8 = 0$

3. ✘ $m^3 + 3m^2 + m + 8 = 0$

4. ✘ $m^3 + 8m = 0$

Question Number : 9 Question Id : 28393610129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $L\{f(t)\} = \bar{f}(s)$ then $L\left\{\int_0^t \int_0^t \int_0^t f(u) du du du\right\} =$

Options :

1. ✘ $\frac{1}{s^2} \bar{f}(s)$

2. ✔ $\frac{1}{s^3} \bar{f}(s)$

3. ✘ $\int \int \int \int \bar{f}(s) ds ds ds ds$

4. ✘ $\int_0^{\infty} \bar{f}(s) ds$

Question Number : 10 Question Id : 28393610130 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Using the given below values of t and $f(t)$, $\int_1^7 f(t) dt$ is evaluated by the Simpson $\frac{1}{3}$ rd

method and its value is $\frac{1369}{3}$ then the value of a is

t	1	2	3	4	5	6	7
$f(t)$	81	75	80	83	a	70	60

Options :

1. ✘ 70

2. ✘ 72

3. ✘ 76

4. ✔ 78

Metallurgical Engineering

Section Id :	283936196
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	110
Number of Questions to be attempted :	110
Section Marks :	110
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	283936196
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 11 Question Id : 28393610131 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following materials are protected by passivation (i.e., formation of a thin adherent film on the surface) from corrosion?

Options :

1. ✘ Aluminium alloys and mild steel

2. ✘ Mild steel and stainless steel
3. ✘ Stainless steel and silver
4. ✔ Aluminium alloys and stainless steel

Question Number : 12 Question Id : 28393610132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is NOT an intensive property?

Options :

1. ✘ Temperature
2. ✘ Pressure
3. ✘ Volume
4. ✔ Refractive index

Question Number : 13 Question Id : 28393610133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the Helmholtz free energy equation TS basically represents

Options :

- 1.

✓ Bound energy

2. ✘ Free energy

3. ✘ Surface energy

4. ✘ Activation energy

Question Number : 14 Question Id : 28393610134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The effect of temperature and pressure on chemical equilibrium can be predicted by

Options :

1. ✘ Van't Hoff equation

2. ✘ Le Chatelier's principle

3. ✘ Law of mass action

4. ✓ Clausius Clapeyron equation

Question Number : 15 Question Id : 28393610135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Activation energy of a chemical reaction, homogeneous or heterogeneous, is graphically estimated from a plot between

[where, k is the rate constant and T is the absolute temperature]

Options :

1. ✘ k versus T
2. ✘ $1/k$ versus T
3. ✘ $1/k$ versus $\ln T$
4. ✔ $\ln k$ versus $1/T$

Question Number : 16 Question Id : 28393610136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Joule is a measure of

Options :

1. ✘ Specific heat
2. ✔ Heat energy
3. ✘ Thermal capacity
4. ✘ Entropy

Question Number : 17 Question Id : 28393610137 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

$\left(\frac{\delta H}{\delta T}\right)_P$ is the mathematical expression for

Options :

1. ✓ Specific heat at constant pressure
2. ✗ Entropy change
3. ✗ Gibbs free energy
4. ✗ Helmholtz free energy

Question Number : 18 Question Id : 28393610138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When the rate of reaction is constant, the reaction is said to be

Options :

1. ✓ Zero order
2. ✗ First order
3. ✗ Second order
4. ✗ Third order

Question Number : 19 Question Id : 28393610139 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The migration of atoms in a pure material is known as

Options :

1. ✘ Substitutional diffusion
2. ✘ Interstitial diffusion
3. ✔ Self diffusion
4. ✘ Diffusivity

Question Number : 20 Question Id : 28393610140 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Diffusion is more rapid

Options :

1. ✘ Along the coarse grain boundaries
2. ✘ In the coarse grains
3. ✘ In the fine grains
4. ✔ Along the fine grain boundaries

Question Number : 21 Question Id : 28393610141 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Doping of silicon wafers for integrated electronic circuits involves

Options :

