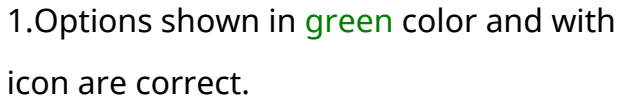
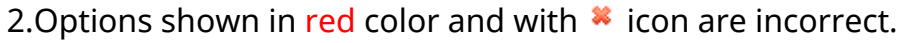


Telangana State Council Higher Education

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 20th May 2023 Shift1 SET1
Subject Name :	Metallurgical Engineering
Creation Date :	2023-05-20 13:03:36
Duration :	180
Total Marks :	200
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 :	15920731
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	159207118
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 159207139
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 1 Question Id : 1592076016 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 $A = \begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$. If $A^2 = \alpha A + \beta I$, where I is the 2×2 identity matrix, then $(\alpha, \beta) =$

Options :

1. ✘ (5, 7)

2. ✘ (-5, -7)

3. ✘ (-5, 7)

4. ✔ (5, -7)

Question Number : 2 Question Id : 1592076017 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 $(a + b + c) = 5$, then

$$\det \begin{bmatrix} a-b-c & 2b & 2c \\ 2a & b-c-a & 2c \\ 2a & 2b & c-a-b \end{bmatrix} =$$

Options :

- 1. ✘ 5
- 2. ✘ 25
- 3. ✔ 125
- 4. ✘ 625

Question Number : 3 Question Id : 1592076018 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

$$\text{If } \begin{bmatrix} 4 & 3 \\ 9 & 7 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 18 \\ 41 \end{bmatrix}, \text{ then } 12x + 10y =$$

Options :

- 1. ✘ 58
- 2. ✔ 56

3. ✘ 54

4. ✘ 52

Question Number : 4 Question Id : 1592076019 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 $\log_{16} x + \log_4 x + \log_2 x = 7$, then $x =$

Options :

1. ✔ 16

2. ✘ 32

3. ✘ 64

4. ✘ 128

Question Number : 5 Question Id : 1592076020 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 $\frac{2x^2 - 6x + 5}{x^3 - 6x^2 + 11x - 6} = \frac{A}{x-1} + \frac{B}{x-2} + \frac{C}{x-3}$, then $10A + B + 2C =$

Options :

1. ✘ 5

2. ✘ 7

3. ✔ 9

4. ✘ 11

Question Number : 6 Question Id : 1592076021 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 $\log_x (3x^2 + 10x) = 3$, then $x =$

Options :

1. ✘ 3

2. ✔ 5

3. ✘ 7

4. ✘ 9

Question Number : 7 Question Id : 1592076022 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of $\sin^2 45^\circ + \sin^2 135^\circ + \sin^2 225^\circ + \sin^2 315^\circ$ is

Options :

1. ✘ 1

2. ✔ 2

3. ✘ 0

4. ✘ 4

Question Number : 8 Question Id : 1592076023 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a $\triangle ABC$, if $a = 3$, $b = 4$ and $\sin A = \frac{3}{4}$, then the angle B =

Options :

1. ✘ 45°

2. ✘ 60°

3. ✓ 90°

4. ✗ 70°

Question Number : 9 Question Id : 1592076024 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

$$\sin^2 36^\circ - \sin^2 18^\circ =$$

Options :

1. ✗ $\frac{1}{2}$

2. ✓ $\frac{1}{4}$

3. ✗ $\frac{1}{8}$

4. ✗ 1

Question Number : 10 Question Id : 1592076025 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 period of the function $\cos\left(\frac{5}{3}\right)\sin\left(\frac{2x}{3}\right) + \sin\left(\frac{5}{3}\right)\cos\left(\frac{2x}{3}\right)$ is

Options :

1. ✘ π

2. ✘ 2π

3. ✔ 3π

4. ✘ $\frac{3\pi}{2}$

Question Number : 11 Question Id : 1592076026 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 $\cosh x = \frac{5}{4}$, then $\coth 2x =$

Options :

1. ✔ $\frac{17}{15}$

2. ✘ $\frac{5}{3}$

3. ✘ $\frac{15}{17}$

4. ✘ $\frac{3}{5}$

Question Number : 12 Question Id : 1592076027 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 modulus of the complex number $\frac{2+i}{3-i}$ is

Options :

1. ✘ $\frac{1}{\sqrt{3}}$

2. ✘ 1

3. ✘ $\sqrt{2}$

4. ✔ $\frac{1}{\sqrt{2}}$

Question Number : 13 Question Id : 1592076028 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 sides of a triangle are 13, 7 and 8, then the greatest angle of the triangle is

Options :

1. ✘ $\frac{\pi}{3}$

2. ✘ $\frac{\pi}{2}$

3. ✔ $\frac{2\pi}{3}$

4. ✘ $\frac{3\pi}{2}$

Question Number : 14 Question Id : 1592076029 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 angles of a triangle are in the ratio of 1: 4: 5 , then the ratio of the greatest side to the smallest side is

Options :

1. ✓ $4:\sqrt{5} - 1$

2. ✗ $5:4$

3. ✗ $\sqrt{5}-1:4$

4. ✗ $4:\sqrt{5}$

Question Number : 15 Question Id : 1592076030 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

Number of tangents drawn at a point of the circle is

Options :

1. ✓ One

2. ✗ Two

3. ✗ Three

4. ✗ Many

Question Number : 16 Question Id : 1592076031 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum value of $f(x) = |x - 2| + |x + 2|$ is

Options :

1. ✘ 0

2. ✘ 2

3. ✔ 4

4. ✘ 8

Question Number : 17 Question Id : 1592076032 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 eccentricity of ellipse $\frac{x^2}{16} + \frac{y^2}{4} = 1$ is

Options :

1. ✘ $2\sqrt{3}$

2. ✘ $\sqrt{2}$

3. ✔

$$\frac{\sqrt{3}}{2}$$

4. ✘ $\sqrt{3}$

Question Number : 18 Question Id : 1592076033 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

$$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x}\right)^x =$$

Options :

1. ✘ e

2. ✔ e^2

3. ✘ e^3

4. ✘ e^4

Question Number : 19 Question Id : 1592076034 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

$$\frac{d}{dx}(\sqrt{\sin \sqrt{x}}) =$$

Options :

1. ✘ $\frac{1 \sin \sqrt{x}}{4 \sqrt{x}}$

2. ✘ $\frac{1 \cos \sqrt{x}}{6 \sqrt{x}}$

3. ✔ $\frac{1 \cos \sqrt{x}}{4 \sqrt{x} \sqrt{\sin \sqrt{x}}}$

4. ✘ $\frac{1 \cos \sqrt{x}}{2 \sqrt{\sin \sqrt{x}}}$

Question Number : 20 Question Id : 1592076035 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 $x = 2\cos t - \cos 2t$, $y = 2\sin t - \sin 2t$, then $\frac{dy}{dx}$ at $t = \frac{\pi}{6}$ is

Options :

1. ✘ 0

2. ✔ 1

3. ✘ $\sqrt{3}$

4. ✘ $\frac{1}{\sqrt{3}}$

Question Number : 21 Question Id : 1592076036 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 $y = \cos(x + y)$, then $\frac{dy}{dx} =$

Options :

1. ✘ $\frac{1 - \sin(x + y)}{\cos x + \cos y}$

2. ✘ $\frac{1 + \sin(x + y)}{\cos x - \cos y}$

3. ✘ $\frac{\cos(x + y)}{1 + \sin(x + y)}$

4. ✔ $\frac{-\sin(x + y)}{1 + \sin(x + y)}$

Question Number : 22 Question Id : 1592076037 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 equation of tangent to the curve $xy = 16$ at P (4, 4) is

