APSCHE

Question Paper 2024

ADCET, EDCET, PGCET,
PECET, LAWCET, PGECET,
ECET, ICET, EAPCET, RCET

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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 08th May 2024 Shift 2
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	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
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	210688182
Section Number :	1
Mandatory or Optional :	Mandatory
Number of Questions :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 1 Question Id : 2106889207 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $\begin{vmatrix} 15-x & 11 & 10 \\ 11-3x & 17 & 16 \\ 7-x & 14 & 13 \end{vmatrix}=0$ then the value of x is

Options :

1. ✔ 6

2. ✖ 5

3. ✖ 7

4. ✖ -6

Question Number : 2 Question Id : 2106889208 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The adjoint of $A = \begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$ is

Options :

1. ✖ $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & 4 \\ 1 & -2 & 1 \end{pmatrix}$

2. ✖ $\begin{pmatrix} 1 & 4 & -2 \\ -2 & -5 & -4 \\ 1 & -2 & 1 \end{pmatrix}$

3. ✔ $\begin{pmatrix} 3 & 0 & 6 \\ 6 & 3 & 0 \\ 9 & 6 & 3 \end{pmatrix}$

4. ✖ $\begin{pmatrix} 3 & 2 & 1 \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$

Question Number : 3 Question Id : 2106889209 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $A = \begin{pmatrix} 3 & 2 & x \\ 4 & 1 & -1 \\ 0 & 3 & 4 \end{pmatrix}$ is a singular matrix then the value of x is

Options :

1. ✔ $11/12$

2. ✖ $-11/12$

3. ✖ $13/12$

4. ✖ $5/4$

Question Number : 4 Question Id : 2106889210 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of the following simultaneous linear equations by using Cramer's rule 3x+4y+5z=18; 2x-y+8z=13; 5x-2y+7z=20 is

Options :

1. ✖ -3, -1,1

2. ✔ 3,1,1

3. ✖ 3,0,1

4. ✖ 3,1,-1

Question Number : 5 Question Id : 2106889211 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\begin{vmatrix} 441 & 442 & 443 \\ 445 & 446 & 447 \\ 449 & 450 & 451 \end{vmatrix}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ 4

4. ✖ 6

Question Number : 6 Question Id : 2106889212 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\frac{3x-1}{(x-1)(x-2)(x-3)} =$$

Options :

1. ✖ $\frac{2}{x-1}+\frac{5}{x-2}-\frac{4}{x-3}$

2. ✖ $\frac{-1}{x-1}+\frac{5}{x-2}-\frac{4}{x-3}$

3. ✖ $\frac{1}{x-1}+\frac{5}{x-2}+\frac{4}{x-3}$

4. ✔ $\frac{1}{x-1}-\frac{5}{x-2}+\frac{4}{x-3}$

Question Number : 7 Question Id : 2106889213 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\frac{5x+1}{(x+2)(x-1)} =$

Options :

1. ✔ $\frac{3}{x+2}+\frac{2}{x-1}$

2. ✖ $\frac{3}{x+2}-\frac{2}{x-1}$

3. ✖ $\frac{-3}{x+2}+\frac{2}{x-1}$

4. ✖ $\frac{3}{x-2}+\frac{2}{x+1}$

Question Number : 8 Question Id : 2106889214 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$cos100^0 cos40^0 + sin100^0 sin40^0 \ =$

Options :

1. ✔ $\frac{1}{2}$

2. ✖ $-\frac{1}{2}$

3. ✖ $\frac{1}{4}$

4. ✖ $\frac{1}{8}$

Question Number : 9 Question Id : 2106889215 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $sin\theta = \frac{3}{5}$, θ *is acute,* then $2tan\theta + 3sec\theta + 4sec\theta\ cosec\theta =$

Options :

1. ✖ -1

2. ✔ $\frac{163}{12}$

3. ✖ $\frac{-163}{12}$

4. ✖ $\frac{13}{12}$

Question Number : 10 Question Id : 2106889216 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $tan^{-1}x + tan^{-1}y + tan^{-1}z = \frac{\pi}{2}$ then $xy + yz + zx \ =$

Options :

1. ✖ -1

2. ✖ 3

3. ✖ 5

4. ✔ 1

Question Number : 11 Question Id : 2106889217 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $A = \frac{\pi}{6}$ and $B = \frac{\pi}{3}$ then $16\text{Sin}^3A + 8\text{Cos}^3B =$

Options :

1. ✔ 3

2. ✖ 1

3. ✖ -3

4. ✖ 0

Question Number : 12 Question Id : 2106889218 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $x + \frac{1}{x} = 2\cos\theta$ then $x^n + \frac{1}{x^n} =$

Options :

1. ✔ $2\cos n\theta$

2. ✖ $-2\cos n\theta$

3. ✖ $3\cos\theta$

4. ✖ $2\sin n\theta$

Question Number : 13 Question Id : 2106889219 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\cos\left[\sin^{-1}\left(\frac{1}{2}\right)+\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right)\right] =$$

Options :

1. ✖ 0

2. ✖ 1

3. ✖ 3

4. ✔ -1

Question Number : 14 Question Id : 2106889220 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $sin\alpha = {}^{15}/_{17}\ , cos\beta = {}^{12}/_{13}$ then $sin(\alpha + \beta)\ =$

Options :

1. ✖ ${}^{110}/_{105}$

2. ✖ $-{}^{121}/_{152}$

3. ✔ ${}^{220}/_{221}$

4. ✖ ${}^{5}/_{4}$

Question Number : 15 Question Id : 2106889221 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If x is an acute angle and $sin(x + 10^0) = cos(3x - 68^0)$ then $x\ =$

Options :

1. ✖ 48^0

2. ✔ 37^0

3. ✖ 38^0

4. ✖ 10^0

Question Number : 16 Question Id : 2106889222 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\tan^{-1}(2sin150^0) =$

Options :

1. ✖ π

2. ✖ 3π

3. ✖ $\frac{\pi}{2}$

4. ✔ $\frac{\pi}{4}$

Question Number : 17 Question Id : 2106889223 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The general solution of $4cos^2x - 3 = 0$ is

Options :

1. ✔ $2n\pi \pm \frac{\pi}{6}$

2. ✖ $2n\pi \pm \frac{7\pi}{6}$

3. ✖ $3n\pi \pm \frac{5\pi}{6}$

4. ✖ $2n\pi \pm \frac{11\pi}{6}$

Question Number : 18 Question Id : 2106889224 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\left(\frac{\sqrt{3}}{2} + \frac{i}{2}\right)^5 - \left(\frac{\sqrt{3}}{2} - \frac{i}{2}\right)^5 =$

Options :

1. ✔ i

2. ✖ $-i$

3. ✖ $2i$

4. ✖ $-3i$

Question Number : 19 Question Id : 2106889225 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The modulus of the complex number $\left(-1-\sqrt{3}i\right)$ is

Options :

1. ✖ 1

2. ✖ 6

3. ✔ 2

4. ✖ 4

Question Number : 20 Question Id : 2106889226 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the line $2y = 5x + k$ is a tangent to the parabola $y^2 = 6x$ then $k =$

Options :

1. ✖ $\frac{2}{5}$

2. ✖ $\frac{3}{5}$

3. ✔ $\frac{6}{5}$

4. ✖ $\frac{7}{5}$

Question Number : 21 Question Id : 2106889227 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of the major axis of the ellipse: $4x^2 + 3y^2 = 48$ is

Options :