1. ✓ Solid state diffusion
2. ✗ Solid state reduction
3. ✗ Solid state strengthening
4. ✗ Segregation control

Question Number : 22 Question Id : 28393610142 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The cathode in an electrochemical cell always carries

Options :

1. ✗ Negative charge
2. ✓ Positive charge
3. ✗ Zero charge
4. ✗ Varies with electrolyte

Question Number : 23 Question Id : 28393610143 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The activation energy of a chemical reaction is

Options :

1. ✓ Increases with temperature
2. ✗ Decreases with temperature
3. ✗ Negative
4. ✗ Positive

Question Number : 24 Question Id : 28393610144 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Nernst equation is given by the following relation

Options :

1. ✓ $\Delta G = -nFE$
2. ✗ $\Delta G = -nF$
3. ✗ $\Delta G = -nF/E$
4. ✗ $\Delta G = nFE$

Question Number : 25 Question Id : 28393610145 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Partial molal quantities are important in the study of

Options :

1. ✘ Ideal gases
2. ✘ Ideal solutions
3. ✔ Non-ideal mixtures
4. ✘ A pure compound

Question Number : 26 Question Id : 28393610146 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Thermal diffusivity is minimum for

Options :

1. ✘ Aluminium
2. ✔ Rubber
3. ✘ Iron
4. ✘ Lead

Question Number : 27 Question Id : 28393610147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The dimensionless number relevant in transient heat conduction is

Options :

1. ✘ Grashof number
2. ✘ Reynolds number
3. ✔ Fourier number
4. ✘ Prandtl number

Question Number : 28 Question Id : 28393610148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The temperature gradient in a fluid flowing over a heated plate will be

Options :

1. ✘ Zero at the plate surface
2. ✘ Positive at the surface
3. ✘ Very steep at the surface
4. ✔ Zero at the top of the thermal boundary layer.

Question Number : 29 Question Id : 28393610149 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The intensity of solar radiation on the earth is

Options :

1. ✘ 10 W/m^2
2. ✘ 110 W/m^2
3. ✔ 450 W/m^2
4. ✘ 1 W/m^2

Question Number : 30 Question Id : 28393610150 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Entropy decreases during

Options :

1. ✘ Rusting of iron
2. ✔ Crystallization of sucrose from solution
3. ✘ Melting of ice
4. ✘ Vaporization of camphor

Question Number : 31 Question Id : 28393610151 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Floatability of any mineral is its tendency to attach to

Options :

1. ✘ Water
2. ✔ Air bubbles
3. ✘ Agitator
4. ✘ Reagents

Question Number : 32 Question Id : 28393610152 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Galena is the sulphide of

Options :

1. ✘ Zinc
2. ✘ Copper
3. ✔ Lead
- 4.

✘ Zirconium

Question Number : 33 Question Id : 28393610153 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Stefan-Boltzmann law applies to

Options :

1. ✓ Black body
2. ✘ White body
3. ✘ Red body
4. ✘ Green body

Question Number : 34 Question Id : 28393610154 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The important factors for producing low silicon pig iron in a blast furnace are

Options :

1. ✘ Higher temperature and higher basicity
2. ✘ Lower temperature and lower basicity
3. ✓ Lower temperature and higher basicity

4. ✘ Higher temperature and lower basicity.

Question Number : 35 Question Id : 28393610155 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The process using gaseous reductant for production of DRI is

Options :

1. ✘ SL / RN

2. ✘ KRUPP – RENN

3. ✘ Mini Blast furnace

4. ✔ HYL

Question Number : 36 Question Id : 28393610156 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which crusher the “angle of nip” term is used

Options :

1. ✘ Jaw

2. ✔ Roll

3.

✘ Cone

4. ✘ Gyrotory

Question Number : 37 Question Id : 28393610157 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Matte is produced during smelting of _____ ores.

