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 1st Aug 2022 Shift2
Subject Name :	Metallurgical Engineering
Creation Date :	2022-08-01 18:29:54
Duration :	180
Total Marks :	200
Display Marks:	No
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 :	81959971
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 :	819599274
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 :	819599316
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 81959914036 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} a^2 & ab & ac \\ ab & b^2 & bc \\ ac & bc & c^2 \end{bmatrix}$ and $a^2 + b^2 + c^2 = 1$ then $A^2 =$

Options :

1. ✖ I

2. ✔ A

3. ✖ A^{-1}

4. ✖ A^3

Question Number : 2 Question Id : 81959914037 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $adjA = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 1 \\ 2 & 1 & -1 \end{bmatrix}$ then $adj\ 2A =$

Options :

1. ✖ $\begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 1 \\ 2 & 1 & -1 \end{bmatrix}$

2. ✖ $\begin{bmatrix} 2 & -2 & 0 \\ 4 & 6 & 2 \\ 4 & 2 & -2 \end{bmatrix}$

3. ✔ $\begin{bmatrix} 4 & -4 & 0 \\ 8 & 12 & 4 \\ 8 & 4 & -4 \end{bmatrix}$

4. ✖ $\begin{bmatrix} 8 & -8 & 0 \\ 16 & 24 & 8 \\ 16 & 8 & -8 \end{bmatrix}$

Question Number : 3 Question Id : 81959914038 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 and c are distinct and $\begin{vmatrix} a & a^2 & a^3-1 \\ b & b^2 & b^3-1 \\ c & c^2 & c^3-1 \end{vmatrix} = 0$ then

Options :

1. ✖ $a+b+c=1$

2. ✖ $a+b+c=0$

3. ✖ $ab+bc+ca=0$

4. ✔ $abc=1$

Question Number : 4 Question Id : 81959914039 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 System of linear equations $x+y+z=2,\ 2x+y-z=3$ and $3x+2y+kz=4$ has a unique solution if

Options :

1. ✔ $k \neq 0$

2. ✖ $-1 < k < 1$

3. ✖ $-2 < k < 2$

4. ✖ $k = 0$

Question Number : 5 Question Id : 81959914040 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\frac{1-x+6x^2}{x-x^3} = \frac{A}{x} + \frac{B}{1-x} + \frac{C}{1+x}$ then $A - B =$

Options :

1. ✖ -1

2. ✖ -4

3. ✖ -3

4. ✔ -2

Question Number : 6 Question Id : 81959914041 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\frac{ax+b}{(3x+4)^2} = \frac{1}{3x+4} - \frac{3}{(3x+4)^2}$ then $a + b =$

Options :

1. ✖ 3

2. ✔ 4

3. ✖ 5

4. ✖ 6

Question Number : 7 Question Id : 81959914042 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $cos(x + 2x + 3x + \cdots + nx)$

Options :

1. ✖ $2\pi(n+1)$

2. ✔ $\frac{4\pi}{n(n+1)}$

3. ✖ $\frac{2\pi}{n(n+1)}$

4. ✖ 2π

Question Number : 8 Question Id : 81959914043 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $3sin\alpha = 5sin\beta$ then $\frac{tan\left(\frac{\alpha+\beta}{2}\right)}{tan\left(\frac{\alpha-\beta}{2}\right)} =$

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 9 Question Id : 81959914044 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $x = sin(2tan^{-1}2)$ and $y = sin\left(\frac{1}{2}tan^{-1}\left(\frac{4}{3}\right)\right)$ then

Options :

1. ✔ $x > y \text{ and } y^2 = 1 - \text{x}$

2. ✖ $x < y$

3. ✖ $x > y \text{ and } y^2 = \text{x}$

4. ✖ $y^2 = 1 + \text{x}$

Question Number : 10 Question Id : 81959914045 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

General solution of $tan5\theta tan2\theta = 1$ *is*

Options :

1. ✔ $\frac{2n\pi}{7} \pm \frac{\pi}{14}, n \in Z$

2. ✖ $\frac{n\pi}{7}, n \in Z$

3. ✖ $n\pi \pm \frac{\pi}{2}, n \in Z$

4. ✖ $\frac{n\pi}{2} \pm \frac{\pi}{14}, n \in Z$

Question Number : 11 Question Id : 81959914046 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 ΔABC, if $(a + b + c)(b + c - a) = 3bc$ then $\angle A =$

Options :

1. ✖ 30^0

2. ✖ 45^0

3. ✔ 60^0

4. ✖ 135^0

Question Number : 12 Question Id : 81959914047 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $\left(\sqrt{3}+i\right)^{100} = 2^{99}(a+ib)$, then $a^2+b^2 =$

Options :

1. ✔ 4

2. ✖ 1

3. ✖ 3

4. ✖ 2

Question Number : 13 Question Id : 81959914048 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 "x" so that the line through (3,x) and (2,7) is parallel to the line through (-1,4) and (0,6) is

Options :

1. ✖ 3

2. ✖ 6

3. ✔ 9

4. ✖ 8

Question Number : 14 Question Id : 81959914049 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the circle with centre $\left(\frac{a}{2},\frac{b}{2}\right)$ and radius $\sqrt{\frac{a^2+b^2}{4}}$ is

Options :

1. ✖ $x^2 + y^2 - ax - by = (a + b)^2$

2. ✔ $x^2 + y^2 - ax - by = 0$

3. ✖ $x^2 + y^2 - ax - by = (a - b)^2$

4. ✖ $x^2 + y^2 - ax - by = \frac{a^2+b^2}{4}$

Question Number : 15 Question Id : 81959914050 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 parabola $y^2 = 4ax$ passes through the point (-3,2), then the length of its latus rectum is _____ units

Options :

1. ✖ $\frac{2}{3}$

2. ✔ $\frac{4}{3}$

3. ✖ $\frac{1}{3}$

4. ✖ 4

Question Number : 16 Question Id : 81959914051 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the ellipse whose latus rectum is 15units and the distance between the foci is 10 units with axes being co ordinate axes is

Options :

1. ✔ $3x^2 + 4y^2 = 300$

2. ✖ $4x^2 + 3y^2 = 300$

3. ✖ $x^2 + 4y^2 = 300$

4. ✖ $3x^2 + y^2 = 300$

Question Number : 17 Question Id : 81959914052 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the Hyperbola $xy = 10$ *is*

Options :

1. ✔ $\sqrt{2}$

2. ✖ 2

3. ✖ $\sqrt{3}$

4. ✖ $\sqrt{\frac{3}{2}}$

Question Number : 18 Question Id : 81959914053 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\lim_{x \to 1} \frac{1+\log x - x}{1-2x+x^2} =$

Options :

1. ✖ 0

2. ✔ $-\frac{1}{2}$

3. ✖ 1

4. ✖ -1

Question Number : 19 Question Id : 81959914054 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $2^x + 2^y = 2^{x+y}$ then $\frac{dy}{dx} =$

Options :

1. ✖ 0

2. ✖ 1

3. ✔ -2^{y-x}

4. ✖ 2^{x-y}

Question Number : 20 Question Id : 81959914055 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $y = \sqrt{cos2x}$ then $y\frac{d^2y}{dx^2} + 2y^2 =$

Options :

1. ✖ 0

2. ✖ $\left(\frac{dy}{dx}\right)^2$

3. ✔ $-\left(\frac{dy}{dx}\right)^2$

4. ✖ $y\left(\frac{dy}{dx}\right)$

Question Number : 21 Question Id : 81959914056 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $u = e^x cosy,$ and $v = e^x siny$ then $\frac{\partial u}{\partial x} =$

Options :