Options :

1. ✘ $x + y = 2$

2. ✘ $x + y = 4$

3. ✔ $x + y = 8$

4. ✘ $x + y = 16$

Question Number : 23 Question Id : 1592076038 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 maximum value of $f(x) = \left(\frac{1}{x}\right)^x$ is

Options :

1. ✔ $e^{1/e}$

2. ✘ $\left(\frac{1}{e}\right)^e$

3. ✘ $\left(\frac{1}{e}\right)^{\frac{1}{e}}$

4. ✘ e^e

Question Number : 24 Question Id : 1592076039 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 $u(x, y, z) = \log(x^3 + y^3 + z^3 - 3xyz)$, then $\frac{\partial u}{\partial x} + \frac{\partial u}{\partial y} + \frac{\partial u}{\partial z} =$

Options :

1. ✘ $\frac{1}{x+y+z}$

2. ✘ $\frac{9}{x+y+z}$

3. ✘ $\frac{6}{x+y+z}$

4. ✔ $\frac{3}{x+y+z}$

Question Number : 25 Question Id : 1592076040 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

$$\text{If } u(x, y) = \log\left(\frac{x^4 + y^4}{x + y}\right), \text{ then } x \frac{\partial u}{\partial x} + y \frac{\partial u}{\partial y} =$$

Options :

1. ✘ 4

2. ✔ 3

3. ✘ 2

4. ✘ 1

Question Number : 26 Question Id : 1592076041 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

$$\int \frac{\sin(\tan^{-1} x)}{1 + x^2} dx =$$

Options :

1. ✔ $-\cos(\tan^{-1} x) + c$

2. ✘ $\cos(\tan^{-1} x) + c$

3. ✘ $\sin(\tan^{-1}x) + c$

4. ✘ $-\sin(\tan^{-1}x) + c$

Question Number : 27 Question Id : 1592076042 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

$$\int \frac{1}{e^{2x} + e^x} dx$$

Options :

1. ✘ $\log(e^x + 1) - e^{-x} + c$

2. ✘ $\log\left(\frac{e^x + 1}{e^x}\right) + c$

3. ✔ $\log(e^{-x} + 1) - e^{-x} + c$

4. ✘ $\log\left(\frac{e^{-x}}{e^x + 1}\right) + e^{-x} + c$

Question Number : 28 Question Id : 1592076043 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The value of the integral $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \sin |x| dx$ is

Options :

1. ✘ 0

2. ✘ 1

3. ✘ -2

4. ✔ 2

Question Number : 29 Question Id : 1592076044 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 curves $y = x^2 - 4$ and $y = 1 - x^2$ together enclose an area of

Options :

1. ✘ $10\sqrt{10}$

2. ✘ $5\sqrt{10}$

3. ✔

$$\frac{10\sqrt{10}}{3}$$

4. ✘ $\frac{10\sqrt{10}}{9}$

Question Number : 30 Question Id : 1592076045 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 RMS value of the $f(x) = \sqrt{\log x}$ on $[1, e]$ is

Options :

1. ✘ $\sqrt{\frac{e}{e-1}}$

2. ✘ $\sqrt{\frac{e-1}{e}}$

3. ✔ $\frac{1}{\sqrt{e-1}}$

4. ✘ $\sqrt{e-1}$

Question Number : 31 Question Id : 1592076046 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 approximate value of the integral $\int_0^1 \frac{1}{1+x} dx$, using Trapezoidal rule with $h = 0.5$, is

Options :

0.69450

1. ✘

0.70834

2. ✔

0.67435

3. ✘

0.68500

4. ✘

Question Number : 32 Question Id : 1592076047 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 velocity of a body as a function of time is given as

$v(t) = 5e^{-2t} + 4$, where t is in seconds and v is in m/s. The acceleration when $t = 5$ in m/s^2 is

Options :

$-10e^{-10}$

1. ✔

2. ✘ $-20e^{-10}$

3. ✘ $-30e^{-10}$

4. ✘ $-40e^{-10}$

Question Number : 33 Question Id : 1592076048 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 order and degree of the differential equation

$$\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + x = 0 \text{ respectively are}$$

Options :

1. ✘ 3 and 3

2. ✘ 2 and 2

3. ✘ 2 and 3

4. ✔ 2 and 1

Question Number : 34 Question Id : 1592076049 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 general solution of $ye^x dx + (y-1)dy = 0$ is

Options :

1. ✘ $e^x - \log y = c$

2. ✘ $e^x - y = c$

3. ✘ $e^x - y - \log x = c$

4. ✔ $e^x + y - \log y = c$

Question Number : 35 Question Id : 1592076050 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 $\sin x \frac{dy}{dx} + y \cos x = x \sin x$, then $(y-1)\sin x =$

Options :

1. ✘ $c - x \sin x$

2. ✘ $c + x \sin x$

3. ✓ $c - x \cos x$

4. ✗ $c + x \cos x$

Question Number : 36 Question Id : 1592076051 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 solution of the differential equation

$$(e^y + 1)\cos x \, dx + e^y \sin x \, dy = 0 \text{ is}$$

Options :

1. ✓ $(e^y + 1)\sin x = c$

2. ✗ $e^x \sin x = c$

3. ✗ $(e^x + 1)\cos x = c$

4. ✗ $(e^y - 1)\sin x = c$

Question Number : 37 Question Id : 1592076052 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 differential equation satisfied by $y = \frac{A}{x} + B$, (A,B are parameters) is

Options :

1. ✘ $x^2 y_1 = y$

2. ✘ $xy_1 + 2y_2 = 0$

3. ✔ $xy_2 + 2y_1 = 0$

4. ✘ $x^2 y_1 - 2y = 0$

Question Number : 38 Question Id : 1592076053 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 general solution of $\log\left(\frac{dy}{dx}\right) = 3x + 3y$ is

Options :

1. ✘ $e^{3x} + e^{3y} = c$

2. ✘ $e^{-3x} + e^{-3y} = c$

3. ✘ $e^{-3x} + e^{3y} = c$

4. ✔ $e^{3x} + e^{-3y} = c$

Question Number : 39 Question Id : 1592076054 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 $y dx + y^2 dy = x dy, x \in \mathbb{R}, y > 0$ and $y(1) = 1$, then $y(-3) =$

Options :

1. ✔ 3

2. ✘ 2

3. ✘ 1

4. ✘ 5

Question Number : 40 Question Id : 1592076055 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

$$L\{\sin 2t - 2t \cos 2t\} =$$

Options :

1. ✘ $\frac{2}{(s^2 + 4)^2}$

2. ✘ $\frac{8}{(s^2 + 4)^2}$

3. ✔ $\frac{16}{(s^2 + 4)^2}$

4. ✘ $\frac{32}{((s^2 + 4))^2}$

Question Number : 41 Question Id : 1592076056 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

$$L\{\cosh 3t \cos 3t\} =$$

Options :

1. ✘ $\frac{1}{2} \left[\frac{s-6}{s^2 - 3s + 18} + \frac{s+6}{s^2 + 3s + 18} \right]$

2. ✔

$$\frac{1}{2} \left[\frac{s-3}{s^2-6s+18} + \frac{s+3}{s^2+6s+18} \right]$$

3. ✘

$$\frac{1}{2} \left[\frac{s-4}{s^2-4s+9} + \frac{s-3}{s^2-6s+9} \right]$$

4. ✘

$$\frac{1}{2} \left[\frac{s-6}{s^2+9} + \frac{s+6}{3s^2+9} \right]$$

Question Number : 42 Question Id : 1592076057 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

$$\mathcal{L} \left\{ \frac{1 - \cos 3t}{t} \right\} =$$

Options :

1. ✘

$$\frac{1}{2} \log \left(\frac{s^2+9}{s^2+3} \right)$$

2. ✘

$$\frac{1}{2} \log \left(\frac{s}{s+9} \right)$$

3. ✘

$$\frac{1}{2} \log \left(\frac{s}{s^2+9} \right)$$

4.

