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 06th May 2024 Shift1
Subject Name :	Metallurgical Engineering
Creation Date :	2024-05-06 19:15:15
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Actual Answer Key :	Yes
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No

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

METALLURGICAL ENGINEERING

Group Number :	1
Group Id :	76144612
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 :	76144643
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 : 76144657

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 1 Question Id : 7614462211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $A=\begin{pmatrix} k & 1 \\ 1 & k \end{pmatrix}$ and $\left|A^3\right|=27$,then $k=$

Options :

7614468801. ✖ ± 1

7614468802. ✔ ± 2

7614468803. ✖ ± 4

7614468804. ✖ ± 5

Question Number : 2 Question Id : 7614462212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $A=\begin{pmatrix} 1 & -1 \\ 2 & 1 \end{pmatrix}$ satisfies $aA^2+bA+cI=0$,then $b+2c=$

Options :

7614468805. ✔ 4

7614468806. ✖ 2

7614468807. ✖ -4

7614468808. ✖ 3

Question Number : 3 Question Id : 7614462213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let (x, y, z) be the solution of the system of equations $x+3y+z=3$, $x+4y+2z=3, -x-2y+3z=-6$ .Then $x^2+y^2+z^2=$

Options :

7614468809. ✖ 12

7614468810. ✖ 9

7614468811. ✖ 6

7614468812. ✔ 3

Question Number : 4 Question Id : 7614462214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $A=\begin{pmatrix}2 & x+9\\ 1 & 2x\end{pmatrix}$ is invertible,then $x\neq$

Options :

7614468813. ✖ 4

7614468814. ✖ 1

7614468815. ✔ 3

7614468816. ✖ 5

Question Number : 5 Question Id : 7614462215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 satisfying $3^{\log_5(x-5)}=\log_5(125)$ is

Options :

7614468817. ✔ 10

7614468818. ✖ 5

7614468819. ✖ 9

7614468820. ✖ 3

Question Number : 6 Question Id : 7614462216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $\frac{4x^2+1}{x^3-1}=\frac{A}{x-1}+\frac{Bx+C}{x^2+x+1}$, then $A-B+C=$

Options :

7614468821. ✖ -3

7614468822. ✔ 0

7614468823. ✖ 2

7614468824. ✖ 1

Question Number : 7 Question Id : 7614462217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 diameter of the circle $(x-1)^2+(y+3)^2=3$ is

Options :

7614468825. ✖ $\sqrt{3}$

7614468826. ✖ $4\sqrt{3}$

7614468827. ✔ $2\sqrt{3}$

7614468828. ✖ 3

Question Number : 8 Question Id : 7614462218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 circle $x^2 + y^2 - 3x - 2y + c = 0$ passes through origin, then $c =$

Options :

7614468829. ✖ -1

7614468830. ✖ 1

7614468831. ✔ 0

7614468832. ✖ ∞

Question Number : 9 Question Id : 7614462219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 latus rectum of parabola $x^2 = 4y$ is

Options :

7614468833. ✔ 4

7614468834. ✖ 8

7614468835. ✖ 12

7614468836. ✖ 2

Question Number : 10 Question Id : 7614462220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 centre of the circle $45x^2+45y^2-60x+36y+19=0$ is

Options :

7614468837. ✖ $(0,0)$

7614468838. ✖ $(60,36)$

7614468839. ✖ $(-60,36)$

7614468840. ✔ $(\frac{2}{3},-\frac{2}{5})$

Question Number : 11 Question Id : 7614462221 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Homogeneous second degree equation $a x^2 + 2hxy + by^2 = 0$ represents two real and distinct lines through origin if

Options :

7614468841. ✔ $h^2 > ab$

7614468842. ✖ $h^2 = ab$

7614468843. ✖ $h^2 < ab$

7614468844. ✖ $h^2 = a + b$

Question Number : 12 Question Id : 7614462222 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 extremities (1,3) and (5, 7) of the diameter is

Options :

7614468845. ✖ $x^2 + y^2 + 6x + 10y + 26 = 0$

7614468846. ✔ $x^2 + y^2 - 6x - 10y + 26 = 0$

7614468847. ✖ $x^2 + y^2 - 6x + 10y + 26 = 0$

7614468848. ✖ $x^2 + y^2 - 6x - 10y - 26 = 0$

Question Number : 13 Question Id : 7614462223 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 line passing through the points (a,6a) and (5,6) is perpendicular to the line $3x+4y+5 = 0$, then $7a =$

Options :

7614468849. ✖ -5

7614468850. ✖ -3

7614468851. ✔ -1

7614468852. ✖ -2

Question Number : 14 Question Id : 7614462224 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 (0, k), (1,3) and (82,30) are collinear ,then k =

Options :

7614468853. ✔ $\frac{8}{3}$

7614468854. ✖ $\frac{9}{4}$

7614468855. ✖ $\frac{10}{7}$

7614468856. ✖ $\frac{11}{6}$

Question Number : 15 Question Id : 7614462225 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 two parallel sides of a square are $2x+y+7 = 0, 2x+y+5=0$, then the area of that square is (in square units is)

Options :

7614468857. ✖ $\frac{3}{5}$

7614468858. ✔ $\frac{4}{5}$

7614468859. ✖ $\frac{6}{5}$

7614468860. ✖ $\frac{7}{5}$

Question Number : 16 Question Id : 7614462226 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 point at two circles $x^2+y^2-4x-2y-4=0, x^2+y^2-12x-8y-12=0$ touches is

Options :

7614468861. ✔ $\left(\frac{-2}{5},\frac{-4}{5}\right)$

7614468862. ✖ $\left(\frac{2}{5},\frac{4}{5}\right)$

7614468863. ✖ $\left(\frac{2}{5},\frac{-4}{5}\right)$

7614468864. ✖ $\left(\frac{-2}{5},\frac{4}{5}\right)$

Question Number : 17 Question Id : 7614462227 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $x+y=k$ is a normal to the parabola $y^2=12x$,then k =

Options :

7614468865. ✖ 5

7614468866. ✔ 9

7614468867. ✖ 7

7614468868. ✖ 3

Question Number : 18 Question Id : 7614462228 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 set of all points where the function $f(x) = x|x|$ is differentiable is

Options :

7614468869. ✖ $(0, \infty)$

7614468870. ✔ $(-\infty, \infty)$

7614468871. ✖ $(-\infty, 0) \cup (0, \infty)$

7614468872. ✖ $(-\infty, 0)$

Question Number : 19 Question Id : 7614462229 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

7614468873. ✖ $n^2 + n$

7614468874. ✖ $\frac{n^2+n}{2}$

7614468875. ✔ $\frac{n^2-n}{2}$

7614468876. ✖ n^2-n

Question Number : 20 Question Id : 7614462230 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x=2\cos t, y=2\sin t$,then $\frac{d^2y}{dx^2}$ at $t=\frac{\pi}{4}$ is

Options :

7614468877. ✖ $\frac{1}{\sqrt{2}}$

7614468878. ✔ $-\sqrt{2}$

7614468879. ✖ $\sqrt{3}$

7614468880. ✖ $-\frac{1}{\sqrt{3}}$

Question Number : 21 Question Id : 7614462231 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 tangent to the curve $y = x^3 - 3x + 2$ at the point $(2, 4)$ is

Options :

7614468881. ✔ $9x - y - 14 = 0$

7614468882. ✖ $9x + y - 14 = 0$

7614468883. ✖ $9x - y + 14 = 0$

7614468884. ✖ $9x + y = 0$

Question Number : 22 Question Id : 7614462232 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $y = a\log x + bx^2 + x$ has its extreme values at $x = -1$ and $x = 2$, then the values of a and b are respectively are

Options :

7614468885. ✖ $-2, 2$

7614468886. ✖ $-4, 4$

7614468887. ✖

$-\frac{1}{3}, 4$

7614468888. ✔ $-\frac{1}{2}, 2$

Question Number : 23 Question Id : 7614462233 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 curves $y^2 = 2x$ and $2xy = k$ cut at right angle,then $k^2 =$

Options :

7614468889. ✖ 4

7614468890. ✔ 8

7614468891. ✖ 16

7614468892. ✖ 9

Question Number : 24 Question Id : 7614462234 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $x^y y^x = 1$,then $\frac{dy}{dx} =$