1. ✖ $\frac{\partial u}{\partial y}$

2. ✖ $\frac{-\partial u}{\partial y}$

3. ✖ $\frac{-\partial v}{\partial y}$

4. ✔ $\frac{\partial v}{\partial y}$

Question Number : 22 Question Id : 81959914057 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Area of the triangle formed by a tangent to the curve $2xy = a^2$ and coordinate axes is _____ units

Options :

1. ✔ a^2

2. ✖ $2a^2$

3. ✖ $3a^2$

4. ✖ $4a^2$

Question Number : 23 Question Id : 81959914058 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 x^{-x} is

Options :

1. ✖ $\frac{1}{e}$

2. ✔ $e^{1/e}$

3. ✖ $e^{-1/e}$

4. ✖ e

Question Number : 24 Question Id : 81959914059 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 rate of change of volume of a sphere is equal to the rate of change of its radius. Then its radius is

Options :

1. ✖ $\frac{1}{2\pi}$

2. ✖ $2\sqrt{\pi}$

3. ✖ $\sqrt{2\pi}$

4. ✔ $\frac{1}{2\sqrt{\pi}}$

Question Number : 25 Question Id : 81959914060 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\int cos\sqrt{x}\ dx$

Options :

1. ✔ $2(\sqrt{x}\sin\sqrt{x} + \cos\sqrt{x})$

2. ✖ $\sqrt{x}\sin\sqrt{x} - \cos\sqrt{x}$

3. ✖ $2(\sqrt{x}\sin\sqrt{x} - \cos\sqrt{x})$

4. ✖ $\frac{\cos\sqrt{x}}{2\sqrt{x}}$

Question Number : 26 Question Id : 81959914061 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\int_0^{\frac{\pi}{2}} \frac{e^{\cos\theta}}{e^{\cos\theta}+e^{\sin\theta}}\, d\theta$

Options :

1. ✔ $\frac{\pi}{4}$

2. ✖ e^{π}

3. ✖ $\frac{\pi}{2}$

4. ✖ 0

Question Number : 27 Question Id : 81959914062 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 area of the region enclosed by the curve $y = e^{x/a} + e^{-x/a}$ the x- axis and the lines $x = \pm a$ is _____ sq. units

Options :

1. ✖ $\left(e - \frac{1}{e}\right)$

2. ✔ $2a\left(e - \frac{1}{e}\right)$

3. ✖ $\frac{a}{2}\left(e - \frac{1}{e}\right)$

4. ✖ $a\left(e-\frac{1}{e}\right)$

Question Number : 28 Question Id : 81959914063 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 volume generated by the rotation of the area bounded by the curve $y^2 = x^3$, the y- axis and the lines $y = 0, y = 8$ about y- axis is _____ cu. units

Options :

1. ✖ 192π

2. ✔ $\frac{384\pi}{7}$

3. ✖ $\frac{384\pi^2}{7}$

4. ✖ $\frac{384\pi}{5}$

Question Number : 29 Question Id : 81959914064 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Mean Square Value of $f(x) = tanx$ as "x" varies from 0 to $\frac{\pi}{3}$

Options :

1. ✖ $\frac{1}{\pi}\left(\sqrt{3}-\frac{\pi}{3}\right)$

2. ✖ $\frac{1}{\pi}\left(\sqrt{3}+\frac{\pi}{3}\right)$

3. ✔ $\frac{1}{\pi}\left(3\sqrt{3}-\pi\right)$

4. ✖ $\frac{\pi}{3}\left(\sqrt{3}-\frac{\pi}{3}\right)$

Question Number : 30 Question Id : 81959914065 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 function $f(x)$at 5 discrete points are given below

x	0	0.1	0.2	0.3	0.4
$f(x)$	0	10	40	90	160

then the value of $\int_0^4 f(x)dx$

Options :

1. ✖ 24

2. ✖ 23

3. ✔ 22

4. ✖ 20

Question Number : 31 Question Id : 81959914066 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $\frac{d^2y}{dx^2}=\left(y+\left(\frac{dy}{dx}\right)^2\right)^{1/4}$ is

Options :

1. ✔ 2, 4

2. ✖ 4, 2

3. ✖ 2, 2

4. ✖ 2, 1

Question Number : 32 Question Id : 81959914067 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 associated with the primitive $Ax^2 + By^2 = 1$ is

Options :

1. ✖ $xy\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 - x\left(\frac{dy}{dx}\right) = 0$

2. ✖ $y\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right)^2 - y\left(\frac{dy}{dx}\right) = 0$

3. ✔ $xy\frac{d^2y}{dx^2} + x\left(\frac{dy}{dx}\right)^2 - y\left(\frac{dy}{dx}\right) = 0$

4. ✖ $xy\frac{d^2y}{dx^2} - x\left(\frac{dy}{dx}\right)^2 + y\left(\frac{dy}{dx}\right) = 0$

Question Number : 33 Question Id : 81959914068 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solution of the differential equation $(3e^{3x}y - 2x)dx + e^{3x}dy = 0$ is

Options :

1. ✖ $ye^{-3x} = x^2 + C$

2. ✔ $ye^{3x} = x^2 + C$

3. ✖ $ye^{3x} = -x^2 + C$

4. ✖ $ye^{3x} = \frac{1}{2}x^2 + C$

Question Number : 34 Question Id : 81959914069 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Integrating Factor for the differential equation $\frac{dp}{dt} + k_2 p = k_1 e^{-k_1 t}$ is

Options :

1. ✖ $e^{-k_1 t}$

2. ✖ $e^{-k_2 t}$

3. ✖ $e^{k_1 t}$

4. ✔ $e^{k_2 t}$

Question Number : 35 Question Id : 81959914070 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $4\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + y = 0$ is

Options :

1. ✖ $y = (A + Bx)e^{-x/2}$

2. ✔ $y = (A + Bx)e^{x/2}$

3. ✖ $y = Ae^{x/2} + Be^{-x/2}$

4. ✖ $y = (A + Bx)e^{x}$

Question Number : 36 Question Id : 81959914071 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 particular integral of $2\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = e^{-2x}$ is

Options :

1. ✔ $-\frac{x}{7}e^{-2x}$

2. ✖ $\frac{x}{7}e^{-2x}$

3. ✖ $\frac{1}{7}e^{-2x}$

4. ✖ $-\frac{1}{7}e^{-2x}$

Question Number : 37 Question Id : 81959914072 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Particular Integral of $\frac{d^3y}{dx^3} - 1 = sin3x$ is

Options :

1. ✖ $\frac{1}{730}(27\cos 3x + \sin 3x)$

2. ✔ $\frac{1}{730}(27\cos 3x - \sin 3x)$

3. ✖ $\frac{-1}{730}(27\cos 3x + \sin 3x)$

4. ✖ $\frac{-1}{730}(27\cos 3x - \sin 3x)$

Question Number : 38 Question Id : 81959914073 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Particular Integral of $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = x + x^2$ is

Options :

1. ✔ $\frac{1}{2}(x^2 + 4x + 5)$

2. ✖ $\frac{1}{2}(x^2 - 4x - 5)$

3. ✖ $\frac{1}{2}(x^2 - 4x + 5)$

4. ✖ $-\frac{1}{2}(x^2 + 4x + 5)$

Question Number : 39 Question Id : 81959914074 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\{cos4tsin2t\} =$

Options :

1. ✖ $\frac{4}{s^2+4} + \frac{s}{s^2+36}$

2. ✔ $\frac{3}{s^2+36} - \frac{1}{s^2+4}$

3. ✖ $\frac{2}{s^2+4} + \frac{3s}{s^2+36}$

4. ✖ $\frac{3}{s^2+36} + \frac{1}{s^2+4}$

Question Number : 40 Question Id : 81959914075 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\left\{\frac{sint}{t}\right\} = tan^{-1}\left(\frac{1}{s}\right)$ then $L\left\{\frac{sinat}{t}\right\}$