1. ✖ 10

2. ✖ 11

3. ✔ 8

4. ✖ 12

Question Number : 22 Question Id : 2106889228 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The eccentricity of the hyperbola $36x^2 - 25y^2 = 900$ is

Options :

1. ✔ $\frac{\sqrt{61}}{5}$

2. ✖ $\frac{9}{2}$

3. ✖ $\frac{3}{2}$

4. ✖ $\frac{5}{2}$

Question Number : 23 Question Id : 2106889229 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The length of the tangent from $(1,3)$ to the circle $x^2 + y^2 - 2x + 4y - 11 = 0$ is

Options :

1. ✖ 2

2. ✔ 3

3. ✖ 5

4. ✖ 4

Question Number : 24 Question Id : 2106889230 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the line $2x + \sqrt{6}\,y = 2$ touches the hyperbola $x^2 - 2y^2 = 4$ then the point of contact is

Options :

1. ✖ $(4, \sqrt{6})$

2. ✔ $(4, -\sqrt{6})$

3. ✖ $(-4,6)$

4. ✖ $(5,7)$

Question Number : 25 Question Id : 2106889231 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The equation of the parabola with focus at (-3,2) and vertex (-2,2) is

Options :

1. ✖ $x^2 - 4x + 8y + 12 = 0$

2. ✖ $x^2 + 5x - 8y - 11 = 0$

3. ✔ $y^2 + 4x - 4y + 12 = 0$

4. ✖ $x^2 - 4x - 8y - 12 = 0$

Question Number : 26 Question Id : 2106889232 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\lim_{x \to 0} \frac{a^x - b^x}{x} =$

Options :

1. ✖ $\log\left(\frac{b}{a}\right)$

2. ✖ $2\log\left(\frac{b}{a}\right)$

3. ✔ $\log\left(\frac{a}{b}\right)$

4. ✖ $2\log\left(\frac{a}{b}\right)$

Question Number : 27 Question Id : 2106889233 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $x = a\left[\cos t + log\left(tan\frac{t}{2}\right)\right]$, $y = a\sin t$ then $\frac{dy}{dx}$ is

Options :

1. ✖ $-\tan t$

2. ✔ $\tan t$

3. ✖ $\tan t + \sin t$

4. ✖ $\sin t$

Question Number : 28 Question Id : 2106889234 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an error of 3% occurs in measuring the side of a cube then the percentage error in its volume is

Options :

1. ✖ 3

2. ✖ 7

3. ✖ 8

4. ✔ 9

Question Number : 29 Question Id : 2106889235 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The angle between the curves $y = x^2 + 3x - 7$ and $y^2 = 2x + 5$ at $(2,3)$ is

Options :

1. ✔ $\tan\theta = 2$

2. ✖ $\sec\theta = 2$

3. ✖ $\cos\theta = 1$

4. ✖ $\sin\theta = 3$

Question Number : 30 Question Id : 2106889236 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $u = \log\left(\frac{x^2+y^2}{x+y}\right)$ then $x\frac{\partial u}{\partial x} + y\frac{\partial u}{\partial y} =$

Options :

1. ✖ 2

2. ✖ 4

3. ✖ 5

4. ✔ 1

Question Number : 31 Question Id : 2106889237 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The interval in which the function $f(x) = x^2 logx$ is a decreasing function is

Options :

1. ✖ $(1\ ,\ e^{-1/2}\ )$

2. ✖ $(2\ ,\ e^{-1/2}\ )$

3. ✖ $(-\infty, 0)$

4. ✔ $(0\ ,\quad e^{-1/2})$

Question Number : 32 Question Id : 2106889238 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $z = e^{(ax+by)} f(ax - by)$ then $b\frac{\partial z}{\partial x} + a\frac{\partial z}{\partial y} =$

Options :

1. ✖ $-2abz$

2. ✖ $3abz$

3. ✔ 2abz

4. ✖ 5abz

Question Number : 33 Question Id : 2106889239 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The volume of a spherical ball is increasing at the rate of 4π cc/s, then the rate of increase of the radius, when the volume is $288\pi\ cc$ is

Options :

1. ✖ 2 cm/sec

2. ✔ 1/36 cm/sec

3. ✖ 1/ 4 cm/sec

4. ✖ 6 cm/sec

Question Number : 34 Question Id : 2106889240 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The slope of the tangent to the curve $y = 5x^2$ at the point $x = -1$ is

Options :

1. ✖ 10

2. ✖ 7

3. ✔ -10

4. ✖

-9

Question Number : 35 Question Id : 2106889241 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The extreme values of the function $f(x) = x^3 - 9x^2 + 15x - 1$ are

Options :

1. ✔ 6,-26

2. ✖ 3,-26

3. ✖ 6,26

4. ✖ -6,-26

Question Number : 36 Question Id : 2106889242 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\int_0^2 \sqrt{4 - x^2}\, dx =$

Options :

1. ✖ $\frac{\pi}{2}$

2. ✖ $-\frac{\pi}{2}$

3. ✔ π

4. ✖ $-\pi$

Question Number : 37 Question Id : 2106889243 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int x\sqrt{x}\,dx$ on $[0,\infty)$ is

Options :

1. ✔ $\frac{2}{5}x^{5/2}+c$

2. ✖ $-\frac{2}{5}x^{5/2}+c$

3. ✖ $\frac{2}{5}x^{-5/2}+c$

4. ✖ $\frac{2}{3}x^{3/2}+c$

Question Number : 38 Question Id : 2106889244 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area enclosed between the curve $y^2 = 4x$ and the line $x = 2y$ is

Options :

1. ✖ $\frac{64}{5}$ sq. units

2. ✔ $\frac{64}{3}$ sq. units

3. ✖ $\frac{65}{4}$ sq. units

4. ✖ $\frac{63}{4}$ sq. units

Question Number : 39 Question Id : 2106889245 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int \frac{dx}{\sqrt{4x^2-4x+2}} =$$

Options :

1. ✖ $-\frac{1}{2}\sinh^{-1}(x-1)+c$

2. ✖ $\frac{1}{2}\sinh^{-1}(2x+1)+c$

3. ✔ $\frac{1}{2}\sinh^{-1}(2x-1)+c$

4. ✖ $\frac{1}{2}\sinh^{-1}(3x-1)+c$

Question Number : 40 Question Id : 2106889246 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\int_0^{\pi/2}\frac{sinx}{1+cos^2x}dx =$

Options :

1. ✔ $\pi/4$

2. ✖ $-\pi/4$

3. ✖ $\pi/3$

4. ✖ $\pi/2$

Question Number : 41 Question Id : 2106889247 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mean value of $\frac{1}{4+x^2}$ on $[-2,2]$ is

Options :

1. ✖ $\frac{\pi}{12}$

2. ✖ $-\frac{\pi}{2}$

3. ✖ $\frac{\pi}{2}$

4. ✔ $\frac{\pi}{16}$

Question Number : 42 Question Id : 2106889248 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\int_0^{\pi/4} \sqrt{1+sin2x}\, dx =$

Options :

1. ✖ -1

2. ✖ -3

3. ✖ 3

4. ✔ 1

Question Number : 43 Question Id : 2106889249 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area enclosed by the curves $y = 3x$ and $y = 6x - x^2$ is

Options :

1. ✖ $\frac{7}{2}$ square units

2. ✖ $\frac{5}{2}$ square units

3. ✖ $\frac{3}{2}$ square units

4. ✔ $\frac{9}{2}$ square units

Question Number : 44 Question Id : 2106889250 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of $\int \frac{e^x(1+x)}{(2+x)^2}\,dx$ on $I \in R \setminus\{-2\}$ is