✓ $\frac{1}{2} \log \left(\frac{s^2 + 9}{s^2} \right)$

Question Number : 43 Question Id : 1592076058 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 Laplace transform of $f(t) = t \sin t$ is $F(s)$ where $F(s) =$

Options :

1. ✘ $\frac{s}{(1+s^2)^2}$

2. ✘ $\frac{2s}{(1+s^2)^2}$

3. ✘ $\frac{2s}{1+s^2}$

4. ✓ $\frac{s}{1+s^2}$

Question Number : 44 Question Id : 1592076059 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

$$\text{If } L^{-1}\left\{\frac{2s^2-1}{(s^2+1)(s^2+4)}\right\} = f(t), \text{ then } f\left(\frac{\pi}{2}\right) =$$

Options :

1. ✘ 1

2. ✔ -1

3. ✘ 2

4. ✘ -2

Question Number : 45 Question Id : 1592076060 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

$$\int_0^{\infty} \frac{e^{-3t} - e^{-6t}}{t} dt =$$

Options :

1. ✘ log 6

2. ✘ log 3

3. ✔ log 2

4. ✘ $\log 18$

Question Number : 46 Question Id : 1592076061 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 solution of the differential equation

$$y'' - 2y' + 2y = 0 \text{ satisfying } y(0) = y'(0) = 1 \text{ is}$$

Options :

1. ✘ $e^t + e^{-2t} \cos t$

2. ✘ $e^t + \cos t$

3. ✘ $e^t \sin t$

4. ✔ $e^t \cos t$

Question Number : 47 Question Id : 1592076062 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient a_0 in the Fourier series
expansion of $f(x) = x \sin x$ in $(0, 2\pi)$ is

Options :

1. ✘ 2

2. ✔ -2

3. ✘ 1

4. ✘ -1

Question Number : 48 Question Id : 1592076063 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 b_1, b_2 are Fourier coefficients in the Fourier series expansion of
 $f(x) = |\sin x|$ in $(-\pi, \pi)$, then $b_1 + b_2 =$

Options :

1. ✘ $\frac{2}{\pi}$

2. ✘ $-\frac{2}{\pi}$

3. ✔ 0

4. ✘ $\frac{4}{\pi}$

Question Number : 49 Question Id : 1592076064 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 $x = 0$, the Fourier series of $f(x) = \begin{cases} \pi + x & \text{if } -\pi < x < 0 \\ 0 & \text{if } 0 \leq x < \pi \end{cases}$
converges to

Options :

1. ✘ π

2. ✘ 0

3. ✘ $-\pi$

4. ✔ $\frac{\pi}{2}$

Question Number : 50 Question Id : 1592076065 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 $x = \frac{\pi}{2} + \sum_{n=1}^{\infty} a_n \cos nx$, $0 < x < \pi$, then the value of a_n is

Options :

$$\frac{2}{\pi n^2} [(-1)^n - 1]$$

1. ✓

$$\frac{2}{\pi n^2}$$

2. ✗

0

3. ✗

$$\frac{4}{\pi n^2}$$

4. ✗

Physics

Section Id :	159207119
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 159207140
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 51 Question Id : 1592076066 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 F is force, x is distance and t is time, then the dimensions
of $\frac{b}{a}$ in the equation $F = \frac{b-x}{at}$ are same as that of

Options :

1. ✘ Velocity
2. ✘ Force
3. ✔ Momentum
4. ✘ Time

Question Number : 52 Question Id : 1592076067 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 static friction is

Options :

1. ✘ Equal to the dynamic friction
2. ✔ Always greater than the dynamic friction
3. ✘ Always less than the dynamic friction
4. ✘ Sometimes less than and sometimes equal to dynamic friction

Question Number : 53 Question Id : 1592076068 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 vector A points vertically upward and B points towards north, the vector product of $B \times A$ is

Options :

1. ✘ Along west
2. ✔ Along east
3. ✘ Vertically downward

4. ✘ No direction

Question Number : 54 Question Id : 1592076069 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 Vector A has magnitude $9/2$ unit towards north, the direction
of vector $-6A$ and $8A$.

Options :

1. ✘ -27 units and 36 units towards south

2. ✘ -27 units and 36 units towards north

3. ✔ -27 units towards south and 36 units towards north

4. ✘ -27 units towards west and 36 units towards east

Question Number : 55 Question Id : 1592076070 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 Angular displacement of a particle is described as

$\theta = 2t + 3t^2$, the angular velocity (in rad/sec) at $t = 2$ sec is

Options :

1. ✘ 2

2. ✘ 6

3. ✘ 16

4. ✔ 14

Question Number : 56 Question Id : 1592076071 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 acceleration of a car moving on a straight road with a constant velocity of 40 m/sec is

Options :

1. ✘ 30 m/s²

2. ✘ 20 m/s²

3. ✔ 0 m/s²

4. ✘ 40 m/s^2

Question Number : 57 Question Id : 1592076072 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two wires of same length and made with same material are stretched with the same force. If the radii of the wires are in the ratio 1:3, then the ratio of their elongations is

Options :

1. ✘ 1:3

2. ✔ 9:1

3. ✘ 3:1

4. ✘ 1:9

Question Number : 58 Question Id : 1592076073 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

Along a stream line flow of fluid

Options :

The velocity of all fluid particles at a given instant is constant.

1. ✘

The velocity of a fluid particle remains constant.

2. ✘

The velocity of all fluid particles crossing a given position is constant.

3. ✔

The speed of a fluid particle remains constant.

4. ✘

Question Number : 59 Question Id : 1592076074 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 gives the relation between C_p and C_v

Options :

1. ✔ $C_p - C_v = R$

2. ✘ $C_p = C_v$

3. ✘ $C_p - C_v > R$

4. ✘ $C_p / C_v = R$

Question Number : 60 Question Id : 1592076075 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

Compressed air coming out of punctured football becomes cooler because.

Options :

1. ✔ Adiabatic expansion

2. ✘ Isothermal expansion

3. ✘ Energy dissipation

4. ✘ See-beck effect

Question Number : 61 Question Id : 1592076076 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 work done (Joule) by a 1 mole of a perfect gas when it expands isothermally to double its volume. The initial temperature of the gas is 0°C and $R = 8.31 \times 10^7 \text{ erg} \cdot \text{mol}^{-1} \cdot \text{K}^{-1}$. ($\log_{10} 2 = 0.3010$)

Options :

1. ✘ 15.72 joule
2. ✘ 157.2 joule
3. ✔ 1572 joule
4. ✘ 1.572 joule

Question Number : 62 Question Id : 1592076077 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 energy possessed by an object, by virtue of its motion is termed as

Options :

1. ✘ Potential Energy
2. ✔ Kinetic Energy
3. ✘ Gravitational Energy
4. ✘ Nuclear Energy

Question Number : 63 Question Id : 1592076078 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 what speed the observer must move towards a stationary source so that the apparent frequency will be double the original frequency of the source? The velocity of sound is V .