Options :

1. ✖ $tan^{-1}\left(\frac{s}{a}\right)$

2. ✔ $tan^{-1}\left(\frac{a}{s}\right)$

3. ✖ $\frac{1}{a}tan^{-1}\left(\frac{a}{s}\right)$

4. ✖ $\frac{1}{a}tan^{-1}\left(\frac{s}{a}\right)$

Question Number : 41 Question Id : 81959914076 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\{tcos3t\} =$

Options :

1. ✖ $\frac{9}{(s^2+9)^2}$

2. ✖ $\frac{s^2}{(s^2+9)^2}$

3. ✖ $\frac{s^2+9}{(s^2-9)^2}$

4. ✔ $\frac{s^2-9}{(s^2+9)^2}$

Question Number : 42 Question Id : 81959914077 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\left\{\frac{1-cost}{t}\right\} =$

Options :

1. ✖ $log\sqrt{\frac{s^2+1}{s^2}}$

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

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

4. ✔ $log\sqrt{\left(\frac{s^2}{s^2+1}\right)}$

Question Number : 43 Question Id : 81959914078 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L^{-1}\left(\frac{s}{(s+1)^2}\right) =$

Options :

1. ✔ $e^{-t}(1-t)$

2. ✖ $e^{t}(t-1)$

3. ✖ $e^{-t}(t-1)$

4. ✖ $e^{t}(1-t)$

Question Number : 44 Question Id : 81959914079 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $L^{-1}\{F(s)\} = f(t)$ then $L^{-1}\left\{\int_s^{\infty} F(s)ds\right\} =$

Options :

1. ✖ $f'(t)$

2. ✖ $tf'(t)$

3. ✖ $tf(t)$

4. ✔ $\frac{f(t)}{t}$

Question Number : 45 Question Id : 81959914080 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 system is described by the differential equation $\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 5y = 0$

assuming $y(0) = 0, y'(0) = 0$ then $L\{y(t)\}$

Options :

1. ✖ $\frac{1}{s(s^2+4s+5)}$

2. ✖ $\frac{s}{(s^2+4s+5)}$

3. ✖ $\frac{5}{(s^2+4s+5)}$

4. ✔ $\frac{5}{s(s^2+4s+5)}$

Question Number : 46 Question Id : 81959914081 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

$L^{-1}\left(\frac{1}{s(s^2+a^2)}\right) =$

Options :

1. ✖ $\frac{1-sinat}{a^2}$

2. ✖ $\frac{1+cosat}{a^2}$

3. ✔ $\frac{1-cosat}{a^2}$

4. ✖ $\frac{1+sinat}{a^2}$

Question Number : 47 Question Id : 81959914082 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

The Fourier series expansion of $f(x) = |sinx|$ over $(-l, l)$,

the value of $b_n =$

Options :

1. ✔ 0

2. ✖ $\frac{2}{l(n^2-1)}$

3. ✖ $\frac{4}{l(n^2-1)}$

4. ✖ $\frac{4}{l(1-n^2)}$

Question Number : 48 Question Id : 81959914083 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $f(x) = \begin{cases} 0, -\pi < x < 0 \\ x^2, \ 0 < x < \pi \end{cases}$ and

$f(x) = \frac{a_0}{2} + \sum_{n=1}^{\infty}(a_n cosnx + b_n sinnx)$ then $a_0 =$

Options :

1. ✖ $\frac{\pi}{3}$

2. ✖ $\frac{3}{\pi}$

3. ✔ $\frac{\pi^2}{3}$

4. ✖ $\frac{\pi^2}{2}$

Question Number : 49 Question Id : 81959914084 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Half range cosine series expansion of the function $f(x) = x - x^2,\ 0 < x < 1$ is represented by $a_2 =$

Options :

1. ✔ $-\frac{4}{\pi^2}$

2. ✖ $\frac{4}{\pi^2}$

3. ✖ $\frac{1}{\pi^2}$

4. ✖ $-\frac{1}{\pi^2}$

Question Number : 50 Question Id : 81959914085 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 "b_4" in the Fourier series expansion of $f(x) = 3x^2 - 2$ in $(-3,3)$ is_____

Options :

1. ✖ 14

2. ✖ $\frac{-108}{\pi^2}$

3. ✖ $\frac{108}{\pi^2}$

4. ✔ 0

Physics

Section Id :	819599275
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 :	819599317
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 81959914086 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 dimensional formula for kinetic energy is

Options :

1. ✖ $M^0L^0T^0$

2. ✔ $M^1L^2T^{-2}$

3. ✖ $M^1L^2T^{-1}$

4. ✖ $M^1L^1T^{-2}$

Question Number : 52 Question Id : 81959914087 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 photoelectric effect, the photo current

Options :

1. ✖ depends both on intensity and frequency of incident light

2. ✔ does not depends on the frequency of photon but depends only on intensity of incident light

3. ✖ decreases with increase of frequency of incident photon

4. ✖ increases with increase of frequency of incident photon

Question Number : 53 Question Id : 81959914088 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Optical fibers uses the phenomenon of

Options :

1. ✔ total internal reflection

2. ✖ refraction

3. ✖ dispersion

4. ✖ scattering

Question Number : 54 Question Id : 81959914089 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 volume of 1 mole of an ideal gas at STP

Options :

1. ✔ $2.24 \times 10^{-2} m^3$

2. ✖ $2.24 \times 10^{-3} m^3$

3. ✖ $2.42 \times 10^{-3} m^3$

4. ✖ $24.2 \times 10^{-3} m^3$

Question Number : 55 Question Id : 81959914090 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 correct in the case of an isothermal process of a gas

Options :

1. ✖ Temperature changes

2. ✔ Exchange of heat takes place between gas and surroundings

3. ✖ Boyle's law does not valid

4. ✖ It is a quick process

Question Number : 56 Question Id : 81959914091 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 angle between $\overrightarrow{P}$ and the resultant of $(\overrightarrow{P}+\vec{Q})$ and $(\vec{P}-\vec{Q})$

Options :

1. ✖ $\tan^{-1}\frac{(P-Q)}{(P+Q)}$

2. ✖ $\tan^{-1}(\frac{P}{Q})$

3. ✖ $\tan^{-1}(\frac{Q}{P})$

4. ✔ Zero

Question Number : 57 Question Id : 81959914092 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 magnitudes of scalar and vector products of two vectors are 6 and $6\sqrt{3}$ respectively, then the angle between the vectors

Options :

1. ✖ 15^0

2. ✖ 30^0

3. ✔ 60^0

4. ✖ 75^0

Question Number : 58 Question Id : 81959914093 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 equal forces (F each) act at a point inclined to each other at an angle of 120^0.

The magnitude of their resultant is

Options :

1. ✖ F/2

2. ✖ F/4

3. ✔ F

4. ✖ 2F

Question Number : 59 Question Id : 81959914094 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 quantity which remains unchanged during the flight of an oblique projectile is

Options :

1. ✖ Horizontal distance

2. ✖ Vertical distance

3. ✖ Vertical component of velocity

4. ✔ Horizontal component of velocity

Question Number : 60 Question Id : 81959914095 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

An object is thrown along a direction inclined at angle of 45^0 with the horizontal.

If 'R' represents horizontal range and 'H' represents vertical height of object,

which of the following is correct

Options :

1. ✖ R=H

2. ✖ R=2H

3. ✖ R=3H

4. ✔ R=4H

Question Number : 61 Question Id : 81959914096 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 bullet is fired with a velocity 10 m/s making an angle of 60^0 with the horizontal plane.