Options :

7614468893. ✖ $-\frac{y}{x}\left(\frac{x+y\log x}{y+x\log y}\right)$

7614468894. ✖ $\frac{y}{x}\left(\frac{x-\log x}{y+\log y}\right)$

7614468895. ✖ $\frac{y}{x}\left(\frac{y-x\log y}{x+y\log x}\right)$

7614468896. ✔ $-\frac{y}{x}\left(\frac{y+x\log y}{x+y\log x}\right)$

Question Number : 25 Question Id : 7614462235 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $u=\tan^{-1}\left(\frac{x^3+y^3}{x-y}\right), x\neq y$ and if $x\frac{\partial u}{\partial x}+y\frac{\partial u}{\partial y}-\sin ku=0$,then $k=$

Options :

7614468897. ✖ 3

7614468898. ✖ 4

7614468899. ✔ 2

7614468900. ✖ 5

Question Number : 26 Question Id : 7614462236 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the tangent to the curve xy=1 at (1,1) is

Options :

7614468901. ✖ -2

7614468902. ✔ -1

7614468903. ✖ 1

7614468904. ✖ 2

Question Number : 27 Question Id : 7614462237 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 function $f(x) = xe^{-x}$ $(x \in R)$ attains a maximum value at $x =$

Options :

7614468905. ✖ 2

7614468906. ✖ 1/e

7614468907. ✔ 1

7614468908. ✖ 3

Question Number : 28 Question Id : 7614462238 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 integral value of $\int \frac{Cos2x}{sin^2x\,Cos^2x}dx =$

Options :

7614468909. ✖ $Cosec^2x - Sec^2x + c$

7614468910. ✖ $Cotx + Tanx + c$

7614468911. ✔ $-Cotx - tanx + c$

7614468912. ✖ $Cosecx - Secx + c$

Question Number : 29 Question Id : 7614462239 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\int e^{xCosecx}\,Cosecx(1 - x\,Cotx)dx =$

Options :

7614468913. ✖ $e^{xCotx} + c$

7614468914. ✔ $e^{xCosecx} + c$

7614468915. ✖ $e^{-xCotx} + c$

7614468916. ✖ $e^{-xCos\ ecx} + c$

Question Number : 30 Question Id : 7614462240 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 integral value of $\int_0^{\pi} x\ Sinx\ Cos^4x\ dx$ is

Options :

7614468917. ✖ $\frac{\pi}{10}$

7614468918. ✔ $\frac{\pi}{5}$

7614468919. ✖ $-\frac{\pi}{5}$

7614468920. ✖ $-\frac{\pi}{10}$

Question Number : 31 Question Id : 7614462241 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 enclosed between the curves $y^2 = x$ and $y = |x|$ is

Options :

7614468921. ✖ $1/3$

7614468922. ✖ 1

7614468923. ✖ $2/3$

7614468924. ✔ $1/6$

Question Number : 32 Question Id : 7614462242 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 of the family of curves $xy = c_1e^x + c_2e^{-x}$ is

Options :

7614468925. ✖ $\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - y = 0$

7614468926. ✔ $x\frac{d^2y}{dx^2} + 2\frac{dy}{dx} - xy = 0$

7614468927. ✖ $x\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - y = 0$

7614468928. ✖ $x^2\frac{d^2y}{dx^2}+2\frac{dy}{dx}-y=0$

Question Number : 33 Question Id : 7614462243 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx}-x\tan(y-x)=1$ is

Options :

7614468929. ✔ $\sin(y-x)=ce^{\frac{x^2}{2}}$

7614468930. ✖ $\cos(y-x)=ce^{\frac{-x^2}{2}}$

7614468931. ✖ $\sin(y+x)=ce^{\frac{-x^2}{2}}$

7614468932. ✖ $\tan(y-x)=ce^{\frac{x^2}{2}}$

Question Number : 34 Question Id : 7614462244 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $xy\frac{dy}{dx}=\frac{1+y^2}{1+x^2}$ is

Options :

7614468933. ✖ $(1+x)(1+y)=cx^2y^2$

7614468934. ✔ $(1+x^2)(1+y^2)=cx^2$

7614468935. ✖ $(1+x^2)(1+y^2)=cy$

7614468936. ✖ $(1+x^2)(1+y^2)=cxy$

Question Number : 35 Question Id : 7614462245 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\frac{dy}{dx}-\frac{2}{x}y=2x^3+x$ is

Options :

7614468937. ✔ $y=x^4+x^2\log x+cx^2$

7614468938. ✖ $y=x^3+x^2\log x+cx^2$

7614468939. ✖ $y=x^3+x\log x+cx^2$

7614468940. ✖ $y=x^2+x\log x+cx^3$

Question Number : 36 Question Id : 7614462246 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The general solution of the differential equation $\sec^2 y\frac{dy}{dx}+x\tan y=x^3$ is

Options :

7614468941. ✖ $\sin y=x^2+2+ce^{\frac{-x^2}{2}}$

7614468942. ✖ $\cos y=2x^2-1+ce^{\frac{-x^2}{2}}$

7614468943. ✖ $\cot y=x^2-2+ce^{\frac{-x^2}{2}}$

7614468944. ✔ $\tan y=x^2-2+ce^{\frac{-x^2}{2}}$

Question Number : 37 Question Id : 7614462247 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 the differential equation $\frac{d^2y}{dx^2}+16y=e^{-3x}+\cos 4x$ is

Options :

7614468945. ✖ $\frac{1}{7}e^{-3x}+\frac{x}{8}\cos 4x$

7614468946. ✖ $\frac{1}{23}e^{-3x}+\frac{x}{8}\cos 4x$

7614468947. ✔ $\frac{1}{25}e^{-3x}+\frac{x}{8}\sin 4x$

7614468948. ✖ $\frac{1}{36}e^{-3x}+\frac{x}{9}\sin 4x$

Question Number : 38 Question Id : 7614462248 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 particular integral of the differential equation $\frac{d^2y}{dx^2}+\frac{dy}{dx}+y=x^2$ is

Options :

7614468949. ✖ x^2+4x

7614468950. ✖ $2x^2-x$

7614468951. ✖ x^2-8x

7614468952. ✔ x^2-2x

Question Number : 39 Question Id : 7614462249 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^2y}{dx^2}-2\frac{dy}{dx}-15y=0$ subject to the conditions $y'(0)=0, y''(0)=2$ is

Options :

7614468953. ✖ $y=\frac{1}{20}e^{3x}+\frac{1}{12}e^{5x}$

7614468954. ✔ $y=\frac{1}{20}e^{5x}+\frac{1}{12}e^{-3x}$

7614468955. ✖ $y=\frac{1}{12}e^{5x}+\frac{1}{20}e^{-3x}$

7614468956. ✖ $y=\frac{1}{20}e^{-5x}+\frac{1}{12}e^{-3x}$

Question Number : 40 Question Id : 7614462250 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$L\left\{\int_0^t e^{-u}\sin u\,du\right\}=$$

Options :

7614468957. ✖ $\frac{1}{s^2+2s+2}$

7614468958. ✖

$$\frac{s}{s^2+2s+2}$$

7614468959. ✔ $\frac{1}{s\left(s^2+2s+2\right)}$

7614468960. ✖ $\frac{1}{s\left(s^2+2\right)}$

Question Number : 41 Question Id : 7614462251 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $L\{f(t)\}=\log\left(\frac{s-1}{s}\right)$,then $f(1)=$

Options :

7614468961. ✔ $1-e$

7614468962. ✖ $e-1$

7614468963. ✖ e

7614468964. ✖ $e+1$

Question Number : 42 Question Id : 7614462252 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

$$\int_0^{\infty} \frac{\sin 2t}{t} dt =$$

Options :

7614468965. ✖ π

7614468966. ✖ 0

7614468967. ✖ 2π

7614468968. ✔ $\frac{\pi}{2}$

Question Number : 43 Question Id : 7614462253 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$$\text{If } L\{t\sinh kt\} = \frac{4s}{\left(s^2-4\right)^2}, \text{then } k =$$

Options :

7614468969. ✖ 1

7614468970. ✖ 4

7614468971. ✔ 2

7614468972.