Options :

1. ✔ $\frac{e^x}{2+x}+c$

2. ✖ $-\frac{e^x}{2+x}+c$

3. ✖ $\frac{e^x}{2-x}+c$

4. ✖ $\frac{e^{3x}}{2+x}+c$

Question Number : 45 Question Id : 2106889251 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of the homogeneous differential equation $xy^2\,dy-(x^3+y^3)\,dx=0$ is

Options :

1. ✖ $y^3=-3x^3\log(xc)$

2. ✖ $y^3=3x^3\log(x/c)$

3. ✖

$y^3 = 3x^3\log(x^2c)$

4. $y^3 = 3x^3\log(xc)$ ✔

Question Number : 46 Question Id : 2106889252 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The order and degree of the differential equation $\left(\frac{dy}{dx}\right)^2 + 3\left(\frac{dy}{dx}\right) + 2 = 0$ is

Options :

1. Order=2, degree=2 ✖

2. Order=2, degree=1 ✖

3. order = 1, degree = 2 ✔

4. Order=3, degree=1 ✖

Question Number : 47 Question Id : 2106889253 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The necessary and the sufficient condition for the differential equation $M(x,y)dx + N(x,y)dy = 0$ to be an exact equation is

Options :

1. ✖ $\frac{\partial M}{\partial x}=\frac{\partial N}{\partial y}$

2. ✔ $\frac{\partial M}{\partial y}=\frac{\partial N}{\partial x}$

3. ✖ $\frac{\partial M}{\partial y}=-\frac{\partial N}{\partial x}$

4. ✖ $\frac{\partial M}{\partial x}=-\frac{\partial N}{\partial y}$

Question Number : 48 Question Id : 2106889254 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. ✔ $\frac{1}{xy}=-x+c$

2. ✖ $\frac{-1}{xy}=-x+c$

3. ✖ $\frac{2}{xy}=x+c$

4. ✖ $\frac{1}{y} = -x + c$

Question Number : 49 Question Id : 2106889255 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The solution of $(D^2 + 10D + 25)y = 0$ is

Options :

1. ✔ $y = e^{-5x}\ (c_1 x + c_2)$

2. ✖ $y = e^{3x}(c_1 \cos 2x + c_2 \sin 2x)$

3. ✖ $y = e^{3x}(c_1 \cos 2x - c_2 \sin 2x)$

4. ✖ $y = e^{3x}(c_1 \cos 3x + c_2 \sin 3x)$

Question Number : 50 Question Id : 2106889256 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The complementary function of $(D^2 + 3D + 2)y = 8sin5x$ is

Options :

1. ✔ $c_1 e^{-x} + c_2 e^{-2x}$

2. $c_1e^x + c_2e^{2x}$ ✖

3. $c_1e^{-x} + c_2e^{2x}$ ✖

4. $c_1e^{2x} + c_2e^{3x}$ ✖

Physics

Section Id :	210688183
Section Number :	2
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 51 Question Id : 2106889257 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If we choose velocity **V**, acceleration **A** and force **F** as fundamental physical quantities then how would you express angular momentum in terms of **V**, **A** and **F**.

Options :

1.

✖ $F^1 A^{-1} V^1$

2. ✖ $F^1 A^0 V^1$

3. ✖ $F^1 A^{-1} V^2$

4. ✔ $F^1 A^{-2} V^3$

Question Number : 52 Question Id : 2106889258 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the velocity of a body at any time 't' is given by the equation $v = A t^2 + B t + C$, then the unit of A is

Options :

1. ✖ metre/sec

2. ✖ metre/sec^2

3. ✔ metre/sec^3

4. ✖ metre

Question Number : 53 Question Id : 2106889259 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $|\mathbf{A}| + |\mathbf{B}| = |\mathbf{C}|$ and $\mathbf{A} + \mathbf{B} = \mathbf{C}$, then the angle between vectors $\mathbf{A}$ and $\mathbf{B}$ is

Options :

1. ✖ $90°$

2. ✖ $60°$

3. ✔ $0°$

4. ✖ $120°$

Question Number : 54 Question Id : 2106889260 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The area of triangle with sides as $\mathbf{A} = 2\mathbf{i} + 3\mathbf{j}$ and $\mathbf{B} = \mathbf{i} + 4\mathbf{j}$ is

Options :

1. ✖ 5 units

2. ✖ 10 units

3. ✔ 2.5 units

4. ✖ 20 units

Question Number : 55 Question Id : 2106889261 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the velocity of a body moving with uniform acceleration is doubled in t_1 sec and tripled in t_2 sec then

Options :

1. ✔ $t_2 = 2\ t_1$

2. ✖ $t_1 = 2\ t_2$

3. ✖ $t_1 t_2 = 2$

4. ✖ $t_2 = 3\ t_1$

Question Number : 56 Question Id : 2106889262 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If a body travels half of its total path in the last second of its fall from rest then the height of its fall is (take $g = 10\ ms^{-2}$)

Options :

1. ✔ 57.1m

2. ✖ 28.26m

3. ✖ 64m

4. ✖ 45m

Question Number : 57 Question Id : 2106889263 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Olympics, a javelin thrown at an angle 45° attains a maximum height of 30m, then the horizontal distance covered by the javelin is

Options :

1. ✖ 60m

2. ✔ 120m

3. ✖ 100m

4. ✖ 90m

Question Number : 58 Question Id : 2106889264 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The coefficient of friction between the floor and the wooden cube of side length 0.5m is 0.2. The coefficient of friction for a wooden cube of side length 1m is

Options :

1. ✔ 0.2

2. ✖ 0.5

3. ✖ 0.1

4. ✖ 0.4

Question Number : 59 Question Id : 2106889265 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The force required just to move a body up an inclined plane is double the force required just to prevent the body sliding down it. If The coefficient of friction is $1/\sqrt{3}$, then the angle of the plane is

Options :

1. ✖ 45°

2. ✖ 30°

3. ✖ 53°

4. ✔ 60°

Question Number : 60 Question Id : 2106889266 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If an ice block of mass 42Kg moves with initial velocity 4m/s on a rough surface of coefficient of friction 0.1. then the amount of ice melted as a result of friction before the block comes to rest is

Options :

1. ✖ 0.5 gm.

2. ✔ 1 gm.

3. ✖ 8 gm.

4. ✖ 16 gm.