Options :

1. ✘ Magnesium

2. ✔ Nickel

3. ✘ Uranium

4. ✘ Titanium

Question Number : 38 Question Id : 28393610158 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Yellow cake consists of _____

Options :

1. ✔ UO_2

2. ✘ TiO_2

3. ✘ WO_2

4. ✘ MgO

Question Number : 39 Question Id : 28393610159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Killed steels have the following defect mostly _____

Options :

1. ✘ Blow holes

2. ✔ Pipe

3. ✘ Segregation

4. ✘ Longitudinal cracks

Question Number : 40 Question Id : 28393610160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

AOD process is suitable for production of _____ steels.

Options :

1. ✘ Tool

2.

✓ Stainless

3. ✗ Ausforming

4. ✗ Maraging

Question Number : 41 Question Id : 28393610161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Hairline cracks in steel ingots are caused by

Options :

1. ✓ Hydrogen

2. ✗ Sulphur

3. ✗ Carbon

4. ✗ Silicon

Question Number : 42 Question Id : 28393610162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pidgeon process is the pyrometallurgical process used in the extraction of

Options :

1. ✗ Ti

2. ✘ Cu

3. ✔ Mg

4. ✘ In

Question Number : 43 Question Id : 28393610163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

High refractoriness of refractory bricks means, that it has a

Options :

1. ✔ High spalling resistance

2. ✘ Low spalling resistance

3. ✘ High resistance to fusion

4. ✘ Low porosity

Question Number : 44 Question Id : 28393610164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The panel test in refractories is to investigate the following property of it

Options :

1.

- ✘ Compression
- 2. ✘ Corrosion
- 3. ✔ Spalling resistance
- 4. ✘ Thermal conductivity

Question Number : 45 Question Id : 28393610165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following process is also called Thomas – Gilchrist process?

Options :

- 1. ✘ Crucible
- 2. ✘ Acid Bessemer
- 3. ✔ Basic Bessemer
- 4. ✘ Basic open hearth

Question Number : 46 Question Id : 28393610166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following furnace works on the principle of a transformer?

Options :

1. ✘ Blast furnace
2. ✘ Cupola
3. ✔ Induction furnace
4. ✘ Salt bath furnace

Question Number : 47 Question Id : 28393610167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Minimum waste gases are produced in the following furnace

Options :

1. ✘ Blast furnace
2. ✘ Open hearth furnace
3. ✔ Electric arc furnace
4. ✘ Kiln

Question Number : 48 Question Id : 28393610168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

'Take care of the slag it will take care of the metal' is applicable in

Options :

1. ✘ Iron making
2. ✔ Steel making
3. ✘ Annealing
4. ✘ Flame hardening

Question Number : 49 Question Id : 28393610169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The strongest deoxidiser is

Options :

1. ✘ Silicon
2. ✘ Manganese
3. ✔ Calcium
4. ✘ Aluminium

Question Number : 50 Question Id : 28393610170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Puddling process is for converting

Options :

1. ✘ Pig iron into steels
2. ✘ Mild steel into alloy steel
3. ✔ Pig iron into wrought iron
4. ✘ Lead ore into lead metal

Question Number : 51 Question Id : 28393610171 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

For a combination of strength, ductility and weldability which of the following materials are chosen?

Options :

1. ✔ Maraging steels
2. ✘ Case hardened steels
3. ✘ Ceramics
4. ✘ Plastics

Question Number : 52 Question Id : 28393610172 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

Grinding wheels use ceramic materials because of their

Options :

1. ✓ High hardness and strength
2. ✗ Machinability and ductility
3. ✗ Ductility and toughness
4. ✗ Toughness and wear resistance

Question Number : 53 Question Id : 28393610173 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

If the concentration of point defects increases in a crystal, then its configurational entropy

Options :

1. ✗ Does not change
2. ✗ Decreases
3. ✗ Increases
4. ✓ Initially increases and then decreases

Question Number : 54 Question Id : 28393610174 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

Which of the following is the softest?