✖ $\frac{1}{2}$

Question Number : 44 Question Id : 7614462254 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Let $L^{-1}\left\{\frac{e^{-s}}{s^2+4s+5}\right\}=f(t)$. If $t>1$,then $f(t)=$

Options :

7614468973. ✖ $e^{-2t}\sin t$

7614468974. ✔ $e^{-2(t-1)}\sin(t-1)$

7614468975. ✖ $e^{-2(t+1)}\sin(t+1)$

7614468976. ✖ $e^{2t}\sin t$

Question Number : 45 Question Id : 7614462255 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

7614468977. ✖ $\frac{2(s+2)}{(s-4)(s+8)}$

7614468978. ✖ $\frac{2(s-1)}{(4s+1)(4s-2)}$

7614468979. ✖ $\frac{s-2}{(s-4)(s+8)}$

7614468980. ✔ $\frac{2(s-2)}{(s+4)(s-8)}$

Question Number : 46 Question Id : 7614462256 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $Y(s)$ is the Laplace transform of the solution $y(t)$ of $y''+y=\sin 3t$, $y(0)=0, y'(0)=0$, then $Y(0)=$

Options :

7614468981. ✖ 0

7614468982. ✖ 3

7614468983. ✔ $\frac{1}{3}$

7614468984. ✖ $\frac{1}{9}$

Question Number : 47 Question Id : 7614462257 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient a_n in the series expansion of $f(x) = |x|$ in $(-\pi, \pi)$ when n is odd is

Options :

7614468985. ✖ $\frac{4}{\pi n^2}$

7614468986. ✔ $\frac{-4}{\pi n^2}$

7614468987. ✖ $\frac{2}{\pi n^2}$

7614468988. ✖ 0

Question Number : 48 Question Id : 7614462258 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of the Fourier coefficient b_0 in the series expansion of $f(x) = |x\ Sinx|$ in $(-\pi, \pi)$ is

Options :

7614468989. ✔ 0

7614468990. ✖ -2

7614468991. ✖ 2

7614468992. ✖ -1

Question Number : 49 Question Id : 7614462259 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 $f(x) = Sinx$ is expressed as Fourier Cosine series in the interval $(0, \pi)$, then the value of a_0 is

Options :

7614468993. ✖ $\frac{2}{\pi}$

7614468994. ✖ $\frac{1}{\pi}$

7614468995. ✔ $\frac{4}{\pi}$

7614468996. ✖ $\frac{-2}{\pi}$

Question Number : 50 Question Id : 7614462260 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$\int_0^{\pi} sin6x\ sin4x\ dx =$

Options :

7614468997. ✖ $\frac{\pi}{2}$

7614468998. ✖ π

7614468999. ✖ 1

7614469000. ✔ 0

Physics

Section Id :	76144644
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 : 76144658

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 51 Question Id : 7614462261 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 equation is dimensionally incorrect for the expression representing displacement 'y' and amplitude 'A' of a particle executing Simple Harmonic Motion with time period 'T'?

Options :

7614469001. ✖ $y = \frac{A}{\sqrt{2}}(\text{Sin}\omega t + \text{Cos}\omega t)$

7614469002. ✖ $y = A\ \text{Sin}\omega t$

7614469003. ✔ $y = \frac{A}{T}\ \text{Sin}(\frac{t}{A})$

7614469004. ✖ $y = A\ \text{Sin}(\frac{4\pi t}{T})$

Question Number : 52 Question Id : 7614462262 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 resultant of two equal forces acting at right angles to each other is 1224 N. Then the magnitude of each force in Newtons.

Options :

7614469005. ✖ 612, 612

7614469006. ✖ 1224, 1224

7614469007. ✔ 865, 865

7614469008. ✖ 432, 432

Question Number : 53 Question Id : 7614462263 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 magnitude of three vectors $\vec{A}, \vec{B}$ & $\vec{C}$ are in order 12,5,13 units and $\vec{A} + \vec{B} = \vec{C}$, then what will be the angle between the vectors $\vec{A}$ & $\vec{B}$

Options :

7614469009. ✔ 90^0

7614469010. ✖ 60^0

7614469011. ✖ 30^0

7614469012. ✖ 45^0

Question Number : 54 Question Id : 7614462264 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 boy pulls a body of mass 50 kg resting on a flat horizontal surface. Calculate the frictional force if the coefficient of friction is 0.2

Options :

7614469013. ✔ $98.1\ kg.m.s^{-2}$

7614469014. ✖ 15 kg

7614469015. ✖ $98.1 \times 10^3\ g.cm.s^{-2}$

7614469016. ✖ 1500 g

Question Number : 55 Question Id : 7614462265 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 projectile is thrown with a velocity u at an angle of θ with the horizontal, then the velocity at maximum height during the projectile motion will be:

Options :

7614469017. ✖ $2u \sin\theta$

7614469018. ✖ $u \sin\theta$

7614469019. ✖ $2u \cos\theta$

7614469020. ✔ u cosθ

Question Number : 56 Question Id : 7614462266 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 child of mass 5 kg is going round a merry-go-round that makes 1 rotation in 3.14 seconds. If the radius of the merry-go-round is 2 m then the centrifugal force on the child will be

Options :

7614469021. ✖ 10 Newton

7614469022. ✖ 20 Newton

7614469023. ✖ 30 Newton

7614469024. ✔ 40 Newton

Question Number : 57 Question Id : 7614462267 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 metal plate of area 100 cm^2 is placed on the surface of a liquid and a force of $1\mu N$ is required to move the plate so as to produce a velocity change 1 cms^{-1} between two successive layers separated by 1 cm. The coefficient of viscosity of the liquid is

Options :

7614469025. ✔ $10^{-4}\ Pa\ s$

7614469026. ✖ $10^{-3}\ Pa\ s$

7614469027. ✖ $10^{-1}\ Pa\ s$

7614469028. ✖ $10\ Pa\ s$

Question Number : 58 Question Id : 7614462268 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Water rises to a height 'h' in a capillary tube of radius 'r' when immersed in water. The mass of the water in the capillary tube is 'm'. The mass of water that will rise in another capillary tube of radius $\frac{r}{2}$ when immersed in water is

Options :

7614469029. ✖ m

7614469030. ✖ 2m

7614469031. ✔ $\frac{m}{2}$

7614469032. ✖ 4m

Question Number : 59 Question Id : 7614462269 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 continuity equation for compressible fluid is (the quantities carry their usual meaning)

Options :

7614469033. ✖ $\rho_2 A_1 v_1 = \rho_1 A_2 v_2$

7614469034. ✖ $A_1 v_1 = A_2 v_2$

7614469035. ✖ $\rho_1 v_1 = \rho_2 v_2$

7614469036. ✔ $\rho_1 A_1 v_1 = \rho_2 A_2 v_2$

Question Number : 60 Question Id : 7614462270 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 block of mass 'm' is moving on frictionless horizontal surface with velocity 5m/sec, compresses an ideal spring by 2m and comes to rest. The ratio of mass 'm' of the block to spring constant 'k' is.

Options :

7614469037. ✖ 25: 4

7614469038. ✔ 4 : 25

7614469039. ✖ 1: 25

7614469040. ✖ 4 : 1

Question Number : 61 Question Id : 7614462271 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the following:

a) Adiabatic Process	i) no volume change takes place.
b) Isochoric Process	ii) no pressure change takes place.
c) Isobaric Process	iii) no temperature change takes place.
d) Isothermal Process	iv) no heat transfer takes place.