Question Number : 61 Question Id : 2106889267 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A ship of mass 3×10^7 Kg initially at rest is pulled by a force of 5×10^4 N through a distance of 3m. Assuming that the resistance due to water is negligible, the speed of the ship is

Options :

1. ✖ 2 m/s

2. ✔ 0.1 m/s

3. ✖ 0.2 m/s

4. ✖ 10 m/s

Question Number : 62 Question Id : 2106889268 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

When a force $\mathbf{F} = 2\,\mathbf{i} + 4\,\mathbf{j} + 5\,\mathbf{k}$ newton acts on a body and produces a displacement of $\mathbf{S} = 3\,\mathbf{i} + 2\,\mathbf{j} + \mathbf{k}$ metre., then the work done by this force is

Options :

1. ✖ 13 J

2. ✖ 15 J

3. ✖ 17 J

4. ✔ 19 J

Question Number : 63 Question Id : 2106889269 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An engine expends 45 HP in propelling a car along a level track at 15m/s. The total retarding force acting on the car is

Options :

1. ✔ 2238 N

2. ✖ 3900 N

3. ✖ 3228 N

4. ✖ 4280 N

Question Number : 64 Question Id : 2106889270 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Two bodies A and B of equal masses are suspended from two separate massless springs of spring constants K_1 and K_2 respectively. If the two bodies oscillate such that their maximum velocities are equal, the ratio of amplitude of A to that of B is

Options :

1. ✖ $\frac{K_1}{K_2}$

2. ✖ $\frac{K_2}{K_1}$

3. ✔ $\sqrt{\frac{K_2}{K_1}}$

4. ✖

$\sqrt{\frac{K_1}{K_2}}$

Question Number : 65 Question Id : 2106889271 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A block is on a piston which is moving vertically with a SHM of period 1sec. The amplitude of the motion at which block and the piston will separate is (take $g = 10\,ms^{-2}$)

Options :

1. ✔ 0.25m

2. ✖ 0.5m

3. ✖ 0.75m

4. ✖ 1m

Question Number : 66 Question Id : 2106889272 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A seconds pendulum is working in a lift. If the lift begins to fall freely, then what will be the time period of the pendulum in this case

Options :

1. ✖ 2 sec

2. ✖ 1 sec

3. ✖ 0

4. ✔ infinity

Question Number : 67 Question Id : 2106889273 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A tuning fork of frequency 90 hertz is sounded and moving towards an observer with a velocity equal to one-tenth the velocity of sound; the frequency of the note heard by the observer is

Options :

1. ✔ 100 Hz

2. ✖ 90 Hz

3. ✖ 80 Hz

4. ✖ 110 Hz

Question Number : 68 Question Id : 2106889274 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the reverberation time of a class room of dimensions 100 x 30 x 10 m^3 is 1.5 sec. then the total absorption of the class room is

Options :

1. ✖ 2300 metric Sabine

2. ✔ 3400 metric Sabine

3. ✖ 1700 metric Sabine

4. ✖ 850 metric Sabine

Question Number : 69 Question Id : 2106889275 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The standard constant volume gas thermometer cannot use any vapour as working substance because

Options :

1. ✖ Vapours are likely to catch fire

2. ✔ Vapours are not perfect gases

3. ✖ It is difficult to obtain pure vapours

4. ✖ The properties are not constant over a long range of temperature

Question Number : 70 Question Id : 2106889276 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The equation of state corresponding to 14g of nitrogen(N_2) at pressure P and temperature T, when occupying a volume V, will be (R is universal gas constant)

Options :

1. ✖ $PV = 7RT$

2. ✔ $PV = \frac{1}{2} RT$

3. ✖ $PV = \frac{1}{4} RT$

4. ✖ $PV = 2\ RT$

Question Number : 71 Question Id : 2106889277 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A vessel contains certain quantity of gas at a pressure of 80 cm of Hg. If $2/5^{th}$ of the mass of gas leaks out at the same temperature, then the pressure of remaining gas is

Options :

1. ✖ 40 cm of Hg

2.

✖ 32 cm of Hg

3. ✔ 48 cm of Hg

4. ✖ 20 cm of Hg

Question Number : 72 Question Id : 2106889278 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An ideal diatomic gas is heated at constant pressure. The fraction of the heat energy supplied to increase the internal energy of the gas is

Options :

1. ✖ $\frac{2}{5}$

2. ✖ $\frac{3}{5}$

3. ✖ $\frac{3}{7}$

4. ✔ $\frac{5}{7}$

Question Number : 73 Question Id : 2106889279 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The distance between the atoms of a diatomic gas remains constant. Then its molar specific heat at constant volume is

Options :

1. ✔ $\frac{5}{2}R$

2. ✖ $\frac{3}{2}R$

3. ✖ R

4. ✖ $\frac{1}{2}R$

Question Number : 74 Question Id : 2106889280 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In photo electric effect the energy of the emitted electrons is

Options :

1. ✖ Larger than that of incident photon

2. ✔ Smaller than that of incident photon

3. ✖ Same as that of incident photon

4. ✖ Proportional to the intensity of incident light

Question Number : 75 Question Id : 2106889281 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In water-air system for which colour the critical angle is maximum?

Options :

1. ✔ Red

2. ✖ Violet

3. ✖ Yellow

4. ✖ Same for all colours

Chemistry

Section Id :	210688184
Section Number :	3
Mandatory or Optional :	Mandatory
Number of Questions :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes

Maximum Instruction Time : 0

Is Section Default? : null

Question Number : 76 Question Id : 2106889282 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The total number of 'm' values possible for a sublevel with l=3 is

Options :

1. ✖ 3

2. ✖ 5

3. ✔ 7

4. ✖ 9

Question Number : 77 Question Id : 2106889283 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The value of Rydberg constant for hydrogen atom (R_H) (in m^{-1}) is

Options :

1. ✖ 1.09×10^{-5}

2. ✖ 1.09×10^{-7}

3. ✖ 1.09×10^{5}

4. ✔ 1.09×10^{7}

Question Number : 78 Question Id : 2106889284 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following, the orbitals are correctly arranged in the order of increasing energy?

Options :

1. ✖ $3d < 4s < 4d < 5p$

2. ✔ $4s < 3d < 5p < 4d$

3. ✖ $4s < 5p < 3d < 4d$

4. ✖ $3d < 4d < 4s < 5p$

Question Number : 79 Question Id : 2106889285 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Identify the molecule in which central atom has octet of electrons.

Options :

1. ✔ H_2O

2. ✖ $BeCl_2$

3. ✖ BCl_3

4. ✖ PCl_5

Question Number : 80 Question Id : 2106889286 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The incorrect statement about an ionic compound is

Options :

1. ✖ It is readily soluble in water

2. ✔ It is a conductor in solid state

3. ✖ It has non directional ionic bond

4. ✖ It has high melting point

Question Number : 81 Question Id : 2106889287 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The weight of 0.01 moles of $KClO_3$ (in g) is (K = 39u, Cl = 35.5 u, O = 16u)

Options :

1. ✔ 1.225

2. ✖ 2.45

3. ✖ 3.225

4. ✖ 1.205

Question Number : 82 Question Id : 2106889288 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

100 ml of 0.1M HCl is mixed with 100 ml of 0.1M H_2SO_4 and the solution is diluted to 1.0 L. the Molarity of the final solution is

Options :

1. ✖ 0.01 M

2. ✖ 0.02 M

3. ✔ 0.03 M

4. ✖ 0.04 M

Question Number : 83 Question Id : 2106889289 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The normality of 5.3% (w/v) solution of Na_2CO_3 is (Na = 23u, C = 12u, O = 16u)

Options :

1. ✖ 0.5 N

2. ✖ 3 N

3. ✖ 2 N

4. ✔ 1 N

Question Number : 84 Question Id : 2106889290 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the substance which can act only as Lewis acid

Options :

1. ✖ HCl

2. ✔ $AlCl_3$

3. ✖ NH_3

4. ✖ H_2O

Question Number : 85 Question Id : 2106889291 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At 25^0C, 4.0 g of NaOH is Present in 2.0 L solution. The ionic product of water (in mol^2/L^2) at that temperature is

Options :

1. ✔ 1×10^{-14}

2. ✖ 1×10^{-13}

3. ✖ 1×10^{-12}

4. ✖ 5×10^{-14}

Question Number : 86 Question Id : 2106889292 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not a strong electrolyte?