Options :

1. ✘ Austenite

2. ✔ Ferrite

3. ✘ pearlite

4. ✘ cementite

Question Number : 55 Question Id : 28393610175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

At equilibrium, the maximum number of phases in a three-component system at constant pressure is

Options :

1. ✘ 1

2. ✘ 2

3. ✘ 3

4. ✔ 4

Question Number : 56 Question Id : 28393610176 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For an ideal hexagonal-closed packed structure, the c/a ratio and packing efficiency respectively are

Options :

1. ✘ 1.633 and 52%
2. ✔ 1.633 and 74%
3. ✘ 1.733 and 68%
4. ✘ 1.733 and 74%

Question Number : 57 Question Id : 28393610177 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following elements alloyed with iron is a ferrite stabilizer?

Options :

1. ✘ Nickel
2. ✘ Manganese
3. ✘ Carbon
4. ✔ Silicon

Question Number : 58 Question Id : 28393610178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is the correct decreasing sequence of Quenching Power for quenchants used in heat treatment of steels?

Options :

1. ✘ Oil > Water > Brine > Air
2. ✘ Brine > Oil > Water > Air
3. ✔ Brine > Water > Oil > Air
4. ✘ Water > Brine > Oil > Air

Question Number : 59 Question Id : 28393610179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

How many effective number of atoms are present per unit cell in a BCC lattice structure

Options :

1. ✘ 1
2. ✔ 2
3. ✘ 3
4. ✘ 4

Question Number : 60 Question Id : 28393610180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Increasing electron beam energy in a transmission electron microscope will

Options :

1. ✘ Increase magnification
2. ✘ Decrease contrast
3. ✘ Decrease resolution
4. ✔ Increase X-ray emission from the sample

Question Number : 61 Question Id : 28393610181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

X-rays are

Options :

1. ✘ deflected by an electric field but not by a magnetic field
2. ✘ deflected by a magnetic field but not by an electric field
3. ✔ deflected both by magnetic field and an electric field

4. ✘ not deflected by an electric field or by a magnetic field

Question Number : 62 Question Id : 28393610182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The strength to density ratio is called as

Options :

1. ✘ Specific gravity
2. ✔ Specific strength
3. ✘ Specific stiffness
4. ✘ Specific modulus

Question Number : 63 Question Id : 28393610183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Martensite has a crystal lattice structure

Options :

1. ✔ Body centered tetragonal
2. ✘ Body centered cubic
3. ✘ Face centered cubic

4. ✘ Close packed hexagonal

Question Number : 64 Question Id : 28393610184 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cyaniding is a process of

Options :

1. ✘ Tempering

2. ✔ Case hardening

3. ✘ Normalizing

4. ✘ spherodizing

Question Number : 65 Question Id : 28393610185 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The name of the test used to evaluate the hardenability of steel is

Options :

1. ✔ Jominy end quench test

2. ✘ Fatigue test

3. ✘ Creep test

4. ✘ Tensile test

Question Number : 66 Question Id : 28393610186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Frank-Reed source

Options :

1. ✔ Generates dislocations

2. ✘ Hinders the movement of dislocations

3. ✘ is responsible for polygonization in edge dislocation

4. ✘ is responsible for dislocation climb

Question Number : 67 Question Id : 28393610187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Hume-Rothery's rule predicts the existence of solid solubility in which the following factor is not included

Options :

1. ✘ Crystal structure

2. ✔ Atomic weight

3. ✘ Atomic size

4. ✘ Electronegativity

Question Number : 68 Question Id : 28393610188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

When the wavelength of the incident X-ray increases, then the angle of diffraction is

Options :

1. ✘ decreases

2. ✔ increases

3. ✘ remains constant

4. ✘ shows no systematic variation

Question Number : 69 Question Id : 28393610189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Alnico alloy is a

Options :

1. ✘ soft magnetic alloy

2.

✓ Permanent magnetic alloy

3. ✘ Semi-magnetic alloy

4. ✘ Nanomagnetic alloy

Question Number : 70 Question Id : 28393610190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Quartz is a

Options :

1. ✘ Super plastic material

2. ✓ Piezoelectric material

3. ✘ Ferroelectric material

4. ✘ Creep resistant material

Question Number : 71 Question Id : 28393610191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Diamond can be classified as a good

Options :

1. ✘ Electrical conductor

2. ✘ Superconductor

3. ✘ Semiconductor

4. ✔ Electrical insulator

Question Number : 72 Question Id : 28393610192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The curie temperature of Nickel is

Options :

1. ✘ 770°C

2. ✘ 910°C

3. ✘ 1123°C

4. ✔ 358°C

Question Number : 73 Question Id : 28393610193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

SmCo₅ is an example of

Options :

1.