Options :

7614469041. ✖ a-iv, b-iii, c-ii, d-i

7614469042. ✖ a-i, b-iv, c-ii, d-iii

7614469043. ✔ a-iv, b-i, c-ii, d-iii

7614469044. ✖ a-i, b-ii, c-iii, d-iv

Question Number : 62 Question Id : 7614462272 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

First law of thermodynamics represents conservation of

Options :

7614469045. ✖ Pressure

7614469046. ✖ Momentum

7614469047. ✖ Entropy

7614469048. ✔ Energy

Question Number : 63 Question Id : 7614462273 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing Simple Harmonic Motion is given by $x = a\,Cos\frac{\pi t}{2}$ where 'x' and 'a' are in metre. The distance covered by it in the time interval between t = 0 sec to t = 4 sec in metre is

Options :

7614469049. ✖ 0

7614469050. ✖ 2a

7614469051. ✔ 4a

7614469052. ✖ 3a

Question Number : 64 Question Id : 7614462274 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes 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 simple pendulum 80 cm long oscillates with amplitude of 0.02 m. The acceleration at the ends of its path is (take g = 10 ms^{-2})

Options :

7614469053. ✖ 0 ms^{-2}

7614469054. ✔ 0.25 ms^{-2}

7614469055. ✖ 2.5 ms^{-2}

7614469056. ✖ 10 ms^{-2}

Question Number : 65 Question Id : 7614462275 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 particle undergoing Simple Harmonic Motion passes through the mean position with a velocity of 2 ms^{-1}. The velocity of the particle at the point where its displacement is half the amplitude is

Options :

7614469057. ✖ $2\sqrt{3}\,ms^{-1}$

7614469058. ✖ $4\sqrt{3}\,ms^{-1}$

7614469059. ✖ $0\,ms^{-1}$

7614469060. ✔ $\sqrt{3}\ ms^{-1}$

Question Number : 66 Question Id : 7614462276 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 boy standing between two parallel walls fires a gun. He hears the first echo after 4 sec and next after 6 sec. The distance between the two walls is (take velocity of sound in air as 340 m/s)

Options :

7614469061. ✖ 680 m

7614469062. ✖ 1020 m

7614469063. ✔ 1700 m

7614469064. ✖ 340 m

Question Number : 67 Question Id : 7614462277 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 good acoustic hall the distribution of sound should be

Options :

7614469065. ✖ Gradually increasing

7614469066. ✖ Exponentially increasing

7614469067. ✖ Randomly change

7614469068. ✔ Uniform

Question Number : 68 Question Id : 7614462278 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 magnetic poles placed 5cm apart in air attract each other with a force of 100 dyne. How far from each other should they be placed to get the force of attraction 25 dyne?

Options :

7614469069. ✔ 10 cm

7614469070. ✖ 4 cm

7614469071. ✖ 2 cm

7614469072. ✖ 6 cm

Question Number : 69 Question Id : 7614462279 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Wheatstone bridge, the four arms have each a resistance of 50 ohm. The galvanometer current is:

Options :

7614469073. ✖ 0.05 A

7614469074. ✖ 0.5 A

7614469075. ✔ 0 A

7614469076. ✖ 5 A

Question Number : 70 Question Id : 7614462280 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 transformer, the number of turns in secondary and primary coils are 50 and 200 respectively. If 4 A of current is flowing through the primary, the current flowing through the secondary coil is

Options :

7614469077. ✔ 1 A

7614469078. ✖ 2 A

7614469079. ✖ 3 A

7614469080. ✖ 4 A

Question Number : 71 Question Id : 7614462281 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Electrons are ejected when a photosensitive material is illuminated by violet light but not by blue light. Would electrons come out from the same material when it is illuminated by red light?

Options :

7614469081. ✖ Yes

7614469082. ✔ No

7614469083. ✖ Yes, if intensity of incident light is increased

7614469084. ✖ Yes, if material is illuminated for a long time

Question Number : 72 Question Id : 7614462282 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 fibres are electrically

Options :

7614469085. ✖ Conductors

7614469086. ✖ Superconductors

7614469087. ✖ Semiconductors

7614469088. ✔ Insulators

Question Number : 73 Question Id : 7614462283 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 superconducting state the material behaves as

Options :

7614469089. ✔ Perfect diamagnetic

7614469090. ✖ Weak diamagnetic

7614469091. ✖ Perfect ferromagnetic

7614469092. ✖ Weak paramagnetic

Question Number : 74 Question Id : 7614462284 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 semiconductors at room temperature

Options :

7614469093. ✖ The conduction band is completely empty

7614469094. ✔ The valence band is partially empty and the conduction band is partially filled

The valence band is completely filled and the conduction band is partially filled

7614469095. ✖

7614469096. ✖ The valence band is completely filled

Question Number : 75 Question Id : 7614462285 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Semiconductors are doped

Options :

7614469097. ✖ To increase the resistivity

7614469098. ✔ To get the desired level of conductivity

7614469099. ✖ To reduce the conductivity

7614469100. ✖ To get the positive temperature coefficient of resistance

Chemistry

Section Id :	76144645
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 :	76144659
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 76 Question Id : 7614462286 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 neutrons present in an element with atomic number 19 and mass number 39.

Options :

7614469101. ✖ 19

7614469102. ✖ 58

7614469103. ✖ 39

7614469104. ✔ 20

Question Number : 77 Question Id : 7614462287 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 dative bond is present in

Options :

7614469105. ✖ Ammonia

7614469106. ✔ Ammonium ion

7614469107. ✖ Urea

7614469108. ✖ Nitrogen

Question Number : 78 Question Id : 7614462288 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 molecules contains coordinate covalent bond?

Options :

7614469109. ✖ NH_2^-

7614469110. ✖ N_2H_4

7614469111. ✔ H_3O^+

7614469112. ✖ H_2O_2

Question Number : 79 Question Id : 7614462289 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Concentrated hydrochloric acid contains 37% (by mass) HCl. The density of its solution is 1.18 g/mL. The molarity of HCl is

Options :

7614469113. ✔ 12.0

7614469114. ✖ 16.03

7614469115. ✖ 6.0

7614469116. ✖ 1.20

Question Number : 80 Question Id : 7614462290 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 colloidal solution can be purified by the method of

Options :

7614469117. ✖ Peptization

7614469118. ✔ Dialysis

7614469119. ✖ Mechanical Dispersion

7614469120. ✖ Oxidation

Question Number : 81 Question Id : 7614462291 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 compound that does not act as a Lewis acid.

Options :

7614469121. ✔ $BaCl_2$

7614469122. ✖ $AlCl_3$

7614469123. ✖ BF_3

7614469124. ✖ $BeCl_2$

Question Number : 82 Question Id : 7614462292 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The pH value of 0.001 M NaOH solution is

Options :

7614469125. ✖ 3

7614469126. ✖ 9

7614469127. ✖ 7

7614469128. ✔ 11

Question Number : 83 Question Id : 7614462293 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 solvent not used for green synthesis is

Options :

7614469129. ✔ Aniline

7614469130. ✖ Room temperature ionic liquids

7614469131. ✖ Bio solvents

7614469132. ✖ Supercritical fluids

Question Number : 84 Question Id : 7614462294 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 these days is celebrated in the form of World Environment Day all around the world?

Options :

7614469133. ✖ July 5th

7614469134. ✖ June 10th

7614469135. ✖ October 20th

7614469136. ✔ June 5th

Question Number : 85 Question Id : 7614462295 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Extra pure water can be obtained by using

Options :

7614469137. ✖ Lime – Soda process

7614469138. ✖ Permutit process

7614469139. ✖ Ion-exchange process

7614469140. ✔ Electrodialysis process

Question Number : 86 Question Id : 7614462296 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sterilization of water can be done by using

Options :

7614469141. ✔ Ozone

7614469142. ✖ Oxygen

7614469143. ✖ Caustic Potash

7614469144. ✖ Hydrogen peroxide

Question Number : 87 Question Id : 7614462297 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 product formed at cathode when Pt electrodes are used in the electrolysis of Fused NaCl.

Options :

7614469145. ✖ Cl_2

7614469146. ✖ NaOH

7614469147. ✖ HCl

7614469148. ✔ Na

Question Number : 88 Question Id : 7614462298 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 electrochemical equivalent (z) of copper, when 0.3950 g of copper is deposited by a current of 0.5 amperes in 40 minutes.