Options :

1. ✓ V

2. ✗ $\frac{V}{2}$

3. ✗ $2V$

4. ✗ $\frac{V}{4}$

Question Number : 64 Question Id : 1592076079 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 displacement equation of a particle executes SHM is given by $y = a \sin \omega t + b \cos \omega t$, the resultant amplitude is

Options :

1. ✓ $(a^2 + b^2)^{1/2}$

2. ✗ $(a + b)$

3. ✗ $(a + b)^{1/2}$

4. ✗ Zero

Question Number : 65 Question Id : 1592076080 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 periodic time (T) of simple pendulum is observed for different lengths (L). If a graph of $\log_{10}L$ against $\log_{10}T$ is plotted, the slope of the graph will be

Options :

1. ✗ $1/2$

2. ✗ $-1/2$

3. ✗ $(2)^{1/2}$

4. ✓ 2

Question Number : 66 Question Id : 1592076081 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 maximum velocity of a particle performing SHM is 0.12 m/sec, if its maximum acceleration is 0.48 m/sec^2 , then its time period (sec) is

Options :

1. ✗ 1.54

2. ✗ 1.59

3. ✓ 1.57

4. ✗ 1.75

Question Number : 67 Question Id : 1592076082 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The minimum energy required to take out an electron from an alkali metal is called

Options :

1. ✘ Kinetic Energy
2. ✘ Potential Energy
3. ✘ Gibbs Free Energy
4. ✔ Work Function

Question Number : 68 Question Id : 1592076083 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

N_1 and N_2 be the number of atoms in the ground and excited states. Then the condition for population inversion is

Options :

1. ✘ $N_1 = N_2$
2. ✘ $N_1 > N_2$
3. ✔ $N_2 > N_1$
4. ✘ $N_2 = 0$

Question Number : 69 Question Id : 1592076084 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two magnets have magnetic moments in the ratio 2:1. Their pole strengths are in the ratio 1:2. Then the ratio of their magnetic lengths is

Options :

1. ✘ 1:4

2. ✘ 1:1

3. ✘ 2:3

4. ✔ 4:1

Question Number : 70 Question Id : 1592076085 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 susceptibility of para magnetic material is

Options :

1. ✔ Positive and small

2. ✘ Positive and large

3. ✘ Negative

4. ✘ Zero

Question Number : 71 Question Id : 1592076086 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

There are three equal resistors, how many different combinations of these resistors are possible.

Options :

1. ✔ Four

2. ✘ Two

3. ✘ Three

4. ✘ Five

Question Number : 72 Question Id : 1592076087 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 perfect diamagnetic?

Options :

1. ✘ Any conductor
2. ✘ P-Type semiconductor
3. ✘ N-Type semiconductor
4. ✔ Superconductor

Question Number : 73 Question Id : 1592076088 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 current in the PN junction diode during the reverse bias is the result of

Options :

1. ✘ Majority carriers
2. ✔ Minority carriers
- 3.

✘ Both majority and minority carriers

4. ✘ Only electrons

Question Number : 74 Question Id : 1592076089 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 has maximum energy gap?

Options :

1. ✔ Insulators

2. ✘ Superconductors

3. ✘ Metals

4. ✘ Semiconductors

Question Number : 75 Question Id : 1592076090 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 true for Fermi energy level for p-type
extrinsic semiconductor?

Options :

1. ✘ At middle of the band gap
2. ✔ Close to valence band
3. ✘ Close to conduction band
4. ✘ Fermi level does not exist

Chemistry

Section Id :	159207120
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	159207141
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 76 Question Id : 1592076091 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 values of Azimuthal and principal quantum numbers respectively for an electron that is present in 4d orbital

Options :

1. ✘ 1 and 4

2. ✘ 4 and 1

3. ✔ 2 and 4

4. ✘ 4 and 2

Question Number : 77 Question Id : 1592076092 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 molecule has ionic bonding?

Options :

1. ✘ CH_3Cl

2. ✘ CH_3OH

3. ✘ CO_2

4. ✔ MgO

Question Number : 78 Question Id : 1592076093 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

What is the Oxidation number of carbon in formaldehyde?

Options :

1. ✘ -4

2. ✘ +4

3. ✔ 0

4. ✘ +2

Question Number : 79 Question Id : 1592076094 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 Molarity of a solution containing 9 g of glucose (molar mass 180) in 500 g of water is

Options :

1. ✘ 0.5

2. ✔ 0.1

3. ✘ 0.2

4. ✘ 1.0

Question Number : 80 Question Id : 1592076095 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

Prussian blue colloid is

Options :

1. ✘ As_2S_3

2. ✘ $\text{Fe}(\text{OH})_3$

3. ✔ $\text{KFe}[\text{Fe}(\text{CN})_6]$

4. ✘ FeCl_3

Question Number : 81 Question Id : 1592076096 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 anions is the strongest base?

Options :

1. ✓ ClO^-

2. ✗ ClO_2^-

3. ✗ ClO_3^-

4. ✗ ClO_4^-

Question Number : 82 Question Id : 1592076097 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 pH of 10^{-9} molar solution of HCl is

Options :

1. ✗ 9

-9

2. ✗

3. ✗ Between 7 & 8

4. ✓ Between 6 & 7

Question Number : 83 Question Id : 1592076098 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 a Renewable energy source?

Options :

1. ✘ Petroleum

2. ✘ Coal

3. ✘ Natural gas

4. ✓ Wind mills

Question Number : 84 Question Id : 1592076099 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 gas is responsible for depletion of ozone layer
in the atmosphere?

Options :

1. ✘ CH_2Cl_2

2. ✔ CF_2Cl_2

3. ✘ CH_2F_2

4. ✘ CO_2

Question Number : 85 Question Id : 1592076100 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 exhausted permutit is regenerated by percolating through it a solution of

Options :

1. ✘ Calcium chloride

2. ✘ Zinc chloride

3. ✔ Sodium chloride

4. ✘ Magnesium chloride

Question Number : 86 Question Id : 1592076101 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

During reverse osmosis:

Options :

1. ✘ Dissolved salts are pushed out through semipermeable membrane
2. ✘ Only dissolved ionic salts are pushed out through the semipermeable membrane
3. ✔ Pure water is pushed out through semipermeable membrane
4. ✘ Both water and dissolved salts are pushed out through the semipermeable membrane

Question Number : 87 Question Id : 1592076102 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 a weak electrolyte?