- ✘ Ceramic material
- 2. ✘ Refractory material
- 3. ✔ Magnetic material
- 4. ✘ Insulator

Question Number : 74 Question Id : 28393610194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following material is easily broken by the hammer?

Options :

- 1. ✘ Copper
- 2. ✘ Steel
- 3. ✔ Cast iron
- 4. ✘ Rubber

Question Number : 75 Question Id : 28393610195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Rockwell hardness tester on C scale uses

Options :

1. ✓ 120° diamond cone indenter
2. ✘ Square base diamond pyramid
3. ✘ 10 mm diameter steel ball
4. ✘ 3 mm diameter steel ball

Question Number : 76 Question Id : 28393610196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Nanomaterials have a large ratio between

Options :

1. ✘ Volume to surface area
2. ✓ Surface area to volume
3. ✘ length to surface area
4. ✘ Surface area to length

Question Number : 77 Question Id : 28393610197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Devices used to operate at high temperature requires

Options :

1. ✘ High abrasion resistance
2. ✘ Good thermal conductivity
3. ✔ High creep resistance
4. ✘ High ductility and machinability

Question Number : 78 Question Id : 28393610198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following materials exhibit high specific strength and fracture toughness?

Options :

1. ✘ Ceramics
2. ✘ Plastics
3. ✘ Composites
4. ✔ Metals

Question Number : 79 Question Id : 28393610199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Dispersion hardening techniques is done mainly by _____ process

Options :

1. ✘ Casting
2. ✘ Welding
3. ✔ Powder metallurgy
4. ✘ Rolling

Question Number : 80 Question Id : 28393610200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most common carbide powders used in cemented carbides are

Options :

1. ✔ WC and TiC
2. ✘ SiC and CaC
3. ✘ B₄C and V₃C
4. ✘ MoC and B₄C

Question Number : 81 Question Id : 28393610201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Stiffness is the property of the material by virtue of which it resists

Options :

1. ✓ Elastic deformation
2. ✗ Dendritic growth
3. ✗ Decay
4. ✗ Doping

Question Number : 82 Question Id : 28393610202 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

The respective units for dislocation density and stress intensity factor are

Options :

1. ✗ m^2 and MPa.m
2. ✗ m^2 and MPa.m^{1/2}
3. ✓ m^{-2} and MPa.m^{1/2}
4. ✗ m^{-2} and MPa.m

Question Number : 83 Question Id : 28393610203 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

How Burger's vector is related to the edge dislocation line?

Options :

1. ✓ Perpendicular
2. ✗ Inclined
3. ✗ Parallel
4. ✗ Can either be parallel or perpendicular

Question Number : 84 Question Id : 28393610204 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✓ Coherent
2. ✗ Incoherent
3. ✗ Semi-coherent
4. ✗ Chemically indistinguishable

Question Number : 85 Question Id : 28393610205 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

As compared to the engineering stress-engineering strain curve, the true stress-true strain curve for a given material is

Options :

1. ✓ Lies above and to the left
2. ✗ Lies below and to the right
3. ✗ Crosses the engineering stress-engineering strain curve
4. ✗ Identical

Question Number : 86 Question Id : 28393610206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A plastically deformed metal crystal at low temperature exhibits wavy slip line pattern due to

Options :

1. ✗ Dislocation pile-up
2. ✓ Large number of slip systems
3. ✗ Low stacking fault energy
4. ✗ Dislocation climb

Question Number : 87 Question Id : 28393610207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Fatigue crack mostly initiates at the

Options :

1. ✓ Surface
2. ✗ inclusion
3. ✗ Pore
4. ✗ soft spots

Question Number : 88 Question Id : 28393610208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is FALSE for creep deformation?