The horizontal component of the velocity of bullet when it reaches maximum height is

Options :

1. ✖ 10 m/s

2. ✖ 0

3. ✖ 8 m/s

4. ✔ 5 m/s

Question Number : 62 Question Id : 81959914097 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 μ_s, μ_k, μ_r are coefficients of static friction, sliding friction and rolling friction, then

Options :

1. ✔ $\mu_r < \mu_k < \mu_s$

2. ✖ $\mu_k < \mu_r < \mu_s$

3. ✖ $\mu_k < \mu_s < \mu_r$

4. ✖ $\mu_s = \mu_k = \mu_r$

Question Number : 63 Question Id : 81959914098 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 body falling from a height of 10 metre rebounds from a hard floor. If it loses 20% of its energy in impact, it will rise

Options :

1. ✖ 10m

2. ✔ 8m

3. ✖ 5m

4. ✖ 12m

Question Number : 64 Question Id : 81959914099 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 body of mass 10 kg is travelling with uniform speed of 5m/s. Its kinetic energy is

Options :

1. ✖ 25 J

2. ✔ 125 J

3. ✖ 1250 J

4. ✖ 1000 J

Question Number : 65 Question Id : 81959914100 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 stone is thrown up vertically and returns to ground, its potential energy is maximum

Options :

1. ✖ During upward journey

2. ✔ At the maximum height

3. ✖ During return journey

4. ✖ On the ground

Question Number : 66 Question Id : 81959914101 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 second's pendulum is taken from earth to moon. If it is to act as a second's pendulum there also, the length of the pendulum

Options :

1. ✖ Should be increased

2. ✔ Should be decreased

3. ✖ Need not be changed

4. ✖ Difficult to imagine

Question Number : 67 Question Id : 81959914102 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 simple harmonic motion, the maximum acceleration and maximum velocity are $31.4m/s^2$ and 10m/s. The time period is

Options :

1. ✖ 4s

2. ✖ 3s

3. ✔ 2s

4. ✖ 0.5s

Question Number : 68 Question Id : 81959914103 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 person standing between two hills fires a gun. He hears first echo after 1 second and second echo after 2 second. If velocity of sound in air is 340m/s, the distance between the hills is

Options :

1. ✖ 170m

2. ✖ 340m

3. ✔ 510m

4. ✖ 1020m

Question Number : 69 Question Id : 81959914104 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 tuning forks of frequencies 256 and 258 vibrations /second are sounded together. Then the time interval between two consecutive maxima heard by an observer is

Options :

1. ✖ 2 s

2. ✔ 0.5 s

3. ✖ 250 s

4. ✖ 252 s

Question Number : 70 Question Id : 81959914105 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

According to Hooks law, the relation between stress and strain is

Options :

1. ✔ Stress α Strain

2. ✖ Stress $\alpha \frac{1}{Strain}$

3. ✖ Stress α $(Strain)^2$

4. ✖ Stress α $(Strain)^{\frac{1}{2}}$

Question Number : 71 Question Id : 81959914106 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

An iron needle slowly placed on surface of water floats on it because

Options :

1. ✖ of elasticity

2. ✖ of viscosity

3. ✔ of surface tension

4. ✖ of its shape

Question Number : 72 Question Id : 81959914107 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 happens to the force between magnetic poles when their pole strength and the distance between them are both doubled

Options :

1. ✖ Force increases by two times

2. ✔ Force remains unchanged

3. ✖ Force becomes halved

4. ✖ Force increases by four times

Question Number : 73 Question Id : 81959914108 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Substances which when placed in a magnetic field acquire feeble magnetisation in a direction opposite to that of the applied field are called

Options :

1. ✔ Diamagnetic substances

2. ✖ Paramagnetic substances

3. ✖ Ferromagnetic substances

4. ✖ Ferrimagnetic substances

Question Number : 74 Question Id : 81959914109 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 resistance of wire of length 'L' and diameter 'D' is R Ω. The resistance of another wire of same material having length 'L' and diameter $\frac{D}{2}$ is _____ Ω.

Options :

1. ✖ $\frac{1}{2}$R

2. ✖ 2R

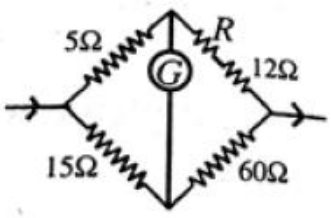
3. ✔ 4R

4. ✖ 16R

Question Number : 75 Question Id : 81959914110 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

To balance the bridge in the circuit, the value of R is



Options :

1. ✔ 8 Ω

2. ✖ $4\ \Omega$

3. ✖ $20\ \Omega$

4. ✖ $12\ \Omega$

Chemistry

Section Id :	819599276
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 :	819599318
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 81959914111 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 electrons present in outermost shell of copper atom is

Options :

1. ✖ 2

2. ✔ 1

3. ✖ 18

4. ✖ 11

Question Number : 77 Question Id : 81959914112 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 bond exists between NH_3 and H^+ in NH_4^+ is

Options :

1. ✖ Ionic

2. ✖ Covalent

3. ✔ Coordinate covalent

4. ✖ Metallic

Question Number : 78 Question Id : 81959914113 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Possible all oxidation numbers of hydrogen are

Options :

1. ✖ -1 and 0

2. ✖ +1 and 0

3. ✖ +1 and -1

4. ✔ +1, -1 and 0

Question Number : 79 Question Id : 81959914114 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Molecular weight of a dibasic acid is M. Its equivalent weight is

Options :

1. ✖ M

2. ✔ $M/2$

3. ✖ 2M

4. ✖ M+2

Question Number : 80 Question Id : 81959914115 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Lyophobic colloids are

Options :

1. ✔ required stabilisers

2. ✖ prepared by direct mixing

3. ✖ more stable

4. ✖ solvent attracting colloids

Question Number : 81 Question Id : 81959914116 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a Lewis acid

Options :

1. ✔ HCl

2. ✖ BF_3

3. ✖ Mg^{2+}

4. ✖ SO_2

Question Number : 82 Question Id : 81959914117 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 with more pH value

Options :

1. ✖ 0.1 M HCl

2. ✖ 0.5 M HCl

3. ✖ 0.1 M NaOH

4. ✔ 0.5 M NaOH

Question Number : 83 Question Id : 81959914118 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Froth floatation is used concentrate _____ ores

Options :

1. ✖ oxide

2. ✖ carbonate

3. ✔ sulphide

4. ✖ chloride

Question Number : 84 Question Id : 81959914119 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 element is not present in German silver

Options :

1. ✔ Fe

2. ✖ Ni

3. ✖ Cu

4. ✖ Zn

Question Number : 85 Question Id : 81959914120 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 device that converts the energy of combustion of fuels like hydrogen and methane directly into electrical energy is known as

Options :

1. ✖ Electrolytic cell

2. ✖ Leclanche cell

3. ✔ Fuel cell

4. ✖ Ni- Cd cell

Question Number : 86 Question Id : 81959914121 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Anode used in the electrolytic refining of copper is

Options :

1. ✖ Pt

2. ✔ Impure Cu

3. ✖ Graphite

pure copper

4. ✖

Question Number : 87 Question Id : 81959914122 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Faradays of current required to decompose 36 grams of water completely

Options :

1. ✖ 2

2. ✔ 4

3. ✖ 3

4. ✖ 6

Question Number : 88 Question Id : 81959914123 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 atomic weight of Cu is x, the electrochemical equivalent of Cu in the solution of copper sulphate is

Options :

1. ✖ $\frac{2x}{F}$

2. ✔ $\frac{x}{2F}$

3. ✖ $\frac{x}{F}$

4. ✖ xF

Question Number : 89 Question Id : 81959914124 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Rate of corrosion increases with