Options :

1. ✘ HCl
2. ✘ NaOH

3. ✓ CH_3COOH

4. ✗ H_2SO_4

Question Number : 88 Question Id : 1592076103 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 2 amperes of current is passed through CuSO_4 solution for
10 minutes, the amount of Cu deposited is (Atomic weight of Cu =
63.5 g)

Options :

1. ✗ 3.94 g

2. ✓ 0.394 g

3. ✗ 0.788 g

4. ✗ 7.88 g

Question Number : 89 Question Id : 1592076104 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

Composition of Nichrome alloy is

Options :

1. ✘ Ni:68%, Cu:27%, Fe:5%
2. ✔ Ni:78%, Cr:20%, Fe:2%
3. ✘ Ni:40%, Cu:60%
4. ✘ Al:95%, Cu:2%, Ni:1%

Question Number : 90 Question Id : 1592076105 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 froth flotation method, pine oil

Options :

1. ✘ Increases the surface tension of the solution
2. ✘ Acts as a collector
3. ✘ Does not affect the surface tension of the solution
4. ✔ Decreases the surface tension of the solution

Question Number : 91 Question Id : 1592076106 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

During electro chemical corrosion in acidic environment

Options :

1. ✓ Hydrogen evolution takes place
2. ✗ Oxygen evolution takes place
3. ✗ Oxygen absorption occurs
4. ✗ Hydrogen absorption takes place

Question Number : 92 Question Id : 1592076107 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 of coating of Iron with Zinc metal is known as

Options :

1. ✓ Galvanizing
2. ✗

Sherardizing

3. ✘ Zincing

4. ✘ Tinning

Question Number : 93 Question Id : 1592076108 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

Bakelite is prepared by the condensation polymerization of

Options :

1. ✔ Phenol and formaldehyde

2. ✘ Urea and formaldehyde

3. ✘ Phenol and acetaldehyde

4. ✘ Urea and acetone

Question Number : 94 Question Id : 1592076109 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 trade name of the polymer coated on non-stick utensils is

Options :

1. ✘ Dacron

2. ✘ Orlon

3. ✔ Teflon

4. ✘ Nylon

Question Number : 95 Question Id : 1592076110 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

Octane number of a petrol that consists 20:80 mixture of n-heptane and 2,2,4-trimethyl pentane is

Options :

1. ✘ 100

2. ✘ Zero

3. ✔ 80

4. ✘ 20

Question Number : 96 Question Id : 1592076111 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

Producer gas is a mixture of

Options :

1. ✘ $\text{CO}_2 + \text{H}_2$

2. ✔ $\text{CO} + \text{N}_2$

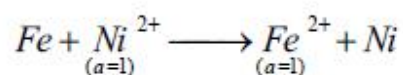
3. ✘ $\text{CO} + \text{CH}_4$

4. ✘ $\text{CH}_4 + \text{H}_2$

Question Number : 97 Question Id : 1592076112 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 the following cell reaction



The EMF of the cell at 298 K is ($\overset{\circ}{E}_{\text{Fe}^{2+}/\text{Fe}} = -0.440 \text{ V}$; $\overset{\circ}{E}_{\text{Ni}^{2+}/\text{Ni}} = -0.250 \text{ V}$)

Options :

1. ✘ -0.190 V

2. ✓ + 0.190 V

3. ✗ + 0.690 V

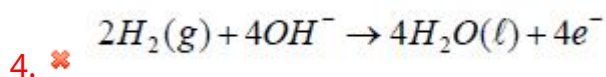
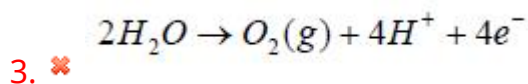
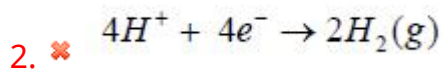
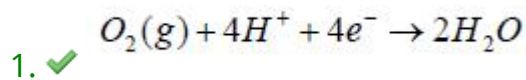
4. ✗ - 0.690 V

Question Number : 98 Question Id : 1592076113 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 Hydrogen-Oxygen fuel cell, the reaction at the cathode is

Options :



Question Number : 99 Question Id : 1592076114 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 statements is true about SMOG?

Options :

1. ✘ SMOG is derived from the fog
2. ✘ SMOG is derived from smoke
3. ✘ SMOG is derived from water vapour
4. ✔ SMOG is derived from both fog and smoke

Question Number : 100 Question Id : 1592076115 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What do BOD and COD stand for?

Options :

1. ✔ Biological Oxygen Demand and Chemical Oxygen Demand respectively
2. ✘ Chemical Oxygen Demand and Biological Oxygen Demand respectively
3. ✘ Botanical Oxygen Demand and Chemical Oxygen Demand respectively

4. ✖ Basic Oxygen Demand and Chemical Oxygen Demand respectively

Metallurgical Engineering

Section Id :	159207121
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	159207142
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 101 Question Id : 1592076116 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 method is used for dressing the ore Fe_3O_4 ?

Options :

1. ✖ Selective settling

2. ✘ Flotation
3. ✔ Magnetic separation
4. ✘ Gravity separation

Question Number : 102 Question Id : 1592076117 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

‘Calamine’ is an important ore of

Options :

1. ✘ Copper
2. ✘ Lead
3. ✘ Tin
4. ✔ Zinc

Question Number : 103 Question Id : 1592076118 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 statement is 'True'

Options :

1. ✘ Carbon acts as an oxidizing agent in smelting process.
2. ✘ Calcination does not involve dehydration of ores.
3. ✘ During roasting the gangue is removed as slag
4. ✔ Matte is a metal-rich phase produced during smelting

Question Number : 104 Question Id : 1592076119 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

Hydrometallurgy is properly used in the extraction of which of the following metal?

Options :

1. ✘ Aluminum
2. ✔ Gold
3. ✘ Titanium
4. ✘ Iron

Question Number : 105 Question Id : 1592076120 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 element is used in powering electric vehicles

Options :

1. ✘ Sodium

2. ✘ Brass

3. ✔ Lithium

4. ✘ Germanium

Question Number : 106 Question Id : 1592076121 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

Identify the energy source used in the blast furnace?

Options :

1. ✘ Petrol

2. ✔ Coke

3. ✘ Sulphur in ore

4. ✘ Pig iron

Question Number : 107 Question Id : 1592076122 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

Pig iron can be produced by

Options :

1. ✘ Cupola furnace

2. ✘ Muffle furnace

3. ✔ Blast furnace

4. ✘ Electric arc furnace

Question Number : 108 Question Id : 1592076123 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 Shock Resistance can be identified by

Options :

1. ✘ Tensile test
2. ✔ Spalling test
3. ✘ Dye penetrant test
4. ✘ Pyrometric cone equivalent

Question Number : 109 Question Id : 1592076124 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

Elemental analysis of coal is reported by

Options :

1. ✘ Optical microscope
2. ✔ Ultimate analysis
3. ✘ Atomic force microscopy
4. ✘ Proximate analysis

Question Number : 110 Question Id : 1592076125 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

Identify the acidic refractory from the following

Options :

1. ✘ Magnesia

2. ✘ Dolomite

3. ✔ Silica

4. ✘ Zirconia

Question Number : 111 Question Id : 1592076126 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

Identify the extensive property.

Options :

1. ✘ Specific heat

2. ✔ Gibbs free energy

3. ✘

Molar volume

4. ✘ Heat capacity

Question Number : 112 Question Id : 1592076127 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 activity coefficient of the solute in a dilute solution

Options :

1. ✔ Remains constant

2. ✘ In unity at infinite dilution

3. ✘ Decreases with increase of concentration of the solute

4. ✘ Increases with increase of concentration of the solute

Question Number : 113 Question Id : 1592076128 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

C_V for an ideal gas is independent of the

Options :

1. ✘ Temperature
2. ✘ Volume
3. ✘ Pressure
4. ✔ Pressure and volume

Question Number : 114 Question Id : 1592076129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The number of degrees of freedom for an azeotropic mixture of ethanol and water in vapor – liquid equilibrium is

Options :

1. ✘ 2
2. ✘ 1
3. ✔ 0
4. ✘ 3

Question Number : 115 Question Id : 1592076130 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

Ideal gas law is applicable at _____ (Where T = Temperature and P = Pressure)

Options :

1. ✘ Low T and high P
2. ✔ Low T and low P
3. ✘ High T and low P
4. ✘ High T and high P