Options :

1. ✓ The minimum creep rate is obtained in the primary stage (stage I).
2. ✗ Creep resistance decreases with decrease in grain size.
3. ✗ Coble creep occurs via grain boundary diffusion.
4. ✗ Nabarro-Herring creep occurs via lattice diffusion.

Question Number : 89 Question Id : 28393610209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Fibrous fracture occurs in

Options :

1. ✓ Ductile materials
2. ✗ Hard materials
3. ✗ Brittle materials
4. ✗ Viscous materials

Question Number : 90 Question Id : 28393610210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Critical resolved shear stress in single crystal is calculated by applying

Options :

1. ✗ Bragg's law
2. ✗ Hooke's law
3. ✗ Coulomb's law

4. ✓ Schmid's law

Question Number : 91 Question Id : 28393610211 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Deformation twins are formed in metals when deformed at

Options :

1. ✓ high strain rate and low temperature
2. ✗ high strain rate and high temperature
3. ✗ low strain rate and low temperature
4. ✗ low strain and high temperature

Question Number : 92 Question Id : 28393610212 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Patenting process is a

Options :

1. ✗ wire drawing process
2. ✓ Heat treatment process for drawn wires
3. ✗ Coating process for wires

4. ✘ Deep drawing process

Question Number : 93 Question Id : 28393610213 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Coble creep is related to

Options :

1. ✘ Lattice diffusion
2. ✘ Pipe diffusion
3. ✔ Grain boundary diffusion
4. ✘ Dislocation climb

Question Number : 94 Question Id : 28393610214 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The plane strain fracture toughness parameter, K_{IC} has the units

Options :

1. ✔ $\text{MPa}\sqrt{\text{m}}$
2. ✘ $\text{MPa}\cdot\text{m}$
- 3.

✘ MPa.m²

4. ✘ $\sqrt{\text{MPa.m}}$

Question Number : 95 Question Id : 28393610215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Fatigue failure may occur commonly in

Options :

1. ✘ aeroplanes

2. ✔ rail bridge

3. ✘ ships

4. ✘ Tool bit

Question Number : 96 Question Id : 28393610216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Notch may be the main cause of fatigue failure is

Options :

1. ✘ Orowan theory

2. ✘ Griffith theory

3. ✓ Wood's concept

4. ✗ Jungham principle

Question Number : 97 Question Id : 28393610217 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A jet engine turbine block is normally manufactured by

Options :

1. ✗ Forging

2. ✗ Shell moulding

3. ✓ Investment casting

4. ✗ Rolling

Question Number : 98 Question Id : 28393610218 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ductile to brittle transition for steels depends on

Options :

1. ✗ Tensile strength

2. ✘ Shear modulus

3. ✔ Strain rate

4. ✘ Damping capacity

Question Number : 99 Question Id : 28393610219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Widest application of laser welding is in

Options :

1. ✔ Electronic industry

2. ✘ Heavy industry

3. ✘ Process industry

4. ✘ Structural work

Question Number : 100 Question Id : 28393610220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Riser is not required for the casting of

Options :

1. ✔ Grey cast iron

2. ✘ White cast iron

3. ✘ At 4% Cu

4. ✘ Al-12% Si

Question Number : 101 Question Id : 28393610221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Draft allowance given to pattern is for

Options :

1. ✘ Compensating the liquid state shrinkage

2. ✔ Easy removal of pattern from the mould cavity

3. ✘ Providing support for the core placement

4. ✘ Compensating the solidification shrinkage

Question Number : 102 Question Id : 28393610222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which process wax pattern is used

Options :

1.

✘ Shell moulding

2. ✘ Die casting

3. ✔ Investment casting

4. ✘ Sand casting

Question Number : 103 Question Id : 28393610223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following shape of powder particles would tend to have the lowest interparticle friction?

Options :

1. ✔ Spherical

2. ✘ Flakes

3. ✘ Cubic

4. ✘ Triangular

Question Number : 104 Question Id : 28393610224 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following technique involves melting of the materials?