Options :

1. ✖ HCl (aq)

2. ✖ $H_2SO_4(aq)$

3. ✖ $CH_3COONa(aq)$

4. ✔ $NH_4OH(aq)$

Question Number : 87 Question Id : 2106889293 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How many grams of copper is deposited on cathode, when 0.5F current is passed through 100 ml of 0.1 M $CuSO_4$ solution? (Molecular Weight of $CuSO_4$ = 63.5u)

Options :

1. ✖ 63.5

2. ✖ 16.35

3. ✔ 15.875

4. ✖ 31.75

Question Number : 88 Question Id : 2106889294 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The electrolyte commonly used in salt bridge is

Options :

1. ✖ $ZnCl_2$

2. ✔ KCl

3. ✖ $MgCl_2$

4. ✖ $CaSO_4$

Question Number : 89 Question Id : 2106889295 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At 25^0C, the emf of the cell $Zn|Zn^{2+}(1M)||Cu^{2+}(1M)|Cu$ is __

(Given: $E^0_{Zn^{2+}}|Zn = -0.76$ V & $E^0_{Cu^{2+}}|Cu = +0.34$ V)

Options :

1. ✔ 1.1 V

2. ✖ -0.46 V

3. ✖ -1.1 V

4. ✖ 1.5 V

Question Number : 90 Question Id : 2106889296 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Water gets permanent hardness due to

Options :

1. ✖ NaCl

2. ✖ KCl

3. ✔ $MgCl_2$

4. ✖ $AlCl_3$

Question Number : 91 Question Id : 2106889297 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

2.43 g of Ca $(HCO_3)_2$ (molecular weight is 162u) is present in 20L water sample.

The degree of hardness of water (in mg/l) is__

Options :

1. ✖ 150

2. ✔ 75

3. ✖ 200

4. ✖ 125

Question Number : 92 Question Id : 2106889298 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In softening of hardwater by ion exchange resin method, the cation exchange resin contains

Options :

1. ✔ -COOH group

2. ✖ -OH group

3. ✖ $-NH_3OH$ group

4. ✖ $-Al_2Si_2O_8$ group

Question Number : 93 Question Id : 2106889299 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Corrosion is

Options :

1. ✖ A chemical process

2. ✖ An electrical process

3. ✔

An electrochemical process

4. ✖ A physical process

Question Number : 94 Question Id : 2106889300 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Galvanization is applying a coating of

Options :

1. ✔ Zn

2. ✖ Pb

3. ✖ Cr

4. ✖ Cu

Question Number : 95 Question Id : 2106889301 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The hetero atom present in neoprene is

Options :

1. ✖ S

2. ✖ O

3. ✔ Cl

4. ✖ F

Question Number : 96 Question Id : 2106889302 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The monomer of Teflon is

Options :

1. ✖ C_2Cl_4

2. ✖ C_2Br_2

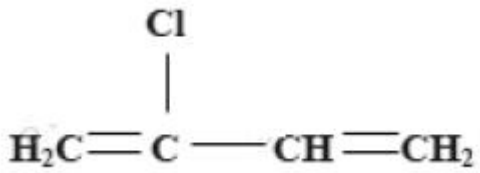
3. ✔ C_2F_4

4. ✖ C_2F_6

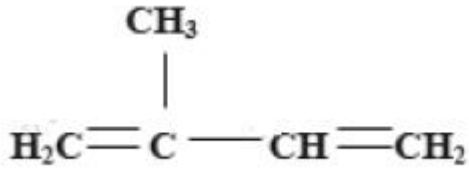
Question Number : 97 Question Id : 2106889303 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The structure of the monomer of natural rubber is

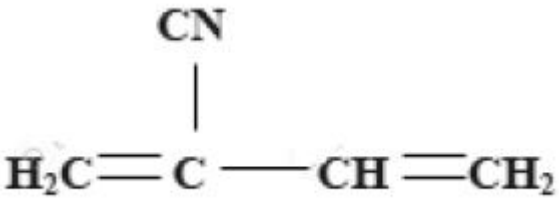
Options :

1. 

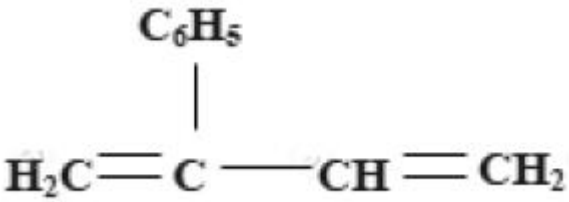
✖

2. 

✔

3. 

✖

4. 

✖

Question Number : 98 Question Id : 2106889304 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The major components of producer gas are

Options :

1. ✖ CO, H_2

2. ✔ CO, N_2

3. ✖ CH_4, CO

4. ✖ CH_4, N_2

Question Number : 99 Question Id : 2106889305 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Depletion of ozone layer causes

Options :

1. ✖ Forest fires

2. ✖ Eutrophication

3. ✖ Bio-Magnification

4. ✔ Skin Cancer

Question Number : 100 Question Id : 2106889306 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is a secondary pollutant?

Options :

1. ✖ CO_2

2. ✖ SO_2

3. ✔ Peroxyacetyl nitrate

4. ✖ NO_2

Metallurgical Engineering

Section Id :	210688185
Section Number :	4
Mandatory or Optional :	Mandatory
Number of Questions :	100
Section Marks :	100

Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Is Section Default? :	null

Question Number : 101 Question Id : 2106889307 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A process by which particles of different sizes and specific gravities are sorted out into uniform groups is known as _____

Options :

1. ✖ Separation

2. ✔ Classification

3. ✖ Concentration

4. ✖ Capacity

Question Number : 102 Question Id : 2106889308 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the basis of separation of 'screening' process?

Options :

1. ✔ Particle size

2.

✖ Particle weight

3. ✖ Particle mass

4. ✖ Particle shape

Question Number : 103 Question Id : 2106889309 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following processes is not a part of Pyrometallurgy?

Options :

1. ✖ Calcination

2. ✖ Roasting

3. ✖ Smelting

4. ✔ Leaching

Question Number : 104 Question Id : 2106889310 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which metal is extracted by leaching ?

Options :

1. ✖ Copper

2. ✖ Steel

3. ✖ Sulphur

4. ✔ Gold

Question Number : 105 Question Id : 2106889311 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the process used to extract sodium from halide ores such as sodium chloride(NaCl)?

Options :

1. ✖ Pyro metallurgy

2. ✖ Hydro metallurgy

3. ✔ Electro metallurgy

4. ✖ Magnetic separation

Question Number : 106 Question Id : 2106889312 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the role of a reducing agent in the extraction of metals?

Options :

1. ✖ To oxidize the metal

2. ✖ To increase the metal's melting point

3. ✖ To remove impurities from the ore

4. ✔ To donate electrons and reduce metal compounds to metals

Question Number : 107 Question Id : 2106889313 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Coal rank denotes_____ of coal.

Options :

1. ✖ Classification

2. ✔ Maturity

3. ✖ Chemical composition

4. ✖ Analysis

Question Number : 108 Question Id : 2106889314 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Dry quenching of coke aims at recovering _____of coke.

Options :

1. ✔ Sensible heat

2. ✖ Blending

3. ✖ Preheating

4. ✖ Briquettes

Question Number : 109 Question Id : 2106889315 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Water gas mainly consists of_____

Options :

1. ✔ H_2 & CO

2. ✖ CH_4 & N_2

3. ✖ N_2 & CO

4. ✖ N_2 & H_2

Question Number : 110 Question Id : 2106889316 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Among the following coke types which coke has the highest purity ?