Options :

1. ✖ decrease of temperature

2. ✖ decrease of humidity

3. ✔ reactivity of metal

4. ✖ purity of metal

Question Number : 90 Question Id : 81959914125 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Chemical formula of the rust is

Options :

1. ✔ $Fe_2O_3.XH_2O$

2. ✖ Fe_3O_4

3. ✖ $Fe_2(C_2O_4)_3$

4. ✖ $FeCl_3$

Question Number : 91 Question Id : 81959914126 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Exhausted permutit is regenerated by using

Options :

1. ✖ $CaCl_2$

2. ✖ HCl

3. ✔ NaCl

4. ✖ $MgSO_4$

Question Number : 92 Question Id : 81959914127 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Temporary hardness of water containing 16.2 mg of $Ca(HCO_3)_2$ and 7.3 mg of $Mg(HCO_3)_2$ per litre

Options :

1. ✖ 10 mg/lit

2. ✖ 5 mg/lit

3. ✔ 15 mg/lit

4. ✖ 20 mg/lit

Question Number : 93 Question Id : 81959914128 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 an example of

Options :

1. ✔ thermosetting plastic

2. ✖ fibre

3. ✖ thermoplastic

4. ✖ elastomer

Question Number : 94 Question Id : 81959914129 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 are monomers of butyl rubber

Options :

1. ✖ Butadiene and styrene

2. ✖ Chloroprene

3. ✖ Phenol and formaldehyde

4. ✔ Isobutylene and isoprene

Question Number : 95 Question Id : 81959914130 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Main gases present in producer gas

Options :

1. ✖ CO & H_2

2. ✖ CH_4 & CO_2

3. ✔ CO & N_2

4. ✖ H_2 & CH_4

Question Number : 96 Question Id : 81959914131 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 moles of oxygen required for combustion of 30 grams of ethane is

Options :

1. ✖ 7

2. ✖ 2

3. ✖ 2.5

4. ✔ 3.5

Question Number : 97 Question Id : 81959914132 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 layer of the atmosphere contains the ozone layer that absorbs of UV light?

Options :

1. ✔ Stratosphere

2. ✖ Troposphere

3. ✖ Mesosphere

4. ✖ Ionosphere

Question Number : 98 Question Id : 81959914133 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 contaminant among the following

Options :

1. ✖ SO_2

2. ✔ MIC

3. ✖ CO_2

4. ✖ CH_4

Question Number : 99 Question Id : 81959914134 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gases responsible for depletion of Ozone layer are

Options :

1. ✖ CO_2, CFC, CH_4

2. ✖ SO_2, NO_2, CH_4

3. ✔ CFC, NO, Cl_2

4. ✖ CO, SO_2, CH_4

Question Number : 100 Question Id : 81959914135 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 harmful air pollutant produced by automobiles is

Options :

1. ✖ SO_2

2. ✖ NO

3. ✔ CO

4. ✖ Cl_2

Metallurgical Engineering

Section Id :	819599277
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 :	819599319
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 81959914136 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 froth flotation, collector refers to a reagent which primarily

Options :

1. ✖ Promotes bubble break-up and stabilizes the foam

2. ✔ Adsorbs on the surface of the mineral, and makes it hydrophobic

3. ✖ Promotes separation of the particles from the froth

4. ✖ Absorbs on the unwanted mineral and makes it sink

Question Number : 102 Question Id : 81959914137 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Floatation beneficiation is based on the principle of

Options :

1. ✔ Mineral surface hydrophobicity

2. ✖ Gravity difference

3. ✖ Chemical reactivity

4. ✖ Particle size difference

Question Number : 103 Question Id : 81959914138 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 roasting process which of the following takes place

Options :

1. ✔ Chemical conversion

2. ✖ Melting

3. ✖ Conversion of sulphates into sulphides

4. ✖ Conversion of Oxides into sulphides

Question Number : 104 Question Id : 81959914139 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 metal which generally occurs in the form of sulphides

Options :

1. ✖ Fe

2. ✔ Pb

3. ✖ Sn

4. ✖ Al

Question Number : 105 Question Id : 81959914140 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 context of mineral dressing 'Comminution' means

Options :

1. ✔ Size reduction

2. ✖ Agglomeration

3. ✖ Concentration

4. ✖ Separation

Question Number : 106 Question Id : 81959914141 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Classification principally based on

Options :

1. ✖ Kick's law

2. ✖ Bond's law

3. ✔ Stokes' law

4. ✖ Faraday's law

Question Number : 107 Question Id : 81959914142 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 step does not takes place in jigging?

Options :

1. ✖ Hindered Settling classification

2. ✔ Agglomeration of the mineral particles

3. ✖ Differential acceleration at beginning of fall

4. ✖ Consolidation trickling at the end of fall

Question Number : 108 Question Id : 81959914143 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 ore of lead

Options :

1. ✖ Ilmenite

2. ✖ Hematite

3. ✔ Galena

4. ✖ Cinnabar

Question Number : 109 Question Id : 81959914144 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Concentration is not accomplished in

Options :

1. ✔ Sintering

2. ✖ Flotation cells

3. ✖ Magnetic separators

4. ✖ Electrostatic separators

Question Number : 110 Question Id : 81959914145 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

This of the following is an important stage of Hydrometallurgy

Options :

1. ✖ Smelting

2. ✔ Leaching

3. ✖ Melting

4. ✖ Drossing

Question Number : 111 Question Id : 81959914146 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 by-product fuel?

Options :

1. ✔ Coke oven gas

2. ✖ Coal

3. ✖ Petroleum

4. ✖ Natural gas

Question Number : 112 Question Id : 81959914147 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Net calorific value =

Options :

1. ✖ Latent heat of water vapours formed + Gross calorific value

2. ✖ Latent heat of water vapours formed - Gross calorific value

3. ✔ Gross calorific value – Latent heat of water vapours formed

4. ✖ Gross calorific value + Latent heat of water vapours formed

Question Number : 113 Question Id : 81959914148 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 TRUE statement

Options :

1. ✔ The viscosity of a liquid fuel decreases with increase in temperature

2. ✖ The viscosity of a liquid fuel increases with increase in temperature

3. ✖ Low viscosity index means a small change in viscosity with temperature

4. ✖ High viscosity index means a large change in viscosity with temperature

Question Number : 114 Question Id : 81959914149 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 a refractory material?

Options :

1. ✖ Fire clay

2. ✔ Pb

3. ✖ Silica

4. ✖ Magnesite

Question Number : 115 Question Id : 81959914150 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 refractories

Options :

1. ✔ Silica

2. ✖ Magnesite

3. ✖ Dolomite

4. ✖ Chromite

Question Number : 116 Question Id : 81959914151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 system absorbs 20kJ heat and also does 10kJ of work.

The net internal energy of the system

Options :

1. ✔ Increases by 10 kJ

2. ✖ decreases by 10kJ

3. ✖ Increases by 30 kJ

4. ✖ decreases by 30kJ

Question Number : 117 Question Id : 81959914152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 an extensive property

Options :

1. ✖ Concentration

2. ✖ Density

3. ✔ Enthalpy

4. ✖ Viscosity

Question Number : 118 Question Id : 81959914153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 phase change $\{H_2O\} = <H_2O>$ at 0^0C, 1bar

Options :

1. ✔ $\Delta G = 0$

2. ✖ $\Delta s = 0$

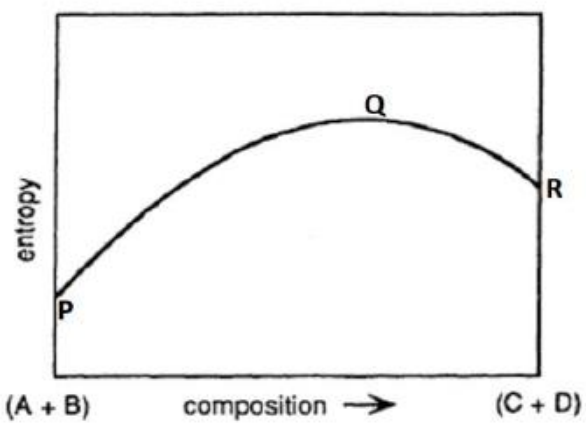
3. ✖ $\Delta H = 0$

4. ✖ $\Delta U = 0$

Question Number : 119 Question Id : 81959914154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 represents the equilibrium condition in the following entropy Vs Reaction coordinate diagram?