Options :

1. ✘ Thermal decomposition
2. ✘ Precipitation
3. ✘ Attrition
4. ✔ General atomization

Question Number : 105 Question Id : 28393610225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The riser is designed such that the melt in the riser solidifies

Options :

1. ✘ Before casting solidifies
2. ✘ At the same time as casting solidifies
3. ✔ After casting solidifies
4. ✘ Irrespective of the solidification of the casting

Question Number : 106 Question Id : 28393610226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Among the welding processes

[1] Laser Beam Welding

[2] Submerged Arc Welding

[3] Metal Inert Gas Welding

the width of the heat-affected zone in decreasing order is

Options :

1. ✘ $1 > 2 > 3$

2. ✔ $2 > 3 > 1$

3. ✘ $3 > 1 > 2$

4. ✘ $1 > 3 > 2$

Question Number : 107 Question Id : 28393610227 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

Core prints are used to

Options :

1. ✘ Produce cores

2. ✘ Help removal of core

3. ✔ Support the core

4. ✘ Supply heat.

Question Number : 108 Question Id : 28393610228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Zipper cracks occur

Options :

1. ✓ In the central portion of the strip
2. ✗ At the edges of the strip
3. ✗ Anywhere on the strip
4. ✗ On the surface of the rolls used in rolling operation.

Question Number : 109 Question Id : 28393610229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Typical products made by impact extrusion are

Options :

1. ✗ Strips and sheets
2. ✗ Wires and rods
3. ✓ Tubular components

4. ✘ Circular rings

Question Number : 110 Question Id : 28393610230 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Springback in a sheet metal bending operation is due to

Options :

1. ✘ Overstraining
2. ✔ Elastic recovery of the metal
3. ✘ Overbending
4. ✘ Thick component

Question Number : 111 Question Id : 28393610231 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is difficult to solder?

Options :

1. ✘ Copper
2. ✔ Stainless steel
3. ✘ Silver

4. ✘ Brass

Question Number : 112 Question Id : 28393610232 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The common flux used in brazing is

Options :

1. ✘ Sodium nitrate

2. ✘ Silver nitrate

3. ✘ Barium

4. ✔ Borax

Question Number : 113 Question Id : 28393610233 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Alligatoring is a defect commonly observed in

Options :

1. ✔ Rolling

2. ✘ Extrusion

3.

✘ Forging

4. ✘ Drawing

Question Number : 114 Question Id : 28393610234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Segregation is decreased by

Options :

1. ✘ Riser

2. ✘ Chaplets

3. ✘ Sulphur

4. ✔ Soaking of the ingot

Question Number : 115 Question Id : 28393610235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solidification is slower when the casting has

Options :

1. ✔ High volume to surface area ratio

2. ✘ Low volume to surface area ratio

3. ✘ Volume to surface area ratio is one

4. ✘ Surface area to volume is high

Question Number : 116 Question Id : 28393610236 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

Swaging is an operation of

Options :

1. ✘ Hot Rolling

2. ✔ Forging

3. ✘ Extrusion

4. ✘ Piercing

Question Number : 117 Question Id : 28393610237 Question Type : MCQ Option Shuffling : Yes

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

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

Correct Marks : 1 Wrong Marks : 0

Directional properties can be obtained in

Options :

1. ✘ Hot working

2.

✘ Warm working

3. ✔ Cold working

4. ✘ Quenching

Question Number : 118 Question Id : 28393610238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A foil is a

Options :

1. ✔ Thin sheet

2. ✘ Thin slab

3. ✘ Thin plate

4. ✘ Thin billet

Question Number : 119 Question Id : 28393610239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Hemming is an operation in

Options :

1. ✘ Rolling

2. ✘ Forging

3. ✔ Sheet metal forming

4. ✘ Impact extrusion

Question Number : 120 Question Id : 28393610240 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Flashless precision forging occurs in

Options :

1. ✘ Swaging

2. ✘ Punching

3. ✔ Coining

4. ✘ Upsetting