Options :

1. ✖ Beehive

2. ✖ Foundry

3. ✖ L T coke

4. ✔ Petroleum coke

Question Number : 111 Question Id : 2106889317 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Radiation pyrometer works based on _____law

Options :

1. ✖ Fourier

2. ✖ Plank

3. ✔ Stefan-Boltzmann

4. ✖ Thomson

Question Number : 112 Question Id : 2106889318 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What is the entropy of the system at equilibrium state?

Options :

1. ✖ Zero

2. ✖ Minimum

3. ✔ Maximum

4. ✖ Constant but not maximum

Question Number : 113 Question Id : 2106889319 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

PV^r = constant is valid for ----- process

Options :

1. ✖ Isothermal

2. ✖ Isentropic

3. ✖ Isobaric

4. ✔ Adiabatic

Question Number : 114 Question Id : 2106889320 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Enthalpy H is defined as

Options :

1. ✖ H=E-PV

2.

✖ H=F-TS

3. ✔ H=E+PV

4. ✖ H=P+TS

Question Number : 115 Question Id : 2106889321 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The equation PV= nRT is best obeyed by gases at

Options :

1. ✔ Low pressure and high temperature

2. ✖ High pressure and low temperature

3. ✖ Low pressure and low temperature

4. ✖ High pressure and high temperature

Question Number : 116 Question Id : 2106889322 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Second law of thermodynamics is concerned with the

Options :

1. ✖ Amount of energy transferred

2. ✔ Direction of energy transfer

3. ✖ Irreversible process only

4. ✖ Non cyclic process only

Question Number : 117 Question Id : 2106889323 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Number of components(C), phases (P), and degrees of freedom (F) are related by Gibbs rule

Options :

1. ✔ $P+F-C=2$

2. ✖ $C=P-F+2$

3. ✖ $F=C-P-2$

4. ✖

P=F-C-2

Question Number : 118 Question Id : 2106889324 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Constant 'A' in Arrhenius equation is called

Options :

1. ✖ Rate constant

2. ✔ Arrhenius factor

3. ✖ Activity constant

4. ✖ Equilibrium Constant

Question Number : 119 Question Id : 2106889325 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At triple point (for one component system) vapor pressure of solid as compared to that of Liquid will be

Options :

1. ✖ More

2. ✖ Less

3. ✔ Same

4. ✖ Depends on system

Question Number : 120 Question Id : 2106889326 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Crystal Structure of Cementite

Options :

1. ✖ FCC

2. ✖ BCC

3. ✔ Orthorhombic

4. ✖ Tetragonal

Question Number : 121 Question Id : 2106889327 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not an age hardening alloy?

Options :

1. ✖ Al-Cu

2. ✖ Al-Mg-Si

3. ✔ Cu-Ni

4. ✖ β titanium alloys

Question Number : 122 Question Id : 2106889328 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Mg_2Si is an example of

Options :

1. ✖ Alloy

2. ✖ Electron Compound

3. ✔ Interstitial Compound

4. ✖ Ceramic

Question Number : 123 Question Id : 2106889329 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The atomic packing factor for the diamond cubic structure is

Options :

1. ✖ 0.74

2. ✖ 0.68

3. ✔ 0.34

4. ✖ 0.25

Question Number : 124 Question Id : 2106889330 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Relative amounts of phases in a region can be deduced using

Options :

1. ✖ Phase rule

2. ✔ Lever rule

3. ✖ Normality

4. ✖ Mole fraction

Question Number : 125 Question Id : 2106889331 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Maximum solubility of carbon in austenite phase at $1147\ ^{0}C$ is

Options :

1. ✖ 0.02 %

2. ✖ 4.3 %

3. ✔ 2.1%

4. ✖ 0.5%

Question Number : 126 Question Id : 2106889332 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is Curie temperature in Iron-Iron carbide phase diagram?

Options :

1. ✖ 727^0 C

2. ✔ 768^0 C

3. ✖ 910^0 C

4. ✖ 1258^0C

Question Number : 127 Question Id : 2106889333 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Time temperature transformation diagrams are drawn for

Options :

1. ✖ Iron

2. ✖ Manganese

3. ✖ Any alloy

4. ✔ Only steel

Question Number : 128 Question Id : 2106889334 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which is the primary element used for making stainless steel alloy?

Options :

1. ✔ Chromium

2. ✖ Zirconium

3. ✖ Vanadium

4. ✖ Indium

Question Number : 129 Question Id : 2106889335 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Graphite flakes are present in _____Cast iron

Options :

1. ✖ White

2. ✔ Grey

3. ✖ Malleable

4. ✖ Nodular

Question Number : 130 Question Id : 2106889336 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Alloy containing copper, tin, and zinc is known as

Options :

1. ✔ Gunmetal

2. ✖ Bronze

3. ✖ Brass

4. ✖ Cupro-nickel

Question Number : 131 Question Id : 2106889337 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process used to eliminate retained austenite is

Options :

1. ✖ Martempering

2. ✖ Austempering

3. ✔ Sub-zero treatment

4. ✖ Patenting

Question Number : 132 Question Id : 2106889338 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following processes is used to reduce the brittleness of hardened steel?

Options :

1. ✖ Annealing

2. ✖ Normalizing

3. ✖ Spheroidizing

4. ✔ Tempering

Question Number : 133 Question Id : 2106889339 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is formed less when cooling rate is decreased?

Options :

1. ✖ Pearlite

2. ✖ Fine pearlite

3. ✖ Bainite

4. ✔ Martensite

Question Number : 134 Question Id : 2106889340 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Match the following and choose right option

P. Annealing	1.Coarse pearlite
Q. Normalising	2.Fine pearlite
R.Subcritical annealing for long time	3. Tempered Martensite
S. Martempering	4.Spherodised cementite in ferrite matrix

Options :

1. ✖ P-1, Q-4, R-3, S-2

2. ✖ P-2, Q-3, R-1, S-4

3. ✖ P-4, Q-1, R-2, S-3

4. ✔ P-1, Q-2, R-4, S-3

Question Number : 135 Question Id : 2106889341 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Assertion: Hardneability of steel can be increased by adding certain alloying elements

Reason: The alloying elements can provide a fine dispersion of alloy carbides

Options :

1. ✔ Both Assertion and Reason are true but reason is not a correct explanation for assertion

2. ✖ Both Assertion and Reason are false

3. ✖ Both Assertion and Reason are true, reason is correct explanation for Assertion

4. ✖ Assertion is true but reason is false

Question Number : 136 Question Id : 2106889342 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In Jomminy End Quench Test as the distance from the sample to water jet increases Hardenability

Options :

1. ✖ Remains same

2. ✖ Increases initially then decreases

3. ✔ Decreases

4. ✖ Increases

Question Number : 137 Question Id : 2106889343 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Arrange the following in terms of increasing severity of quench

P. Oil quenching

Q. Water quenching

R. Water quenching with violent agitation

S. Brine quenching

Options :

1. ✔ P<Q<R<S

2. ✖

Q<R<P<S

3. ✖ P<Q<S<R

4. ✖ Q<P<R<S

Question Number : 138 Question Id : 2106889344 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an isothermal curve, which of the following is true when the temperature is increased?

Options :

1. ✔ The curve shifts rightward

2. ✖ The curve shifts leftward

3. ✖ The curve goes down

4. ✖ The curve goes up

Question Number : 139 Question Id : 2106889345 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Bainite has

Options :

1. ✖ The same morphology as austenite

2. ✔ A non lamellar morphology of ferrite and cementite

3. ✖ The coarsest morphology among all the products from austenite

4. ✖ Needle like structure

Question Number : 140 Question Id : 2106889346 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The process of deforming the steel at liquid nitrogen temperature is

Options :

1. ✖ Ausforming

2. ✔ Cryoforming

3. ✖ Tempering

4.