Options :

7614469149. ✔ 0.0003292 g

7614469150. ✖ 0.003950 g

7614469151. ✖ 0.0001646 g

7614469152. ✖ 0.00164 g

Question Number : 89 Question Id : 7614462299 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Extraction of zinc from zinc blende is achieved by

Options :

7614469153. ✖ Electrolytic reduction

7614469154. ✔ Roasting followed by reduction with carbon

7614469155. ✖ Roasting followed by reduction with another metal

7614469156. ✖ Roasting followed by self-reduction

Question Number : 90 Question Id : 7614462300 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 blast furnace iron oxide is reduced by

Options :

7614469157. ✖ Silica

7614469158. ✔ Carbon monoxide

7614469159. ✖ Carbon

7614469160. ✖ Limestone

Question Number : 91 Question Id : 7614462301 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 electrochemical corrosion in acidic environment

Options :

7614469161. ✖ Oxygen evolution occurs

7614469162. ✔ Hydrogen evolution takes place

7614469163. ✖ Oxygen absorption occurs

7614469164. ✖ Hydrogen absorption takes place

Question Number : 92 Question Id : 7614462302 Question Type : MCQ Option Shuffling : Yes

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

Correct Marks : 1 Wrong Marks : 0

The process of cementation of iron with zinc powder is known as

Options :

7614469165. ✔ Sheradising

7614469166. ✖ Galvanizing

7614469167. ✖ Zincing

7614469168. ✖ Tinning

Question Number : 93 Question Id : 7614462303 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 manufactured by the reaction between

Options :

7614469169. ✖ Urea and formaldehyde

7614469170. ✖ Phthalic acid and ethylene glycol

7614469171. ✖ Ethylene glycol and formaldehyde

7614469172. ✔ Phenol and formaldehyde

Question Number : 94 Question Id : 7614462304 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 an elastomer

Options :

7614469173. ✖ Polystyrene

7614469174. ✔ Buna-S rubber

7614469175. ✖ Melamine

7614469176. ✖ Dacron

Question Number : 95 Question Id : 7614462305 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 good fuel has

Options :

7614469177. ✔ Moderate ignition temperature and high calorific value

7614469178. ✖ High ignition temperature and high calorific value

7614469179. ✖ Low ignition temperature and low calorific value

7614469180. ✖ Low ignition temperature and high calorific value

Question Number : 96 Question Id : 7614462306 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 best example of splash lubrication is

Options :

7614469181. ✖ Wick feed lubricator

7614469182. ✔ Ring lubricator

7614469183. ✖ Grease Gun

7614469184. ✖ Pump lubricator

Question Number : 97 Question Id : 7614462307 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Saturated calomel electrode standard reduction potential value in Volts is

Options :

7614469185. ✖ 0

7614469186. ✖ 0.6990

7614469187. ✖ − 0. 242

7614469188. ✔ + 0.242

Question Number : 98 Question Id : 7614462308 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the following cell reaction, E° for the cell is

$$Zn_{(s)} + 2Fe^{3+}_{(aq)} \rightleftharpoons 2Fe^{2+}_{(aq)} + Zn^{2+}_{(aq)}$$

(Standard Reduction potentials of Zn and Fe electrodes are – 0.76V and + 0.77V respectively)

Options :

7614469189. ✔ 1.53 V

7614469190. ✖ 0.01 V

7614469191. ✖ − 1.53 V

7614469192. ✖ 0.78 V

Question Number : 99 Question Id : 7614462309 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 gas that is responsible for Bhopal gas tragedy is

Options :

7614469193. ✔ Methyl isocyanate

7614469194. ✖ Methyl chloroformate

7614469195. ✖ Methyl isopropyl ether

7614469196. ✖ Methyl isobutyrate

Question Number : 100 Question Id : 7614462310 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 gases is largely responsible for acid – rain?

Options :

7614469197. ✖ CO and CO_2

7614469198. ✖ NO and NO_2

7614469199. ✔ SO_2 and NO_2

7614469200. ✖ N_2 and O_2

METALLURGICAL ENGINEERING

Section Id : 76144646

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 :	76144660
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 101 Question Id : 7614462311 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

---------- ore is used for the extraction of iron commercially

Options :

7614469201. ✖ Chalcopyrite

7614469202. ✖ Limonite

7614469203. ✔ Hematite

7614469204. ✖ Ilmenite

Question Number : 102 Question Id : 7614462312 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Rittinger's law deals with……

Options :

7614469205. ✖ Sampling

7614469206. ✔ Communition

7614469207. ✖ Concentration

7614469208. ✖ Dewatering

Question Number : 103 Question Id : 7614462313 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 screen effectiveness ---------- in the capacity of the screen.

Options :

7614469209. ✔ Decreases with increase

7614469210. ✖ Remains unaffected with change

7614469211. ✖ Increases with increase

7614469212. ✖ Increase with decrease

Question Number : 104 Question Id : 7614462314 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 get ultrafine particles, the equipment used is

Options :

7614469213. ✖ Rod mill

7614469214. ✖ Hammer crusher

7614469215. ✖ Ball mill

7614469216. ✔ Fluidized energy mill

Question Number : 105 Question Id : 7614462315 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ball mill reduces the ore size mainly by

Options :

7614469217. ✔ Impact

7614469218. ✖ Cutting

7614469219. ✖ Slow compression

7614469220. ✖ Attrition

Question Number : 106 Question Id : 7614462316 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Methane is not a component of which gaseous fuel

Options :

7614469221. ✖ Natural gas

7614469222. ✖ Biogas

7614469223. ✖ Syngas

7614469224. ✔ LPG (liquefied petroleum gas)

Question Number : 107 Question Id : 7614462317 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gasification is considered an environmentally friendly process because

Options :

7614469225. ✖ It does not produce greenhouse gases

7614469226. ✖ It does not require combustion

7614469227. ✖ It eliminates the need for fossil fuels

7614469228. ✔ It produces minimal waste

Question Number : 108 Question Id : 7614462318 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following property is not associated with refractory metal

Options :

7614469229. ✖ High Fusion Temperature

7614469230. ✖ High Heat Resistance

7614469231. ✔ High Coefficient of Thermal Expansion

7614469232. ✖ Good Corrosion Resistance

Question Number : 109 Question Id : 7614462319 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Dulong's Formula is not applicable for

Options :

7614469233. ✖ Solids

7614469234. ✖ Liquids

7614469235. ✔ Gases

7614469236. ✖ Metals

Question Number : 110 Question Id : 7614462320 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

High temperature coke is used for

Options :

7614469237. ✔ Iron making

7614469238. ✖ Gas production

7614469239. ✖ Fuel Briquettes

7614469240. ✖ Fishnets

Question Number : 111 Question Id : 7614462321 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gibb's Phase rule is given by the expression in which F is equal to

Options :

7614469241. ✖ $C - P + 1$

7614469242. ✖ $C - P - 1$

7614469243. ✔ $C - P + 2$

7614469244. ✖ $C - P - 2$

Question Number : 112 Question Id : 7614462322 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 spontaneous, natural process at constant temperature and pressure, the free energy of the system always

Options :

7614469245. ✖ Increases to a maximum before decreasing

7614469246. ✖ Decreases

7614469247. ✔ Increases

7614469248. ✖ Remain constant

Question Number : 113 Question Id : 7614462323 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The entropy change for a spontaneous process is

Options :

7614469249. ✖ >0 for the system and the surroundings

7614469250. ✖ <0 for the surroundings

7614469251. ✖ >0 for the system

7614469252. ✔ <0 for the surroundings and the system

Question Number : 114 Question Id : 7614462324 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Applications of Ellingham – Richardson diagram does not include

Options :

7614469253. ✖ Metallothermic reduction of compounds

7614469254. ✖ Matte smelting for production of copper

7614469255. ✖ Refining of lead bath

7614469256. ✔ Formation of intermetallic compounds

Question Number : 115 Question Id : 7614462325 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Combined statement of first and second law of thermodynamics can be expressed as

Options :

7614469257. ✖ $\Delta G^0 = \Delta H^0 - T\Delta S^0$

7614469258. ✔ $dH = T\,dS + V\,dP$

7614469259. ✖ $dG = V\,dP - S\,dT$

7614469260. ✖ $C_p - C_v = R$

Question Number : 116 Question Id : 7614462326 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 incorrect statement: For one mole of an ideal gas

Options :

7614469261. ✖ $PV = RT$

7614469262. ✖ $(dV/dT)T = R/P$

7614469263. ✖ $(dV/dT)T = 0$

7614469264. ✔ $C_p - C_v = 1 + R$

Question Number : 117 Question Id : 7614462327 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 boundary line between (liquid) and (liquid+solid) regions of a phase diagram is called _____ line.

Options :

7614469265. ✖ Solidus

7614469266. ✖ Solvus

7614469267. ✔ Liquidus

7614469268. ✖ Tie

Question Number : 118 Question Id : 7614462328 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 significance of the upper and lower critical temperatures in the iron-carbon diagram.