Options :

1. ✖ point ‘P’

2. ✔ point ‘Q’

3. ✖ Point ‘R’

4. ✖ between point ‘P’ and ‘Q’

Question Number : 120 Question Id : 81959914155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 will be the heat of formation of methane, if the heat of combustion of carbon is “-x” kJ, heat of formation of water is “-y” kJ and heat of combustion of methane is “-z” kJ? (In kJ)

Options :

1. ✖ $(-x - y + z)$

2. ✖ $(-z - x + 2y)$

3. ✖ $(-x - 2y - z)$

4. ✔ $(-x - 2y + z)$

Question Number : 121 Question Id : 81959914156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to the Clausius-Clapeyron equation, the melting point of aluminium

Options :

1. ✔ Increases with pressure

2. ✖ Decreases exponentially with pressure

3. ✖ Decreases with pressure

4. ✖ Does not vary with pressure

Question Number : 122 Question Id : 81959914157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 diagram which is plotted between standard free energy changes of various metal oxides as function of temperature is

Options :

1. ✖ Pourbaix diagram

2. ✖ Predominance area diagram

3. ✖ pH diagram

4. ✔ Ellingham diagram

Question Number : 123 Question Id : 81959914158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to Sievert's law, if the partial pressure of hydrogen in contact with a molten metal is increased by a factor of 4, the solubility increases by a factor of

Options :

1. ✔ 2

2. ✖ 4

3. ✖ Square root of (2)

4. ✖ 8

Question Number : 124 Question Id : 81959914159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 fugacity of a gas equals to its pressure

Options :

1. ✖ At very high pressures and high temperatures

2. ✖ At very low pressures and low temperatures

3. ✖ At very high pressures and high temperatures

4. ✔ At very low pressures and high temperatures

Question Number : 125 Question Id : 81959914160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Van't Hoff equation for isotherm

Options :

1. ✖ $\Delta G^0 = RT\ln K$

2. ✖ $\Delta H^0 = -RT\ln K$

3. ✔ $\Delta G^0 = -RT\ln K$

4. ✖ $\Delta H^0 = RT\ln K$

Question Number : 126 Question Id : 81959914161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 bonds can be described in terms of an electron gas?

Options :

1. ✖ Ionic bonding

2. ✖ Covalent bonding

3. ✔ Metallic bonding

4. ✖ Hydrogen bonding

Question Number : 127 Question Id : 81959914162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 packing efficiency of an FCC crystal is same as that of

Options :

1. ✔ HCP

2. ✖ BCC

3. ✖ Simple Cubic

4. ✖ Orthorhombic

Question Number : 128 Question Id : 81959914163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Isomorphous binary Phase diagram is formed between two components which exhibit

Options :

1. ✖ Complete liquid solubility but partial solid solubility

2. ✔ Complete liquid solubility as well as complete solid solubility

3. ✖ Complete solid solubility but partial liquid solubility

4. ✖ Partial liquid solubility and partial solid solubility

Question Number : 129 Question Id : 81959914164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 eutectoid reaction on cooling

Options :

1. ✔ $S1 = S2 + S3$

2. ✖ $L1 = S1 + S2$

3. ✖ $L1 + S1 = S2$

4. ✖ $L1 + L2 = S1$

Question Number : 130 Question Id : 81959914165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 microstructure of slowly cooled plain carbon pro-eutectoid steel at room temperature is

Options :

1. ✖ Pro-eutectoid Cementite + Pearlite

2. ✖ 100% Pearlite

3. ✖ Pro-eutectoid Ferrite + Pro-eutectoid Cementite

4. ✔ Pro-eutectoid Ferrite + Pearlite

Question Number : 131 Question Id : 81959914166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 binary Pb – Sn system exhibits

Options :

1. ✔ Eutectic phase diagram

2. ✖ Isomorphous Phase diagram

3. ✖ Monotectic Phase diagram

4. ✖ Syntectic Phase diagram

Question Number : 132 Question Id : 81959914167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 metallurgical microscope the power of the objective is '40X' and that of eye piece is '10X' then the overall magnification of the microscope is

Options :

1. ✖ 50X

2. ✔ 400X

3. ✖ 30X

4. ✖ 4X

Question Number : 133 Question Id : 81959914168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 can be revealed by macro-etching?

Options :

1. ✔ Antimony-tin cuboids in a bearing metal

2. ✖ Ferrite and Cementite in a plain carbon steel

3. ✖ Alpha and beta phases in brasses

4. ✖ Pearlite in Greycast iron

Question Number : 134 Question Id : 81959914169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 binary alloy systems exhibits complete solid solubility?

Options :

1. ✖ Fe - Cu

2. ✖ Pb - Sn

3. ✖ Zn -Cu

4. ✔ Cu - Ni

Question Number : 135 Question Id : 81959914170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 solidifies at a constant temperature?

Options :

1. ✖ Ag + 5% Sn

2. ✖ Au + 20% Pb

3. ✔ Pure Cu

4. ✖ Ta + 20% Ni

Question Number : 136 Question Id : 81959914171 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 hardness of steel increases with the presence of the following phase

Options :

1. ✖ Austenite

2. ✖ Ferrite

3. ✔ Martensite

4. ✖ Pearlite

Question Number : 137 Question Id : 81959914172 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the purpose of annealing of steel?

Options :

1. ✔ To improve hardness

2. ✖ To refine of grain size

3. ✖ To induce softness

4. ✖ To improve machinability

Question Number : 138 Question Id : 81959914173 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

TTT diagram indicates the transformation of which of the following phases as a function of time and temperature

Options :

1. ✖ Ferrite

2. ✔ Austenite

3. ✖ Cementite

4. ✖ Pearlite

Question Number : 139 Question Id : 81959914174 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 factor which does not affect the hardenability of steel

Options :

1. ✔ Grain size of ferrite

2. ✖ Carbon content

3. ✖ Grain size of austenite

4. ✖ Alloying elements

Question Number : 140 Question Id : 81959914175 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Quenching severity is highest in which of the following quenching media during heat treatment of steels

Options :

1. ✖ Tap water

2. ✖ Fused salts

3. ✖ Air

4. ✔ Brine

Question Number : 141 Question Id : 81959914176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 a ferrite-stabilising element?

Options :

1. ✔ Ni

2. ✖ Cr

3. ✖ W

4. ✖ V

Question Number : 142 Question Id : 81959914177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

To protect stainless steels from sensitisation which of the following stabilising elements are added?