Question Number : 116 Question Id : 1592076131 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 entropy change for a spontaneous process is

Options :

1. ✘ >0 for the system and the surroundings
2. ✘ <0 for the surroundings

3. ✘ >0 for the system

4. ✔ <0 for the surroundings and the system

Question Number : 117 Question Id : 1592076132 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

Materials with ionic bonds exhibit the following property

Options :

1. ✘ Malleable and ductile

2. ✔ Poor conductor of electricity

3. ✘ Very hard and brittle

4. ✘ Low melting point

Question Number : 118 Question Id : 1592076133 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

Effective number of atoms in HCP crystal structure is/are

Options :

1. ✓ 6

2. ✗ 4

3. ✗ 2

4. ✗ 1

Question Number : 119 Question Id : 1592076134 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

Metals with fine grain structure possess

Options :

1. ✗ low fatigue strength

2. ✗ low toughness

3. ✗ superior electrical and thermal conductivity

4. ✓ high strength and hardness

Question Number : 120 Question Id : 1592076135 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

Twinned boundary in polycrystalline metals belongs to

Options :

1. ✘ point defect
2. ✘ line defect
3. ✔ surface defect
4. ✘ volume defect

Question Number : 121 Question Id : 1592076136 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

Formation of solid solution is governed by

Options :

1. ✘ Lever rule
2. ✘ Phase rule

3. ✓ Hume-Ruthery rule

4. ✘ Kelvin-Planks rule

Question Number : 122 Question Id : 1592076137 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gibbs phase rule can be represented by the equation

Options :

1. ✓ $P + F = C + 2$

2. ✘ $P - C = F - 2$

3. ✘ $P + C = F + 2$

4. ✘ $P + F = C - 2$

Question Number : 123 Question Id : 1592076138 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 reaction that takes place within the solid state is

Options :

1. ✘ Eutectic
2. ✘ Peritectic
3. ✘ Monotectic
4. ✔ Eutectoid

Question Number : 124 Question Id : 1592076139 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 constituents is expected in equilibrium cooling of a hypereutectoid steel from austenite state

Options :

1. ✘ Ferrite and pearlite
2. ✔ cementite and pearlite
3. ✘ ferrite and bainite
4. ✘ cementite and martensite

Question Number : 125 Question Id : 1592076140 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 complete transformation of austenite into pearlite is represented by

Options :

1. ✓ A₁ line
2. ✗ A₃ line
3. ✗ A_{cm} line
4. ✗ A₄ line

Question Number : 126 Question Id : 1592076141 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

Austenite is an interstitial solid solution of carbon in

Options :

1. ✗ α -iron
2. ✗ β -iron

3. ✓ γ -iron

4. ✗ δ -iron

Question Number : 127 Question Id : 1592076142 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 presence of hydrogen in steel causes

Options :

1. ✗ reduced neutron absorption

2. ✗ improved weldability

3. ✓ embrittlement

4. ✗ corrosion resistance

Question Number : 128 Question Id : 1592076143 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

Tempering is the heat treatment process applicable to

Options :

1. ✘ Low carbon steels
2. ✘ Hypo eutectoid steels
3. ✘ Hyper eutectoid steels
4. ✔ Low carbon steels and medium carbon steels

Question Number : 129 Question Id : 1592076144 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

Full annealing process is done

Options :

1. ✘ By water quenching
2. ✘ By air cooling
3. ✔ By very slow cooling
4. ✘

By oil cooling

Question Number : 130 Question Id : 1592076145 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

Steps involved in a heat treatment process are:

Options :

Heating, cooling, holding

1. ✘

Heating, holding, cooling

2. ✔

Holding, cooling, heating

3. ✘

Holding, heating, cooling

4. ✘

Question Number : 131 Question Id : 1592076146 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

Time dependent permanent deformation of material is called as

Options :

1. ✘ Toughness
2. ✔ Hardness
3. ✘ Fatigue
4. ✘ Creep

Question Number : 132 Question Id : 1592076147 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 surface hardness in a low-carbon steels can be generally improved by which heat treatment process?

Options :

1. ✘ Hardening
2. ✘ Nitriding
3. ✔ Carburizing
4. ✘

✘ Tempering

Question Number : 133 Question Id : 1592076148 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

Martensitic transformations

Options :

1. ✘ Are diffusion-controlled

2. ✔ Are shear processes

3. ✘ Yield two products of different compositions

4. ✘ Yield only one product

Question Number : 134 Question Id : 1592076149 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 not considered as heat treatment process for steels?

Options :

1. ✘ Hardening

2. ✘ Normalizing

3. ✔ Brazing

4. ✘ Cyaniding

Question Number : 135 Question Id : 1592076150 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 a case hardening process?

Options :

1. ✘ Recrystallization

2. ✘ Strain hardening

3. ✔ Carburizing

4. ✘ Spheroidizing

Question Number : 136 Question Id : 1592076151 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

Steel containing low percentage of nickel, chromium & tungsten are termed as the

Options :

1. ✓ Plain carbon steels

2. ✗ Alloy steels

3. ✗ Tool steels

4. ✗ Stainless steels

Question Number : 137 Question Id : 1592076152 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 HSS tool materials the element tungsten can be completely replaced, without changing the material property by

Options :

1. ✓ Molybdenum

2. ✗ Carbon

3. ✘ Cobalt

4. ✘ Vanadium

Question Number : 138 Question Id : 1592076153 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

By austempering process the following microstructure is produced

Options :

1. ✘ Martensite

2. ✘ Cementite and ferrite

3. ✔ Bainite

4. ✘ Ledeburite

Question Number : 139 Question Id : 1592076154 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

Maximum height of the modern blast furnace is decided mainly by the

Options :

1. ✘ strength of the coke available
2. ✘ maximum wind rate to be blown
3. ✔ production capacity of the blast furnace
4. ✘ maximum hot blast temperature to be used

Question Number : 140 Question Id : 1592076155 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

Argillacious iron ores are rich in

Options :

1. ✘ Silica
2. ✘ Alumina
3. ✔ Clayey matter
4. ✘ Coaley matter

Question Number : 141 Question Id : 1592076156 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

Slag rate in Indian blast furnace is in the range of _____ kg/ton of pig iron.

Options :

1. ✘ 150 – 250

2. ✔ 350 – 500

3. ✘ 250 – 350

4. ✘ 1000 – 1500

Question Number : 142 Question Id : 1592076157 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 blast furnace operating at a top pressure of 1.5 kg/cm^2 , the blast pressure may be about _____ kg/cm^2 .