Options :

7614469269. ✔ The upper critical temperature marks the beginning of austenite formation upon heating, while the lower critical temperature signifies the completion of the eutectoid reaction

7614469270. ✖ The upper critical temperature indicates the onset of ferrite formation upon heating, and the lower critical temperature indicates the completion of the eutectoid reaction.

7614469271. ✖ The upper critical temperature represents the start of pearlite formation upon heating, and the lower critical temperature marks the completion of martensite transformation.

7614469272. ✖ The upper critical temperature corresponds to the maximum solubility of carbon in austenite, while the lower critical temperature indicates the formation of pearlite

Question Number : 119 Question Id : 7614462329 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

Delta iron occurs at

Options :

7614469273. ✖ Room temperature

7614469274. ✖ Above melting point

7614469275. ✖ Between 910^0 C to 1400^0 C

7614469276. ✔ Between 1400^0C to 1539^0C

Question Number : 120 Question Id : 7614462330 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 statements that accurately describe the behavior of a eutectic reaction in binary alloy systems

Statements:

I. A eutectic reaction involves the simultaneous solidification of two phases from a liquid phase.

II. The eutectic composition is the composition at which the eutectic reaction occurs.

III. The eutectic temperature is the temperature at which the eutectic reaction takes place.

IV. Eutectic reactions involve the transformation of a single phase into multiple phases on heating.

Options :

7614469277. ✔ I,II,III

7614469278. ✖ I,II,IV

7614469279. ✖ II,III,IV

7614469280. ✖ I,III,IV

Question Number : 121 Question Id : 7614462331 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 factor does the lever rule not account for in binary phase diagrams

Options :

7614469281. ✖ Temperature

7614469282. ✔ Pressure

7614469283. ✖ Phase volumes

7614469284. ✖ Phase compositions

Question Number : 122 Question Id : 7614462332 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 typical structure of Brass?

Options :

7614469285. ✖ Body-centered cubic (BCC)

7614469286. ✔ Face-centered cubic (FCC)

7614469287. ✖ Hexagonal close-packed (HCP)

7614469288. ✖ Simple cubic

Question Number : 123 Question Id : 7614462333 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 face-centered cubic (FCC) lattice, each lattice point is shared by how many adjacent unit cells

Options :

7614469289. ✖ 1

7614469290. ✖ 2

7614469291. ✖ 4

7614469292. ✔ 8

Question Number : 124 Question Id : 7614462334 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Brass is often used in the production of

Options :

7614469293. ✖ Surgical instruments

7614469294. ✖ Semi-Conductors

7614469295. ✔ Musical instruments

7614469296. ✖ Architectural glass

Question Number : 125 Question Id : 7614462335 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 an example of an interstitial solid solution?

Options :

7614469297. ✖ Aluminum dissolved in copper (Cu-Al alloy)

7614469298. ✖ Zinc dissolved in copper (Cu-Zn alloy)

7614469299. ✖ Nickel dissolved in iron (Fe-Ni alloy)

Carbon dissolved in iron (Fe-C system)

7614469300. ✔

Question Number : 126 Question Id : 7614462336 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 solubility of carbon in Austenite at 1132^0 C is

Options :

7614469301. ✖ 0.025%

7614469302. ✖ 0.8%

7614469303. ✔ 2%

7614469304. ✖ 4.3%

Question Number : 127 Question Id : 7614462337 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 type of information can be obtained through macroscopic examination of metals and alloys?

Options :

7614469305. ✖ Crystal structure

7614469306. ✖ Atomic arrangement

7614469307. ✔ Grain size and shape

7614469308. ✖ Elemental composition

Question Number : 128 Question Id : 7614462338 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Grain refining elements used for the production of killed steels are

Options :

7614469309. ✔ Al, Ti and V

7614469310. ✖ Ti, V and Cr

7614469311. ✖ V, Cr and Ca

7614469312. ✖ Al, V and Cr

Question Number : 129 Question Id : 7614462339 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Austenite stabilisers are

Options :

7614469313. ✖ Ni, Mn and Cr

7614469314. ✖ Mn, Cu and Co

7614469315. ✔ Ni, Mn and Cu

7614469316. ✖ Cr, Co and Mn

Question Number : 130 Question Id : 7614462340 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

More uniform grain size distribution can be obtained by

Options :

7614469317. ✔ Annealing

7614469318. ✖ Normalising

7614469319. ✖ Hardening

7614469320. ✖ Tempering

Question Number : 131 Question Id : 7614462341 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 peak hardness and the time to reach the peak hardness ----------
-- temperature of aging.

Options :

7614469321. ✖ Both increase with increasing

7614469322. ✔ Both decrease with increasing

7614469323. ✖ Both increase with decreasing

7614469324. ✖ Do not depend on

Question Number : 132 Question Id : 7614462342 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 wrong statement

Options :

7614469325. ✖ Coarse grained austenite has better hardenability than fine grained austenite

7614469326. ✖ Martensitic transformation never goes to completion

Plain carbon steels can be effectively nitrided

7614469327. ✔

7614469328. ✖ Retained austenite can be transformed to martensite

Question Number : 133 Question Id : 7614462343 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 other name of Marquenching is

Options :

7614469329. ✖ Austempering

7614469330. ✔ Martempering

7614469331. ✖ Austenitizing

7614469332. ✖ Hardening

Question Number : 134 Question Id : 7614462344 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Operating temperature range of carbonitriding treatment is

Options :

7614469333. ✖ $500 - 600^0C$

7614469334. ✖ $200 – 300^0C$

7614469335. ✔ $750 – 850^0C$

7614469336. ✖ $950 – 1000^0C$

Question Number : 135 Question Id : 7614462345 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 hyper eutectoid steels, Austenite formation starts _____ temperature

Options :

7614469337. ✖ above A_{cm}

7614469338. ✔ above $A_{3,1}$

7614469339. ✖ near to A_{cm}

7614469340. ✖ below $A_{3,1}$

Question Number : 136 Question Id : 7614462346 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time

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

Correct Marks : 1 Wrong Marks : 0

Addition of antimony to copper leads to

Options :

7614469341. ✖ Softening of copper

7614469342. ✖ Increase in toughness

7614469343. ✖ Increase in ductility

7614469344. ✔ Embrittlement of copper

Question Number : 137 Question Id : 7614462347 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

---------- cannot be obtained during continuous cooling in plain carbon steels.

Options :

7614469345. ✖ Martensite

7614469346. ✔ Bainite

7614469347. ✖ Pearlite

7614469348. ✖ Ferrite

Question Number : 138 Question Id : 7614462348 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Jefferies Planimetric method is used for

Options :

7614469349. ✖ Phase analysis

7614469350. ✔ Grain size measurement in equiaxed structure

7614469351. ✖ Dislocation density measurement in hardened structure

7614469352. ✖ Grain volume measurement in cast structure

Question Number : 139 Question Id : 7614462349 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following is an example of a blast furnace irregularity

Options :

7614469353. ✖ Increase in carbon monoxide concentration

7614469354. ✖ Decrease in slag formation

7614469355. ✔ Overheating of molten iron

7614469356. ✖ Faster descent of burden materials

Question Number : 140 Question Id : 7614462350 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 function of limestone in the blast furnace process?

Options :

7614469357. ✖ To reduce iron oxides

7614469358. ✖ To remove impurities from molten iron

7614469359. ✖ To provide oxygen for combustion

7614469360. ✔ To act as a flux and form slag

Question Number : 141 Question Id : 7614462351 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 method is frequently employed for manufacturing sponge iron?

Options :

7614469361. ✔ Direct reduction utilizing hydrogen

7614469362. ✖ Smelting in blast furnaces

7614469363. ✖ Melting in electric arc furnaces

7614469364. ✖ Open hearth process

Question Number : 142 Question Id : 7614462352 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 blast furnace, which zone is characterized by the presence of molten iron and slag?

Options :

7614469365. ✖ Stack zone

7614469366. ✔ Hearth zone

7614469367. ✖ Tuyere zone

7614469368. ✖ Bosh zone

Question Number : 143 Question Id : 7614462353 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Secondary steelmaking process commonly used for desulfurization is

Options :

7614469369. ✖ Vacuum treatment

7614469370. ✔ Ladle refining

7614469371. ✖ Argon oxygen decarburization

7614469372. ✖ Electroslag refining

Question Number : 144 Question Id : 7614462354 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Limitation of the Bessemer process compared to the LD process is

Options :

7614469373. ✖ Inability to produce high-strength steels

7614469374. ✖ Lack of flexibility in handling different ores

7614469375. ✖ High energy consumption

7614469376. ✔ Difficulty in controlling the carbon content

Question Number : 145 Question Id : 7614462355 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 typical component of slag in iron smelting?