Options :

1. ✖ Carbon, Silicon

2. ✔ Titanium, Niobium

3. ✖ Tungsten, Selenium

4. ✖ Manganese, Nickel

Question Number : 143 Question Id : 81959914178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 numbers in 18-4-1 of a tool steel refers to

Options :

1. ✔ 18%W, 4%Cr, 1%V

2. ✖ 18%Cr, 4%W, 1%V

3. ✖ 18%V, 4%Cr, 1%W

4. ✖ 18%W, 4%V, 1%Cr

Question Number : 144 Question Id : 81959914179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 pack carburizing the depth of penetration of carbon into the surface of the steel article

Options :

1. ✖ Increases as the cube root of time

2. ✖ Decreases as the cube root of time

3. ✖ Decreases as the square root of time

4. ✔ Increases as the square root of time

Question Number : 145 Question Id : 81959914180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

As a result of over ageing in age hardening of Al-Cu alloys which of the following does not occur

Options :

1. ✖ Average particle size of precipitate increases

2. ✖ The inter particle distance of precipitate particles increases

3. ✔ The number of precipitate particles increases

4. ✖ The number of precipitate particles decreases

Question Number : 146 Question Id : 81959914181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Why the mould is subjected to vertical oscillations in continuous casting of steel?

Options :

1. ✖ To make inclusions to float

2. ✖ To improve coring in the casting

3. ✔ To prevent the skin sticking to the mould

4. ✖ To delay the heat transfer between steel and mould

Question Number : 147 Question Id : 81959914182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 blast furnace burden should have

Options :

1. ✔ High reducibility

2. ✖ High percentage of fines

3. ✖ High moisture content

4. ✖ High softening temperature

Question Number : 148 Question Id : 81959914183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 ensure low silicon pig iron in a blast furnace?

Options :

1. ✖ Lower temperature and lower basicity

2. ✔ Lower temperature and higher basicity

3. ✖ Higher temperature and higher basicity

4. ✖ Higher temperature and lower basicity

Question Number : 149 Question Id : 81959914184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 a cause of hanging in blast furnace?

Options :

1. ✔ Low percentage of fines in the burden

2. ✖ Deposition of large amount of carbon due to Naumann reversion reaction

3. ✖ Condensation of alkali vapours

4. ✖ Excess blast pressure

Question Number : 150 Question Id : 81959914185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 reducing agent in the Rotary kiln process of sponge iron making is

Options :

1. ✖ Natural gas

2. ✖ Refined natural gas

3. ✖ Coke

4. ✔ Coal

Question Number : 151 Question Id : 81959914186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 nozzle used in the lance of LD steel making process is

Options :

1. ✔ Convergent - Divergent

2. ✖ Divergent - Convergent

3. ✖ Convergent

4. ✖ Divergent

Question Number : 152 Question Id : 81959914187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 heat producers in acid and basic Bessemer processes respectively are

Options :

1. ✖ Phosphorous, Silicon

2. ✔ Silicon, Phosphorous

3. ✖ Silicon, Manganese

4. ✖ Manganese, Silicon

Question Number : 153 Question Id : 81959914188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Regenerator is employed in which of the following steel making processes

Options :

1. ✔ Open hearth

2. ✖ LD converter

3. ✖ Bessemer converter

4. ✖ Electric arc furnace

Question Number : 154 Question Id : 81959914189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In which of the following steel making processes a second blowing cycle employed to blow lime into the furnace together with the oxygen

Options :

1. ✖ LD

2. ✖ Kaldo

3. ✖ Bessemer

4. ✔ LDAC

Question Number : 155 Question Id : 81959914190 Question Type : MCQ Option Shuffling : Yes Display Question

Number : Yes 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 LD steel making process which of the following impurities depletes fast from the hot metal in the initial stage of blowing

Options :

1. ✖ Carbon

2. ✖ Manganese

3. ✔ Silicon

4. ✖ Phosphorous

Question Number : 156 Question Id : 81959914191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Titanium and Magnesium are extracted by the following processes respectively

Options :

1. ✖ Pidgeon's process, Kroll's Process

2. ✖ Pidgeon's process, Mond's process

3. ✔ Kroll's Process, Pidgeon's process

4. ✖ Mond's process , Imperial smelting

Question Number : 157 Question Id : 81959914192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Commercially it is not viable to produce Aluminium by carbo–thermic reduction because

Options :

1. ✔ Excessively high temperatures are required

2. ✖ The produced Aluminium will have excessive dissolved oxygen

3. ✖ Aluminium melts at very low temperature

4. ✖ Aluminium does not vaporise at reasonable temperatures

Question Number : 158 Question Id : 81959914193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Matte smelting is associated with which one of the following metal extraction processes

Options :

1. ✖ Aluminium

2. ✔ Copper

3. ✖ Zinc

4. ✖ Lead

Question Number : 159 Question Id : 81959914194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 main objective in roasting lead ore is to convert

Options :

1. ✔ PbS to PbO

2. ✖ PbO to PbS

3. ✖ $PbCO_3$ to PbS

4. ✖ $PbSO_4$ to PbS

Question Number : 160 Question Id : 81959914195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Retort process is used in the extraction of which of the following metals

Options :

1. ✖ Copper

2. ✖ Aluminium

3. ✖ Zirconium

4. ✔ Zinc

Question Number : 161 Question Id : 81959914196 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 electrolytic extraction of Mg from $MgCl_2$ which of the following are added to lower the melting point of the electrolyte

Options :

1. ✔ NaCl and $CaCl_2$

2. ✖ $BaCl_2$ and LiCl

3. ✖ NaCl and LiCl

4. ✖ $CaCl_2$ and $BaCl_2$

Question Number : 162 Question Id : 81959914197 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 method by which titanium sponge is purified is

Options :

1. ✖ Carbonyl process

2. ✔ Van Arkel process

3. ✖ Hunter's process

4. ✖ Kroll's process

Question Number : 163 Question Id : 81959914198 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 methods not employed to separate Hafnium from Zirconium?

Options :

1. ✔ Froth flotation

2. ✖ Fractional crystallisation

3. ✖ Solvent extraction

4. ✖ Ion exchange method

Question Number : 164 Question Id : 81959914199 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Purpose of roasting of chalcopyrite is

Options :

1. ✖ To fully oxidise copper sulphide to make it suitable for converting

2. ✖ To partially oxidise the copper sulphide to send it to facilitate its removal in the form of slag

3. ✖ To convert copper oxide to copper sulphide

4. ✔ To partially oxidise the iron sulphide to facilitate its removal in the form of slag

Question Number : 165 Question Id : 81959914200 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Leachant in Bayer's process is

Options :

1. ✖ $Al(OH)_3$

2. ✖ HCl

3. ✔ NaOH

4. ✖ H_2SO_4

Question Number : 166 Question Id : 81959914201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 tensile test of a ductile metal necking starts at

Options :

1. ✖ Yield point

2. ✖ 0.2% proof stress

3. ✔ Ultimate tensile strength

4. ✖ 0.1% proof stress

Question Number : 167 Question Id : 81959914202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 NDT techniques is employed to detect deep lying defects in a large size component?

Options :

1. ✔ Ultrasonic inspection

2. ✖ Dye penetrant inspection

3. ✖ Magnetic particle inspection

4. ✖ Eddy current inspection

Question Number : 168 Question Id : 81959914203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Impact strength of a metal is determined by using

Options :

1. ✖ Fatigue test

2. ✔ Charpy test

3. ✖ Creep test

4. ✖ Tensile test

Question Number : 169 Question Id : 81959914204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 properties cannot be obtained from a tensile test?

Options :

1. ✔ Endurance limit

2. ✖ Young's modulus

3. ✖ Yield strength

4. ✖ Ultimate tensile strength

Question Number : 170 Question Id : 81959914205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 principle used in Brinell hardness testing is

Options :

1. ✖ Hardness is directly proportional to the surface area of indentation

2. ✖ Hardness is directly proportional to the square root of surface area of indentation

3. ✖ Hardness is indirectly proportional to the square root of surface area of indentation

4. ✔ Hardness is inversely proportional to the surface area of indentation

Question Number : 171 Question Id : 81959914206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 following is a characteristic feature of fatigue fracture?