Options :

1. ✘ 0.5

2. ✘ 1.5

3. ✔ 2.5

4. ✘ 5.5

Question Number : 143 Question Id : 1592076158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following zone attains the highest temperature in blast furnace

Options :

1. ✘ Mushy zone

2. ✘ Cohesive zone

3. ✘ Hearth zone

4. ✔ Tuyere zone

Question Number : 144 Question Id : 1592076159 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 viscosity of basic slag depends substantially on the content of

Options :

1. ✘ CaO and MgO

2. ✔ Al₂O₃ and MgO

3. ✘ Fe₂O₃ and MnO

4. ✘ SiO₂ and CaO

Question Number : 145 Question Id : 1592076160 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 increases for an ingot with

Options :

1. ✔ Increasing solidification time

2. ✘ Increase in melting temperature of the alloy

3. ✘

Increase in casting temperature of the alloy

Decreasing melting temperature of the alloy

4. ✘

Question Number : 146 Question Id : 1592076161 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

Bottle-top mould is useful for

Options :

1. ✔ Making a capped rimming steel ingot

2. ✘ Producing rimmed as well as semi-killed steel ingots

3. ✘ Producing killed steel ingots

4. ✘ Not useful for ingot production

Question Number : 147 Question Id : 1592076162 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 shrinkage is greater for

Options :

1. ✘ Rimmed steels
2. ✘ Semi-killed steels
3. ✔ Killed steels
4. ✘ LD steel

Question Number : 148 Question Id : 1592076163 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

OBM process is also called

Options :

1. ✘ pneumatic process
2. ✔ oxygen bottom blowing process
3. ✘ side blowing process
4. ✘

Bessemer nitrogen blowing process

Question Number : 149 Question Id : 1592076164 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 froth flotation process copper sulphate is added to act as

Options :

1. ✘ Frother
2. ✘ Collectors
3. ✔ Activator
4. ✘ Depressor

Question Number : 150 Question Id : 1592076165 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 a step involved in Hydro metallurgy

Options :

1. ✘ Drying

2. ✔ Leaching

3. ✘ Calcination

4. ✘ Smelting

Question Number : 151 Question Id : 1592076166 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 of extracting Magnesium from sea water is called

Options :

1. ✔ Dow process

2. ✘ Pidgeon process

3. ✘ Kroll's process

4. ✘ Van Arkel's process

Question Number : 152 Question Id : 1592076167 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 process of extracting copper which of the following activity happens in the converter

Options :

1. ✘ Oxidation of sulphide content
2. ✘ separation of metal sulphide from the gangue
3. ✔ oxidation of iron and sulphur
4. ✘ refinement of blister copper

Question Number : 153 Question Id : 1592076168 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 impurities is found in tin

Options :

1. ✘ kainite
2. ✘ cassiterite

3. ✓ wolframite

4. ✘ sphalerite

Question Number : 154 Question Id : 1592076169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

From which of the following ores titanium can be extracted economically

Options :

1. ✓ rutile

2. ✘ sphene

3. ✘ anatase

4. ✘ perovskite

Question Number : 155 Question Id : 1592076170 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

Thorium is extracted by one of the following techniques

Options :

1. ✘ pyrometallurgy

2. ✔ hydrometallurgy

3. ✘ electrometallurgy

4. ✘ thermometallurgy

Question Number : 156 Question Id : 1592076171 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 Van Arkel method is a metallurgical method to refine

Options :

1. ✘ lead

2. ✘ aluminium

3. ✔ zirconium

4. ✘

titanium

Question Number : 157 Question Id : 1592076172 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the correct relationship between stress and strain in a linearly elastic material?

Options :

1. ✘ Stress is proportional to the square of the strain.

2. ✘ Stress is proportional to the logarithm of the strain.

3. ✘ Stress is proportional to the cube of the strain.

4. ✔ Stress is proportional to the strain.

Question Number : 158 Question Id : 1592076173 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What factors influence the onset of necking in a ductile material under tensile stress?

Options :

1. ✘ Strain rate and temperature.
2. ✔ Strain rate and material composition.
3. ✘ Stress and material composition.
4. ✘ Stress and temperature.

Question Number : 159 Question Id : 1592076174 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 hardness test involves measuring the diameter of the indentation left by a pointed, diamond-shaped indenter?

Options :

1. ✘ Brinell hardness test
2. ✔ Vickers hardness test
3. ✘ Rockwell hardness test
4. ✘

Shore hardness test

Question Number : 160 Question Id : 1592076175 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 non-destructive testing techniques is based on the principle of electromagnetic induction?

Options :

1. ✘ Liquid penetrant testing

2. ✘ Ultrasonic testing

3. ✘ Radiographic testing

4. ✔ Eddy current testing

Question Number : 161 Question Id : 1592076176 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 creep test is conducted on a material at a temperature of 500°C and a stress of 50 MPa. After 100 hours, the strain is found to be 0.5%. What is the creep rate of the material?

Options :

1. ✘ 0.0005 per hour
2. ✔ 0.005 per hour
3. ✘ 0.05 per hour
4. ✘ 0.5 per hour

Question Number : 162 Question Id : 1592076177 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 factors does not affect the fatigue strength of a material?

Options :

1. ✘ Mean stress
2. ✘ Surface finish
3. ✘ Loading frequency
4. ✔

Chemical composition

Question Number : 163 Question Id : 1592076178 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following method is Not responsible for increase in fatigue strength of a component

Options :

1. ✓ Increase the part dimensions
2. ✘ Increase the surface finish
3. ✘ Strain hardening
4. ✘ Nitriding

Question Number : 164 Question Id : 1592076179 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 cylindrical specimen of a metal alloy has a length of 50 mm and a diameter of 10mm. It is subjected to a tensile force of 50 kN, resulting in an elongation of 0.5 mm. If the original length of the specimen was 50 mm and its original diameter was 10 mm, what is the engineering stress and strain in the specimen?

Options :

1. ✘ 100 MPa and 0.001
2. ✔ 125 MPa and 0.00125
3. ✘ 150 MPa and 0.0015
4. ✘ 175 MPa and 0.00175

Question Number : 165 Question Id : 1592076180 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 notched bar impact test is performed on a metal specimen with a V-notch of depth 2 mm and angle 45° . The height of the specimen is 10 mm, and the width is 10 mm. The energy absorbed by the specimen during the test is 20 J. What is the impact strength of the specimen?

Options :

1. ✘ 10 J/m²
2. ✘ 20 J/m²

3. ✓ 50 J/m²

4. ✗ 100 J/m²

Question Number : 166 Question Id : 1592076181 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 defects can be detected using the liquid penetrant inspection method?

Options :

1. ✗ Subsurface porosity

2. ✓ Fatigue cracks

3. ✗ Lack of fusion

4. ✗ Shrinkage cavities

Question Number : 167 Question Id : 1592076182 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 is most suitable for radiographic inspection?

Options :

Glass

1. ✘

Plastic

2. ✘

Wood

3. ✘

Metal

4. ✔

Question Number : 168 Question Id : 1592076183 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

Find the incorrect statement: The basic rules in drawing Mohr's circle are

Options :

An angle of θ on the physical element is represented by the same angle on

Mohr's circle

1. ✔

The same sense of rotation (clockwise or counterclockwise) should be used

2. ✘

A shear stress causing a clockwise rotation about any point in the physical element is plotted above the horizontal axis of the Mohr's circle

3. ✘

A point on Mohr's circle gives the magnitude and direction of the normal and shear stresses on any plane in the physical element

4. ✘

Question Number : 169 Question Id : 1592076184 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 stress-strain curve obtained by _____ is of fundamental interest in plasticity when the curve is plotted in terms of true stress and true strain.