Options :

7614469377. ✖ CaO (Calcium oxide)

7614469378. ✔ Fe_2O_3 (Iron oxide)

7614469379. ✖ SiO_2 (Silica)

7614469380. ✖ Al_2O_3 (Alumina)

Question Number : 146 Question Id : 7614462356 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 steelmaking process involves blowing oxygen onto the surface of the molten metal?

Options :

7614469381. ✖ Bessemer process

7614469382. ✖ Open hearth process

7614469383. ✖ Electric arc furnace process

7614469384. ✔ LD process

Question Number : 147 Question Id : 7614462357 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 blast furnace operations, what is the primary function of burden distribution?

Options :

7614469385. ✔ To optimize the reduction of iron oxides

7614469386. ✖ To regulate the flow of gases

7614469387. ✖ To control the temperature inside the furnace

7614469388. ✖ To enhance the mechanical strength of the burden

Question Number : 148 Question Id : 7614462358 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is used to reduce ingot defects during casting

Options :

7614469389. ✖ Increasing casting speed

7614469390. ✖ Decreasing mold temperature

7614469391. ✖ Using a higher pouring temperature

7614469392. ✔ Improving mold design

Question Number : 149 Question Id : 7614462359 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Bayer process, cryolite ratio means

Options :

7614469393. ✔ Molar ratio of sodium floride to aluminium fluoride

7614469394. ✖ Weight ratio of magnesium fluoride to aluminium fluoride

7614469395. ✖ Molar ratio of magnesium fluoride to sodium fluoride

7614469396. ✖ Weight ratio of sodium chloride to lithium fluoride

Question Number : 150 Question Id : 7614462360 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 effect in aluminium extraction results in

Options :

7614469397. ✖ Decrease in power consumption

7614469398. ✖ Stable production

7614469399. ✔ Emission of PFC

7614469400. ✖ Decrease electrolyte and anode consumption

Question Number : 151 Question Id : 7614462361 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Imperial Smelting Process is adopted for ---------- from lead – zinc concentrate.

Options :

7614469401. ✔ Simultaneous recovery of lead and zinc

7614469402. ✖ Simultaneous recovery of zinc and iron

7614469403. ✖ Recovery of zinc

7614469404. ✖ Recovery of copper

Question Number : 152 Question Id : 7614462362 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 sponge produced by Hunter process is not commercialized because of

Options :

7614469405. ✖ Uranium

7614469406. ✖ Hafnium

7614469407. ✖ Zirconium

7614469408. ✔ Iron

Question Number : 153 Question Id : 7614462363 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Parkes process is generally used to remove ---------- from lead bullion.

Options :

7614469409. ✔ Silver

7614469410. ✖ Copper

7614469411. ✖ Zinc

7614469412. ✖ Bismuth

Question Number : 154 Question Id : 7614462364 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Magnesium metal is extracted by ---------- process.

Options :

7614469413. ✖ Kroll's method

7614469414. ✖ Bayer's method

7614469415. ✔ Pidgeon method

7614469416. ✖ Parkes process

Question Number : 155 Question Id : 7614462365 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 wrong statement with respect to copper extraction

Options :

7614469417. ✖ Smelting flash furnace

7614469418. ✖ Converting molten matte to blister copper

7614469419. ✖ Fire refining of blister copper

7614469420. ✔ Electro refining in molten salt baths

Question Number : 156 Question Id : 7614462366 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Brucite ore is

Options :

7614469421. ✖ $MgCO_3$

7614469422. ✖ Mg_2SiO_3

7614469423. ✔ $Mg(OH)_2$

7614469424. ✖ $Mg_6Si_4O_{10}(OH)_8$

Question Number : 157 Question Id : 7614462367 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 a tension test, the phenomenon of necking occurs due to

Options :

7614469425. ✖ Elastic deformation

7614469426. ✔ Plastic deformation

7614469427. ✖ Brittle fracture

7614469428. ✖ Creep deformation

Question Number : 158 Question Id : 7614462368 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 behind the Rockwell hardness test is

Options :

7614469429. ✔ Measurement of depth of penetration

7614469430. ✖ Measurement of surface area of indentation

7614469431. ✖ Measurement of rebound hardness

7614469432. ✖ Measurement of elastic deformation

Question Number : 159 Question Id : 7614462369 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 fatigue test, a material withstands 5000 stress cycles at a stress level of 80 MPa before failure. If the stress level is reduced to 40 MPa, how many stress cycles would the material withstand before failure if all other conditions remain constant?

Options :

7614469433. ✖ 2500 cycles

7614469434. ✖ 5000 cycles

7614469435. ✔ 10000 cycles

7614469436. ✖ 20000 cycles

Question Number : 160 Question Id : 7614462370 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 factor does not affect fatigue behavior of materials is

Options :

7614469437. ✖ Surface finish

7614469438. ✖ Material hardness

7614469439. ✖ Temperature

7614469440. ✔ Density

Question Number : 161 Question Id : 7614462371 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Rockwell hardness test, which scale uses a 120-degree diamond cone as the indenter?

Options :

7614469441. ✖ A scale

7614469442. ✖ B Scale

7614469443. ✔ C scale

7614469444. ✖ D Scale

Question Number : 162 Question Id : 7614462372 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes 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 statement correctly describes fatigue failure?

Options :

7614469445. ✖ It occurs due to sudden impact loading

7614469446. ✖ It results from gradual deformation at elevated temperatures.

7614469447. ✔ It arises from repeated cyclic loading

7614469448. ✖ It is caused by static loading until fracture.

Question Number : 163 Question Id : 7614462373 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 type of impact testing involves a swinging pendulum?

Options :

7614469449. ✖ Rockwell Impact test

7614469450. ✔ Charpy impact test

7614469451. ✖

Brinell impact test

7614469452. ✖ Vickers impact test

Question Number : 164 Question Id : 7614462374 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Liquid penetrant testing relies on the principle of

Options :

7614469453. ✖ Magnetization of materials

7614469454. ✖ Absorption of X-rays

7614469455. ✔ Capillary action

7614469456. ✖ Reflection of ultrasonic waves

Question Number : 165 Question Id : 7614462375 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 non-destructive testing method is particularly useful for detecting surface cracks and flaws?

Options :

7614469457.

Liquid penetrant testing

7614469458. Radiography testing

7614469459. Ultrasonic testing

7614469460. Magnetic particle testing

Question Number : 166 Question Id : 7614462376 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 radiography testing, a defect appears as a lighter area on the film if:

Options :

7614469461. The defect is internal

7614469462. The defect is external

7614469463. The defect is elongated

7614469464. The defect is irregular in shape

Question Number : 167 Question Id : 7614462377 Question Type : MCQ Option Shuffling : Yes

Display Question Number : Yes 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 phase of the creep curve represents a relatively constant rate of strain with increasing time?

Options :

7614469465. ✖ Primary creep

7614469466. ✔ Secondary creep

7614469467. ✖ Tertiary creep

7614469468. ✖ Necking phenomenon

Question Number : 168 Question Id : 7614462378 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The surface property of a material

Options :

7614469469. ✔ Hardness

7614469470. ✖ Tensile strength

7614469471. ✖ Elongation

7614469472. ✖ Energy associated with the material

Question Number : 169 Question Id : 7614462379 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

From the necking conditions, the true uniform strain will be equal to

Options :

7614469473. ✖ Total strain

7614469474. ✔ Strain-hardening exponent

7614469475. ✖ Strength coefficient

7614469476. ✖ True stress

Question Number : 170 Question Id : 7614462380 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The stress required to produce twinning is ---------- the stress necessary to start slip.

Options :

7614469477. ✔ Higher than

7614469478. ✖ Lower than

7614469479. ✖ Equal to

7614469480. ✖ Is not related

Question Number : 171 Question Id : 7614462381 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 Brinell test, the low power microscope is used to measure ----------.