✖ Austenizing

Question Number : 141 Question Id : 2106889347 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is not a thermo mechanical treatment

Options :

1. ✔ Austempering

2. ✖ Cryoforming

3. ✖ Ausforming

4. ✖ Isoforming

Question Number : 142 Question Id : 2106889348 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following phase will be resulted when the transformation temperature of steel is in the range of 100 °C to 300 °C?

Options :

1. ✖ Austenite

2. ✖ Pearlite

3. ✖ Bainite

4. ✔ Martensite

Question Number : 143 Question Id : 2106889349 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The maximum temperature attained in steel melting shop furnace of either type is not more than _____degree Celsius

Options :

1. ✖ 1300

2. ✖ 1500

3. ✔ 1800

4. ✖ 1700

Question Number : 144 Question Id : 2106889350 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

With increase in steel melting furnace temperature, the slag viscosity

Options :

1. ✖ Increases

2. ✔ Decreases

3. ✖ Remains same

4. ✖ May increase or decrease, depends on the slag composition

Question Number : 145 Question Id : 2106889351 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Tap to tap time is the maximum in the case of

Options :

1. ✖ L.D converter

2. ✖ Kaldo process

3. ✔ Bessemer converter

Open hearth

4. ✖

Question Number : 146 Question Id : 2106889352 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which among these is not an autogenous process?

Options :

1. ✖ L.D converter

2. ✔ Open hearth

3. ✖ Bessemer converter

4. ✖ Basic oxygen furnace

Question Number : 147 Question Id : 2106889353 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Slag basicity is the ratio of

Options :

1. ✖ SiO_2 to CaO

2. ✖ Cao to SiO_2

3. ✔ Basic to acid oxides

4. ✖ Acidic to basic oxides

Question Number : 148 Question Id : 2106889354 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a basic steel making furnace, the

Options :

1. ✔ Refractory lining is basic in nature and Flux used is necessarily basic

2. ✖ Slag is highly acidic in nature.

3. ✖ Flux used is necessarily basic

4. ✖ Flux used is necessarily acidic

Question Number : 149 Question Id : 2106889355 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The process of stopping the furnace operation at the end of its campaign life is called

Options :

1. ✖ Fanning

2. ✖ Coke rush

3. ✔ Blowing out

4. ✖ Blowing in

Question Number : 150 Question Id : 2106889356 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The maximum heat generated in the Blast furnace is due to

Options :

1. ✔ Reaction of Oxygen with Carbon

2. ✖ Burners

3. ✖ Blast furnace design

4. ✖

Reaction of gaunge with dolomite

Question Number : 151 Question Id : 2106889357 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A large amount of material that gets stuck to the furnace wall apparently as a single block, mostly in top portion of bosh is called____?

Options :

1. ✖ Hanging

2. ✔ Scaffolding

3. ✖ Slipping

4. ✖ Chilled hearth

Question Number : 152 Question Id : 2106889358 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How can channeling in a blast furnace be avoided?

Options :

1. ✖ Using fines as charge material

Having a good permeability of the bed through uniform burden distribution

2. ✔

Using lump ores for high bed permeability

3. ✖

Having a high blast pressure

4. ✖

Question Number : 153 Question Id : 2106889359 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

High top pressure_____ the coke rate.

Options :

Increases

1. ✖

Decreases

2. ✔

No impact

3. ✖

Initially increases and then decreases

4. ✖

Question Number : 154 Question Id : 2106889360 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Reduction ratio of hematite is_____ than that of magnetite

Options :

1. ✖ Faster

2. ✔ Slower

3. ✖ Equal

4. ✖ Very Faster

Question Number : 155 Question Id : 2106889361 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Copper smelting is carried out at a temperature of

Options :

1. ✔ 1200°C

2. ✖ 1300°C

3. ✖ 850°C

4. ✖

$1300^{o}C$

Question Number : 156 Question Id : 2106889362 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Parke's process is used for the elimination of

Options :

1. ✖ Copper from Silver

2. ✖ Lead from Zinc

3. ✔ Lead from Silver

4. ✖ Iron from Silver

Question Number : 157 Question Id : 2106889363 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The main constituent of bauxite is

Options :

1. ✔ Al_2O_3

2. ✖ $Al_2(SO_4)_3$

3. ✖ $CaSO_4$

4. ✖ Na_3AlF_6

Question Number : 158 Question Id : 2106889364 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following are the ores of zinc?

Options :

1. ✔ Calamine and zinc blend

2. ✖ Zinc blend and cerussite

3. ✖ Calomine and siderate

4. ✖ Zinc blend and carnallite

Question Number : 159 Question Id : 2106889365 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ternary alloy that is produced in Pidgeon process is

Options :

1. ✖ Ca-Si-Fe

2. ✔ Ca-Si-Mg

3. ✖ Ca-Fe-Mg

4. ✖ Fe-Si-Mg

Question Number : 160 Question Id : 2106889366 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is not an ore of magnesium?

Options :

1. ✖ Carnallite

2. ✖ Magnesite

3. ✖ Dolomite

4. ✔ Gypsum

Question Number : 161 Question Id : 2106889367 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The binder that is used as a catalyst for preferential chlorination of Ilmenite is

Options :

1. ✖ Asphalt

2. ✖ Tar

3. ✖ Starch

4. ✔ Ferric chloride

Question Number : 162 Question Id : 2106889368 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Common mineral of Zircon is?

Options :

1. ✖ $Al_2 (SO_4)_3$

2. ✔ $ZrSiO_4$

3. ✖ ZrSiO

4. ✖ ZrSi

Question Number : 163 Question Id : 2106889369 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is an ore of Thorium?

Options :

1. ✖ Carnallite

2. ✖ Magnesite

3. ✖ Dolomite

4. ✔ Monazite

Question Number : 164 Question Id : 2106889370 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The theoretical percentage of alumina in gibbsite is

Options :

1. ✔

65.4

2. ✖ 85.4

3. ✖ 75.4

4. ✖ 55.4

Question Number : 165 Question Id : 2106889371 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The ability of the material to resist stress without failure is called

Options :

1. ✔ Strength

2. ✖ Hardness

3. ✖ Toughness

4. ✖ Stiffness

Question Number : 166 Question Id : 2106889372 Display Question Number : Yes Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

What are the metal requirements to have creep resistance property?

Options :

1. ✖ Low melting point

2. ✔ High Oxidation resistance

3. ✖ Low Oxidation resistance

4. ✖ Brittleness

Question Number : 167 Question Id : 2106889373 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The indenter used in Brinell hardness test is a

Options :

1. ✔ Steel Ball

2. ✖ Diamond cone

3. ✖ Diamond pyramid

4. ✖ Steel cylinder

Question Number : 168 Question Id : 2106889374 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pyramid type diamond indenter is used in

Options :

1. ✖ Brinell hardness tester

2. ✖ Rockwell hardness tester

3. ✔ Vickers hardness tester

4. ✖ Rebound hardness tester

Question Number : 169 Question Id : 2106889375 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Permanent deformation of material with respect to time due to constant load and variable temperature is

Options :

1. ✖ Elasticity

2. ✖ Hardness

3. ✖ Strength

4. ✔ Creep

Question Number : 170 Question Id : 2106889376 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following types of rays are used in radiography for the inspection of castings?