Options :

1. ✔ Beach marks

2. ✖ Cup and cone

3. ✖ Barreling

4. ✖ Earing

Question Number : 172 Question Id : 81959914207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Radiography technique of detecting defects is based on the principle of

Options :

1. ✖ Reflection

2. ✔ Absorption

3. ✖ Diffraction

4. ✖ Fluorescence

Question Number : 173 Question Id : 81959914208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 does not improve fatigue life of a steel component?

Options :

1. ✔ Decarburisation

2. ✖ Nitriding

3. ✖ Shot-peening

4. ✖ Reducing surface roughness

Question Number : 174 Question Id : 81959914209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 slope of creep curve indicates

Options :

1. ✖ Primary creep

2. ✖ Secondary creep

3. ✖ Tertiary creep

4. ✔ Creep rate

Question Number : 175 Question Id : 81959914210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

According to Griffith theory of brittle fracture, the stress required to propagate a crack in a brittle material is

Options :

1. ✖ Directly proportional to the square root of crack length

2. ✖ Directly proportional to the crack length

3. ✔ Inversely proportional to the square root of crack length

4. ✖ Inversely proportional to the crack length

Question Number : 176 Question Id : 81959914211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 solder (Pb - Sn alloy) wire does not work harden at room temperature since

Options :

1. ✖ The grains get a preferred orientation during plastic deformation

2. ✖ Dislocations become immobile

3. ✔ The recrystallisation temperature is below room temperature

4. ✖ Grain coarsening takes place

Question Number : 177 Question Id : 81959914212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 defect is associated with extrusion?

Options :

1. ✔ Alligatoring

2. ✖ Cold shut

3. ✖ Crack at flash

4. ✖ Wrinkling

Question Number : 178 Question Id : 81959914213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 correct statement regarding the dispersion hardening

Options :

1. ✖ Dispersoids dissolve in the matrix at high temperature

2. ✔ Dispersoids impart high temperature strength to the alloy

3. ✖ Dispersoids do not improve creep strength of the alloy

4. ✖ Dispersoids maintain phase relation with the matrix

Question Number : 179 Question Id : 81959914214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 wrong statement regarding motion of dislocations?

Options :

1. ✔ Screw dislocations can climb

2. ✖ Edge dislocations can climb

3. ✖ Screw dislocations can cross slip

4. ✖ Edge dislocations cannot cross slip

Question Number : 180 Question Id : 81959914215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 lattice defect that is bounded by two mirror planes is

Options :

1. ✖ Grain boundary

2. ✖ Stacking fault

3. ✖ Screw dislocation

4. ✔ Twin boundary

Question Number : 181 Question Id : 81959914216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 limiting condition for rolling is (where 'μ' is coefficient of friction and 'α' is the angle of bite)

Options :

$\mu = \tan\alpha$

1. ✔

$\mu > \tan\alpha$

2. ✖

$\mu < \tan\alpha$

3. ✖

$\mu = \sin\alpha$

4. ✖

Question Number : 182 Question Id : 81959914217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 an open die forging operation?

Options :

Fullering

1. ✖

Buffing

2. ✔

Upsetting

3. ✖

Edging

4. ✖

Question Number : 183 Question Id : 81959914218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cup shaped articles are produced in

Options :

Deep drawing

1. ✔

Stretch forming

2. ✖

3. ✖ Shearing

4. ✖ Blanking

Question Number : 184 Question Id : 81959914219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the wrong statement regarding critical resolver shear stress (CRSS)

Options :

1. ✖ CRSS depends on composition

2. ✖ CRSS depends on crystal structure

3. ✖ CRSS depends on number of slip systems

4. ✔ CRSS is independent of Composition

Question Number : 185 Question Id : 81959914220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 reason for strain hardening?

Options :

1. ✖ High temperature

2. ✖ Annihilation of dislocations

3. ✔ Dislocation pile-up

4. ✖ High rate of Diffusion of atoms

Question Number : 186 Question Id : 81959914221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ Before casting solidifies

2. ✔ After casting solidifies

3. ✖ At the same time as casting solidifies

4. ✖ Irrespective of the solidification of the casting

Question Number : 187 Question Id : 81959914222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Riser is not required for the castings of

Options :

1. ✖ White cast iron

2. ✖ Al-4.5% Cu

3. ✔ Grey cast iron

4. ✖ Al-12%Si

Question Number : 188 Question Id : 81959914223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 pattern of a casting is

Options :

1. ✖ Replica of the exterior of a casting

2. ✖ Replica of the interior of a casting

3. ✖ Replica of the exterior of a casting without allowances

4. ✔ Replica of the exterior of a casting with allowances

Question Number : 189 Question Id : 81959914224 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a function of mould coating?

Options :

1. ✖ To provide a surface which can prevent metal penetration into voids in the mould face

2. ✔ To improve collapsibility

3. ✖ To provide a better refractory surface

4. ✖ To provide a smooth surface to mould

Question Number : 190 Question Id : 81959914225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Hot chamber die casting machine is suitable for casting

Options :

1. ✔ Low melting point metals

2. ✖ High melting point metals

3. ✖ Low strength metals

4. ✖ High strength metals

Question Number : 191 Question Id : 81959914226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 represents gating ratio

Options :

1. ✖ Runner area : Sprue area : Ingate area

2. ✖ Sprue area : Ingate area : Runner area

3. ✔ Sprue area : Runner area : Ingate area

4. ✖ Ingate area : Sprue area : Runner area

Question Number : 192 Question Id : 81959914227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Directional solidification means

Options :

1. ✖ Solidification should start at riser first and then progressively towards casting

2. ✔ Solidification should start at remotest point and progressively move towards riser

3. ✖ Solidification should start in the middle and then progressively towards riser

4. ✖ Solidification should start in the middle and then progressively towards casting

Question Number : 193 Question Id : 81959914228 Question Type : MCQ Option Shuffling : Yes Display Question

Number : Yes 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 not a salvaging technique

Options :

1. ✔ Tumbling

2. ✖ Welding

3. ✖ Patching and Plugging

4. ✖ Brazing

Question Number : 194 Question Id : 81959914229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 describes the primary source of heat in cupola melting?

Options :

1. ✖ $C + CO_2 = 2CO$

2. ✖ $C + H_2O = CO + H_2$

3. ✖ $CaCO_3 = CaO + CO_2$

4. ✔ $C + O_2 = CO_2$

Question Number : 195 Question Id : 81959914230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cast iron pipes are cast by

Options :

1. ✔ True centrifugal casting

2. ✖ Investment casting

3. ✖ Continuous casting

4. ✖ Die casting

Question Number : 196 Question Id : 81959914231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 steels has low weldability?

Options :

1. ✖ Fe-0.4%C

2. ✔ Fe-0.6%C

3. ✖ Fe-0.3%C

4. ✖ Fe-0.2%C

Question Number : 197 Question Id : 81959914232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 role of flux in welding process is

Options :

1. ✖ To act as catalyst

2. ✖ To act as a protective agent

3. ✖ To act as a filler

4. ✔ To produce heat

Question Number : 198 Question Id : 81959914233 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 welding process that uses non consumable electrode

Options :

1. ✖ MIG

2. ✖ SAW

3. ✔ TIG

4. ✖ Oxy-acetylene Gas welding

Question Number : 199 Question Id : 81959914234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Heat affected zone (HAZ) is minimal in

Options :

1. ✔ EBW

2. ✖ TIG

3. ✖ MIG

4. ✖ SAW

Question Number : 200 Question Id : 81959914235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a cause of lack of fusion during welding?

Options :

1. ✖ High welding speed

2. ✖ Low welding current

3. ✖ Low heat input

4. ✔ Low welding speed