Options :

7614469481. ✖ Surface area of the indentation

7614469482. ✖ Projected area of the indentation

7614469483. ✖ Depth of indentation

7614469484. ✔ Diameter of indentation

Question Number : 172 Question Id : 7614462382 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following material has low modulus of elasticity

Options :

7614469485. ✖ Carbon steel

7614469486. ✖ Austenitic stainless steel

7614469487. ✖ Titanium alloys

7614469488. ✔ Aluminium alloys

Question Number : 173 Question Id : 7614462383 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 working is carried out

Options :

7614469489. ✖ At room temperature

7614469490. ✖ At recrystallization temperature

7614469491. ✔ Above recrystallization temperature

7614469492. ✖ Below recrystallization temperature

Question Number : 174 Question Id : 7614462384 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Dislocations do not pile-up at

Options :

7614469493. ✖ Grain boundaries

7614469494. ✖ Second phases

7614469495. ✖ Sessile dislocations

7614469496. ✔ Vacancies

Question Number : 175 Question Id : 7614462385 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 ratio between lateral strain and longitudinal strain is called

Options :

7614469497. ✖ Bulk modulus

7614469498. ✖ Elastic modulus

7614469499. ✔ Poisson's ratio

7614469500. ✖ Shear modulus

Question Number : 176 Question Id : 7614462386 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Dislocation interactions cannot be observed by

Options :

7614469501. ✖ Optical microscope

7614469502. ✖ Electron microscope

7614469503. ✖ X-rays

7614469504. ✔ Chemical reactions

Question Number : 177 Question Id : 7614462387 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Work hardening is also called

Options :

7614469505.

✖ Twinning

7614469506. ✖ Slip

7614469507. ✖ Hardening

7614469508. ✔ Strain hardening

Question Number : 178 Question Id : 7614462388 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 stacking faults in a crystal are examples of

Options :

7614469509. ✔ Surface defect

7614469510. ✖ Point defect

7614469511. ✖ Volumetric defect

7614469512. ✖ Lattice defect

Question Number : 179 Question Id : 7614462389 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 type of pattern used in casting?

Options :

7614469513. ✖ Split pattern

7614469514. ✖ Matchplate pattern

7614469515. ✖ Sweep pattern

7614469516. ✔ Welding pattern

Question Number : 180 Question Id : 7614462390 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sand used in foundry moulds is primarily composed of

Options :

7614469517. ✖ Silicon carbide

7614469518. ✔ Silica (SiO_2)

7614469519. ✖ Iron oxide

7614469520. ✖ Aluminum oxide

Question Number : 181 Question Id : 7614462391 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 property of moulding sand?

Options :

7614469521. ✖ Low permeability

7614469522. ✔ High moisture content

7614469523. ✖ Low refractoriness

7614469524. ✖ High collapsibility

Question Number : 182 Question Id : 7614462392 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Shell moulding is a type of casting process that utilizes

Options :

7614469525. ✖ Permanent moulds

7614469526. ✖ Sand moulds

7614469527. ✔ Resin mixed sand moulds

7614469528. ✖ Metal moulds

Question Number : 183 Question Id : 7614462393 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ Casting process utilizes a rotating mold to produce cylindrical parts

Options :

7614469529. ✖ Sand casting

7614469530. ✖ Die casting

7614469531. ✔ Centrifugal casting

7614469532. ✖ Investment casting

Question Number : 184 Question Id : 7614462394 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 foundry practice, what is the purpose of risers?

Options :

7614469533. ✔ To feed molten metal to the casting

7614469534. ✖ To provide ventilation to the mold

7614469535. ✖ To remove impurities from the molten metal

7614469536. ✖ To control the cooling rate of the casting

Question Number : 185 Question Id : 7614462395 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Investment casting is particularly suitable for

Options :

7614469537. ✖ Mass production of simple shapes

7614469538. ✖ Large-scale production of automotive components

7614469539. ✔ Complex and intricate parts with high precision

7614469540. ✖ Casting of heavy machinery parts

Question Number : 186 Question Id : 7614462396 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 type of core is suitable for casting intricate and delicate features with high precision?

Options :

7614469541. ✖ Sand core

7614469542. ✖ Metal core

7614469543. ✖ Ceramic core

7614469544. ✔ Shell core

Question Number : 187 Question Id : 7614462397 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statements is odd?

Options :

7614469545. ✖ Grey iron is characterized by graphite flakes dispersed in a ferritic matrix.

7614469546. ✖ S.G. iron, also known as ductile iron, exhibits improved properties due to the presence of graphite nodules.

7614469547. ✔ Malleable iron is produced by rapid cooling of white cast iron.

7614469548. ✖ Aluminum is commonly cast using the die casting process due to its low melting temperature.

Question Number : 188 Question Id : 7614462398 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 purpose of the shatter test in the evaluation of molding sand is

Options :

7614469549. ✖ To measure the sand's resistance to deformation

7614469550. ✖ To determine the sand's moisture content

7614469551. ✖ To assess the sand's ability to retain its shape after compaction

7614469552. ✔ To evaluate the sand's ability to break down into small particles

Question Number : 189 Question Id : 7614462399 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Porosity is a common defect in die castings. What is the primary cause of porosity in die cast parts?

Options :

7614469553. ✖ Insufficient mold temperature

7614469554. ✖ High injection pressure

7614469555. ✔ Trapped air or gas in the mold cavity

7614469556. ✖ Excessive cooling rate

Question Number : 190 Question Id : 7614462400 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is a common defect in castings caused by insufficient feeding of molten metal into the mold

Options :

7614469557. ✖ Shrinkage cavity

7614469558. ✖ Porosity

7614469559. ✖ Cold shut

7614469560. ✔ Misrun

Question Number : 191 Question Id : 7614462401 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 welding process uses a non-consumable electrode?

Options :

7614469561. ✖ Submerged arc welding

7614469562. ✔ Gas tungsten arc welding

7614469563. ✖ Fluxed core arc welding

7614469564. ✖ Gas metal arc welding

Question Number : 192 Question Id : 7614462402 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 fusion welding process?

Options :

7614469565. ✔ Friction stir welding

7614469566.

✖ Arc welding

7614469567. ✖ Gas welding

7614469568. ✖ Resistance welding

Question Number : 193 Question Id : 7614462403 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Flux in welding process acts as

Options :

7614469569. ✖ Filler

7614469570. ✔ Protective agent

7614469571. ✖ Heat generator

7614469572. ✖ Catalyst

Question Number : 194 Question Id : 7614462404 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 titanium alloys are welded using the following process

Options :

7614469573. ✖ Submerged arc welding

7614469574. ✔ TIG welding

7614469575. ✖ Electric beam welding

7614469576. ✖ Butt welding

Question Number : 195 Question Id : 7614462405 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Electron beam welding is carried out in

Options :

7614469577. ✖ Atmospheric air

7614469578. ✖ Shielding gas environment

7614469579. ✖ Pressurized inert gas chamber

7614469580. ✔ Vacuum

Question Number : 196 Question Id : 7614462406 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Weld spatter is a welding defect resulting from the use of

Options :

7614469581. ✖ Low voltage

7614469582. ✖ High voltage

7614469583. ✔ Too high welding current

7614469584. ✖ Too low welding current

Question Number : 197 Question Id : 7614462407 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Widest application of laser welding is in ---------- industry

Options :

7614469585. ✖ Process

7614469586. ✖ Heavy

7614469587. ✔ Electronic

7614469588. ✖ Structural work

Question Number : 198 Question Id : 7614462408 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Thermit welding is a form of ---------- welding.

Options :

7614469589. ✖ Gas

7614469590. ✖ Arc

7614469591. ✖ Resistance

7614469592. ✔ Fusion

Question Number : 199 Question Id : 7614462409 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 pool of molten metal is used in ---------- welding.

Options :

7614469593. ✖ Arc

7614469594. ✖ TIG

7614469595. ✔ Electroslag

7614469596. ✖ Thermit

Question Number : 200 Question Id : 7614462410 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes 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 TIG welding, thoriated tungsten electrodes are used because it

Options :

7614469597. ✖ Has higher carrying capacity

7614469598. ✔ Has better electron emissivity

7614469599. ✖ Is stronger than ordinary tungsten

7614469600. ✖ Is easy to prepare