Options :

1. ✔ X- rays

2. ✖ Infrared rays

3. ✖ Ultraviolet rays

4. ✖ Visible ray

Question Number : 171 Question Id : 2106889377 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following methods of NDT requires leak proofing of casting before inspection?

Options :

1. ✖ Impact test

2. ✖ Visual inspection

3. ✖ Sound test

4. ✔ Pressure test

Question Number : 172 Question Id : 2106889378 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following terms changes in the eddy current testing method for the detection of defects?

Options :

1. ✖ Resistance

2. ✖ Impedance

3. ✔ Conductivity

4. ✖ Capacitance

Question Number : 173 Question Id : 2106889379 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following is true for metals?

Options :

1. ✖ Twin boundary energy > grain boundary energy >surface energy

2. ✖ Grain boundary energy >twin boundary energy > surface energy

3. ✔ Surface energy > grain boundary energy > twin boundary energy

4. ✖ Twin boundary energy > surface energy >grain boundary energy

Question Number : 174 Question Id : 2106889380 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A truly sessile dislocation in a F.C.C material is

Options :

1. ✖ shockely partial

2. ✖ lomer dislocation

3. ✔ Frank partial

4. ✖ lomer-cottrell dislocation

Question Number : 175 Question Id : 2106889381 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Usually Hot working of metal is carried out at temperature ___of Melting Temperature (T_m)

Options :

1. ✖ $0.2T_m$

2. ✔ $0.6\ T_m$

3. ✖ $0.4\ T_m$

4. ✖ $1.2\ T_m$

Question Number : 176 Question Id : 2106889382 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The strain in hot working is.

Options :

1.

✔ 0.5- 1

2. ✖ 1-2

3. ✖ 2-4

4. ✖ 4.5-8.5

Question Number : 177 Question Id : 2106889383 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Driving force for grain growth after completion of recrystallization is

Options :

1. ✔ Stored energy of cold work

2. ✖ Vacancy concentration

3. ✖ Dislocation density in the crystal

4. ✖ Grain boundary curvature

Question Number : 178 Question Id : 2106889384 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

Movement of jogs can produce

Options :

1. ✔ Vacancies

2. ✖ Interstitial

3. ✖ Grain boundary sliding

4. ✖ Grain boundary migration

Question Number : 179 Question Id : 2106889385 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Region of disorder created by movement of dislocations in superlattice is called

Options :

1. ✖ Twin

2. ✖ Stacking fault

3. ✔ Anti-phase boundary

4. ✖ Orowon loop

Question Number : 180 Question Id : 2106889386 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following articles cannot be made from rolling?

Options :

1. ✖ Rails

2. ✔ Cups

3. ✖ Bars

4. ✖ Plates

Question Number : 181 Question Id : 2106889387 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following process belongs to sheet metal forming?

Options :

1. ✔ Deep drawing

2. ✖

Rolling

3. ✖ Forging

4. ✖ Extrusion

Question Number : 182 Question Id : 2106889388 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which of the following atomization process very high purity powders are obtained ?

Options :

1. ✖ Water atomization

2. ✔ Gas atomization

3. ✖ Vacuum atomization

4. ✖ Centrifugal atomization

Question Number : 183 Question Id : 2106889389 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For shell moulding, the sand should have a GFN of _____approximately

Options :

1. ✖ 35

2. ✖ 25-50

3. ✔ 50-100

4. ✖ 15

Question Number : 184 Question Id : 2106889390 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The sand mass does not fall out of the moulding box but is held firmly in it when the moulding box is lifted. This is due to the property of _____

Options :

1. ✖ Porosity of sand

2. ✔ Adhesiveness of sand

3. ✖ Refractoriness of sand

4. ✖ Plasticity of sand

Question Number : 185 Question Id : 2106889391 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The material which is responsible for strength of the mould in CO_2 moulding process is

Options :

1. ✔ Silica grains

2. ✖ Silica gel

3. ✖ Molasses

4. ✖ Zirconia

Question Number : 186 Question Id : 2106889392 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The chief advantage of die-casting is

Options :

1. ✖ Possibility of incorporating thick section in small castings

2. ✖ Casting of inserts is possible

3. ✖ Wide tolerances are possible

4. ✔ High production rates are possible

Question Number : 187 Question Id : 2106889393 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Addition of saw dust to moulding sand increases its

Options :

1. ✔ Gas permeability

2. ✖ Refractoriness

3. ✖ Cohesiveness

4. ✖ Strength

Question Number : 188 Question Id : 2106889394 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Volumetric shrinkage of grey cast iron is about

Options :

1. ✖ 3-4%

2. ✖ 6%

3. ✔ 1.9% or negative

4. ✖ 4-6%

Question Number : 189 Question Id : 2106889395 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The expandable pattern is used in _____ operation.

Options :

1. ✔ Investment casting

2. ✖ Centrifugal casting

3. ✖ Slush casting

4. ✖ Squeeze casting

Question Number : 190 Question Id : 2106889396 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ allowance is not provided in the disposable pattern

Options :

1. ✖ Distortion

2. ✖ Shrinkage

3. ✖ Draft

4. ✔ Machining

Question Number : 191 Question Id : 2106889397 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In sand moulding the bottom most part of the flask is called.

Options :

1. ✖ Cope

2. ✖ Cheek

3. ✔ Drag

4. ✖ Flask bottom

Question Number : 192 Question Id : 2106889398 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Sodium silicate in sand is often used as

Options :

1. ✖ Substitute of moisture

2. ✔ Permeability promotion agent

3. ✖ Refractory material

4. ✖ Binder

Question Number : 193 Question Id : 2106889399 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The longitudinal shell of a boiler shell is always a

Options :

1. ✔ Lap joint

2. ✖ Butt joint

3. ✖ Lozenge joint

4. ✖ Diamond joint

Question Number : 194 Question Id : 2106889400 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following can be easily be welded from flash butt welding process?

Options :

1. ✖ Tin

2. ✖ Lead

3. ✖ Cast irons

4. ✔ Carbon steel

Question Number : 195 Question Id : 2106889401 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Electrodes used in spot welding are made up of which material?

Options :

1. ✔ Copper or copper alloys

2. ✖ Tungsten or tungsten alloys

3. ✖ Chromium or chromium alloys

4. ✖ Titanium or titanium alloys

Question Number : 196 Question Id : 2106889402 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Among the following for which material TIG welding is best suited ?

Options :

1. ✖ Stainless steel

2. ✖ Carbon steel

3. ✖ Silver

4. ✔ Aluminum

Question Number : 197 Question Id : 2106889403 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Typically, the temperature of the positive electrode in metal arc welding can reach up to approximately

Options :

1. ✖ 1300°C

2. ✔ 2400°C

3. ✖ 1500°C

4. ✖ 3600°C

Question Number : 198 Question Id : 2106889404 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following defects occur when the deposited metal is not focused on the root of weld?

Options :

1. ✖ Inclusion of slag

2. ✔ Inadequate penetration

3. ✖ Incomplete fusion

4. ✖ Porosity

Question Number : 199 Question Id : 2106889405 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which of the following defects occur due to melting or burning away of base metal?

Options :

1. ✔ Undercut

2. ✖ Spatter

3. ✖ Cracking in weld metal

4. ✖ Cold cracking

Question Number : 200 Question Id : 2106889406 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Copper and aluminum can be joined by brazing when _____ alloy is used.

Options :

1. ✖

Copper-zinc

2. ✔ Aluminum-silicon

3. ✖ Copper-tellurium

4. ✖ Aluminum-zinc

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