Options :

Uniaxial compression loading

1. ✘

Biaxial compression loading

2. ✘

Uniaxial tensile loading

3. ✔

Biaxial tensile loading

4. ✘

Question Number : 170 Question Id : 1592076185 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

Anelastic behaviour of metals is identified by

Options :

1. ✘ Recoverable elastic strain

2. ✔ Amount of plastic strain decrease with temperature after the reversal of the load

3. ✘ Amount of plastic strain decrease with temperature with the application of the
load

4. ✘ Amount of increase in plastic strain with temperature with the application of the
load

Question Number : 171 Question Id : 1592076186 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

Find the odd one out: Fabrication process is

Options :

1. ✘ Bending
2. ✘ Wire drawing
3. ✘ Tube drawing
4. ✔ Rolling

Question Number : 172 Question Id : 1592076187 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 isotropic material, the yield criterion must be

Options :

1. ✘ Independent of the choice of axes
2. ✘ Dependent of choice of axes
3. ✘ Independent of plastic deformation
4. ✔ Independent of elastic deformation

Question Number : 173 Question Id : 1592076188 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

During strain hardening increases in strain require _____ the initial yield
stress σ_0

Options :

1. ✘ Higher values of stress than
2. ✘ Lower values of stress than
3. ✔ Equal values of stress to
4. ✘ Beyond fracture stress than

Question Number : 174 Question Id : 1592076189 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 displacement components such as e_{xy} , e_{yx} , etc. produce

Options :

1. ✘ Uniaxial tension

2. ✘ Rigid-body rotation

3. ✘ Shear strain and rigid-body rotation

4. ✔ Shear strain

Question Number : 175 Question Id : 1592076190 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 is best suited to produce cobalt – tungsten carbide cutting tools?

Options :

1. ✔ Hot Isostatic Pressing

2. ✘ Investment casting

3. ✘ Forging

4. ✘ Superplastic forming

Question Number : 176 Question Id : 1592076191 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 metals is most likely to recrystallize during hot working?

Options :

1. ✘ Aluminium
2. ✘ α - iron
3. ✔ Cartridge brass
4. ✘ Zirconium

Question Number : 177 Question Id : 1592076192 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

Metals that have a high recovery rate during hot working

Options :

1. ✘ Readily recrystallize
2. ✔ Do not recrystallize

Do not have texture

3. ✘

Do not have preferred orientation

4. ✘

Question Number : 178 Question Id : 1592076193 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 true strain in terms of fractional reduction (r) is

Options :

1. ✔ $\epsilon = \ln \frac{1}{1-r}$

2. ✘ $\epsilon = \ln(1-r)$

3. ✘ $\epsilon = \ln \frac{1}{1+r}$

4. ✘ $\epsilon = \ln(1+r)$

Question Number : 179 Question Id : 1592076194 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 requires the largest shrinkage allowance, while making a pattern for casting

Options :

1. ✘ brass
2. ✘ aluminium
3. ✘ cast iron
4. ✔ plain carbon steel

Question Number : 180 Question Id : 1592076195 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 sand which prevent the two surfaces from sticking together is called

Options :

1. ✘ green sand
2. ✘ dry sand
3. ✘ facing sand

4. ✓ parting sand

Question Number : 181 Question Id : 1592076196 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 property of moulding sand which enable to allow the escape of gasses from the
mould

Options :

1. ✓ permeability

2. ✗ flowability

3. ✗ high strength

4. ✗ collapsibility

Question Number : 182 Question Id : 1592076197 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

Foundry sand mixed with organic binders is called

Options :

1. ✓ core sand

2. ✘ green sand

3. ✘ loam sand

4. ✘ backing sand

Question Number : 183 Question Id : 1592076198 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 primary purpose of sprue in a casting mould is to

Options :

1. ✘ feed the casting at a rate consistent with the rate of solidification

2. ✘ help feed the casting until all solidification takes place

3. ✘ act as a reservoir for molten metal

4.

✓ feed molten metal from the pouring basin to the gate

Question Number : 184 Question Id : 1592076199 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

Centrifugal casting products have

Options :

1. ✘ fine grain structure with low density
2. ✘ segregation of slag towards the outer skin of the casting
3. ✘ large grain structure with high porosity
4. ✓ fine grain structure with high density

Question Number : 185 Question Id : 1592076200 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 preferred process for casting a turbine blades is

Options :

1. ✘ sand casting
2. ✘ die casting
3. ✔ investment casting
4. ✘ shell moulding

Question Number : 186 Question Id : 1592076201 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 employed for making cores is

Options :

1. ✘ Die casting
2. ✘ centrifugal casting
3. ✔ CO₂ process
4. ✘ shell moulding

Question Number : 187 Question Id : 1592076202 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

Discontinuity in casting due to lack of fusion between two streams of liquid metal is called

Options :

1. ✘ misrun
2. ✔ cold shut
3. ✘ hot tear
4. ✘ swell

Question Number : 188 Question Id : 1592076203 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

Liquid penetrate test is used for detecting

Options :

1. ✔ surface cracks
2. ✘ scabs

3. ✘ distortion

4. ✘ internal crack

Question Number : 189 Question Id : 1592076204 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 region between the liquidus and solidus lines is called

Options :

1. ✘ solid zone

2. ✘ liquid zone

3. ✔ mushy zone

4. ✘ recovery zone

Question Number : 190 Question Id : 1592076205 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 weld used to temporarily hold the work in position is

Options :

1. ✘ bead weld
2. ✘ spot weld
3. ✘ fillet weld
4. ✔ tack weld

Question Number : 191 Question Id : 1592076206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following gas flame in gas welding that is suggested for welding of Zinc base alloys

Options :

1. ✔ Oxidising flame
2. ✘ Neutral flame
3. ✘ Carburizing flame

4. ✘ Both oxidising and neutral flame

Question Number : 192 Question Id : 1592076207 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 among the following welding processes NOT used for overhead welding

Options :

1. ✘ SMAW

2. ✘ MAG

3. ✔ SAW

4. ✘ TIG

Question Number : 193 Question Id : 1592076208 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What are the two most commonly inert gases used in TIG welding Process?

Options :

1. ✘

Argon and CO₂

2. ✘ Helium and CO₂

3. ✔ Argon and Helium

4. ✘ Argon and Nitrogen

Question Number : 194 Question Id : 1592076209 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

Helium shielding gas having high flow rate than argon flow rate for the same condition of MIG welding process because

Options :

1. ✔ Helium is lighter than air

2. ✘ Helium is extracted from the natural gas

3. ✘ Atomic weight is 40

4. ✘ Of high penetration

Question Number : 195 Question Id : 1592076210 Question Type : MCQ Option Shuffling : Yes
Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time
: N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is best shape of pure tungsten electrode in TIG welding process

Options :

1. ✘ Conical point end
2. ✘ Flat end
3. ✔ Full round ball at the tip
4. ✘ Pencil pointed tip

Question Number : 196 Question Id : 1592076211 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 groove or channel in the parent metal at the toe of the weld is due to

Options :

1. ✘ Lack of fusion

2. ✓ Under cut

3. ✘ Lack of penetration

4. ✘ Overlap

Question Number : 197 Question Id : 1592076212 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

Name the resistance welding process in which disc electrodes are used

Options :

1. ✓ Seam welding machine

2. ✘ Spot welding machine

3. ✘ Projection welding machine

4. ✘ Butt welding machine

Question Number : 198 Question Id : 1592076213 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 laser beam welding is NOT suitable for

Options :

1. ✘ High electric conductivity materials
2. ✘ low electric conductivity materials
3. ✘ low thermal conductivity materials
4. ✔ High reflective materials

Question Number : 199 Question Id : 1592076214 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 electron beam machine process is suitable for

Options :

1. ✔ High electric conductivity materials
2. ✘ Low electric conductivity materials
3. ✘

High thermal conductivity materials

Low melting point materials

4. ✘

Question Number : 200 Question Id : 1592076215 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 Heat Affected Zone (HAZ) in welding process, the material undergoes

Options :

1. ✔ Microstructural changes but not melt

2. ✘ Both melting and microstructural changes

3. ✘ Melting but not microstructural changes

4. ✘ Neither melting nor microstructural changes