Andhra Pradesh State Council of 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 :	Chemical Engineering 08th May 2024 Shift 1
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 :	210688154
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 : 2106887807 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If each element of a row or column of a determinant is multiplied by a constant K then the value of the determinant is

Options :

1. ✖ Added by k

2. ✔ Multiplied by k

3. ✖ Subtracted by k

4. ✖ Divided by k.

Question Number : 2 Question Id : 2106887808 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $A=\begin{bmatrix}1 & 2 & 3\\ -2 & 1 & 4\end{bmatrix}$ and $B=\begin{bmatrix}2 & 3 & 1\\ 5 & 4 & 2\\ 1 & 5 & 3\end{bmatrix}$ then AB=

Options :

1. ✖ $[15 \quad 26 \quad 4]$

2. ✔ $\begin{bmatrix}15 & 26 & 14\\ 5 & 18 & 12\end{bmatrix}$

3. ✖ $\begin{bmatrix}15 & 5\\ 26 & 18\\ 14 & 12\end{bmatrix}$

4. ✖ BA

Question Number : 3 Question Id : 2106887809 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The elements on the main diagonal of a skew symmetric matrix are all

Options :

1. ✔ zeros

2. ✖ One's

3. ✖ Unequal

4. ✖ >1

Question Number : 4 Question Id : 2106887810 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If ω is one of the imaginary cube roots of unity, find the value of the determinant

$$\begin{vmatrix} 1 & \omega & \omega^2 \\ \omega & \omega^2 & 1 \\ \omega^2 & 1 & \omega \end{vmatrix} =$$

Options :

1. ✔ zero

2. ✖ one

3. ✖ ω^2

4. ✖ ω

Question Number : 5 Question Id : 2106887811 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Every square matrix can be written as the sum of

Options :

1. ✖ Diagonal matrix & square matrix

2. ✖ Two rectangular marices

3. ✖ Square ad non-square matrices

4. ✔ Symmetric and skew symmetric matrix

Question Number : 6 Question Id : 2106887812 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An improper fraction can be reduced to proper fraction by

Options :

1. ✖ Multiplication

2. ✔ Division

3. ✖ subtraction

4. ✖ Addition

Question Number : 7 Question Id : 2106887813 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

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

2. ✖ $\frac{2}{5(x+2)} - \frac{3}{5(x-3)}$

3. ✔ $\frac{2}{5(x+2)} + \frac{3}{5(x-3)}$

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

Question Number : 8 Question Id : 2106887814 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 $\sin 210^0$

Options :

1. ✖ $\frac{1}{2}$

2. ✔ $-\frac{1}{2}$

3. ✖ $\frac{1}{\sqrt{2}}$

4. ✖ $-\frac{1}{\sqrt{2}}$

Question Number : 9 Question Id : 2106887815 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\cos n\pi =$

Options :

1. ✖ -1

2. ✖ -n

3. ✔ $(-1)^n$

4. ✖ $(n)^{-1}$

Question Number : 10 Question Id : 2106887816 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$a \neq 0 \neq b, \sin x + \sin y = a, \cos x + \cos y = b$ then $\tan\frac{x+y}{2} =$

Options :

1. ✖ $\frac{b}{a}$

2. ✔ $\frac{a}{b}$

3. ✖ $\frac{a+b}{2}$

4. ✖ $\frac{a-b}{2}$

Question Number : 11 Question Id : 2106887817 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

f(x) is a periodic function of period k then the period of periodic function f(ax+b) is

Options :

1. ✖ $\frac{k}{a}$,a $\neq 0$

2. ✖ $\frac{ak}{|b|}$,b $\neq 0$

3. ✖ $\frac{k+b}{a}$,a $\neq 0$

4. ✔ $\frac{k}{|a|}$,a $\neq 0$

Question Number : 12 Question Id : 2106887818 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $7sin^2\theta + 3cos^2\theta = 4$, then $\theta =$

Options :

1. ✖ $\pm\frac{\pi}{3}$

2. ✔ $\pm\frac{\pi}{6}$

3. ✖ $\pm\frac{\pi}{4}$

4. ✖ $\pm\frac{\pi}{2}$

Question Number : 13 Question Id : 2106887819 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The range of $cos^{-1}x$ is

Options :

1. ✔ $[0,\pi]$

2. ✖ $[-\pi,\pi]$

3. ✖ $[0,-\pi]$

4. ✖ $(0,\pi)$

Question Number : 14 Question Id : 2106887820 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Assume x>0,y>0. Then which one of the following is true ?

Options :

1. ✔ If xy<1 then $tan^{-1}x + tan^{-1}y = tan^{-1}\left(\frac{x+y}{1-xy}\right)$

2. ✖ If xy>1 then $tan^{-1}x + tan^{-1}y = tan^{-1}\left(\frac{x+y}{1-xy}\right)$

3. ✖ If xy =1 then $tan^{-1}x + tan^{-1}y = tan^{-1}\left(\frac{x+y}{1-xy}\right)$

4. ✖ If xy =1 then $tan^{-1}x - tan^{-1}y = tan^{-1}\left(\frac{x+y}{1-xy}\right)$

Question Number : 15 Question Id : 2106887821 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In ΔABC (a+b+c)(b+c-a) =3bc , then angle A =

Options :

1. ✖ 90^0

2. ✖ 120^0

3. ✔ 60^0

4. ✖ 45^0

Question Number : 16 Question Id : 2106887822 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In ΔABC, $tan\frac{A}{2} = \frac{5}{6}$, $tan\frac{C}{2} = \frac{2}{5}$ then a,b,c are in

Options :

1. ✖ Geometric progression

2. ✔ Arithmetic progression

3. ✖ Harmonic progression

4. ✖ Arithmetico – Geometric progression

Question Number : 17 Question Id : 2106887823 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In any $\Delta ABC, \tan\frac{B-C}{2} =$

Options :

1. ✖ $.b \pm c \cot\frac{A}{2}$

2. ✔ $\frac{b-c}{b+c}\cot\frac{A}{2}$

3. ✖ $(b-c)\tan\frac{A}{2}$

4. ✖ $\tan\frac{C}{2}$

Question Number : 18 Question Id : 2106887824 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Conjugate of $\frac{1-i}{1+i}$ is

Options :

1. ✖ -3i

2. ✖ -i

3. ✔ i

4. ✖ 6i

Question Number : 19 Question Id : 2106887825 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Standard form of $(-1+2i)+\left(\frac{1}{2}-i\right)$ is

Options :

1. ✖ $\frac{1}{2}-i$

2. ✔ $-\frac{1}{2}+i$

3. ✖ $-\frac{1}{2}-i$

4. ✖ $\frac{1}{2}\pm i$

Question Number : 20 Question Id : 2106887826 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the circle is $x^2+y^2+6x-8y+c=0$ has radius 6 units, Then value of c is

Options :

1. ✔ -11

2. ✖ 11

3. ✖ 25

4. ✖ 6

Question Number : 21 Question Id : 2106887827 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 whose focus is (8,0) and the vertex is (0,0)is

Options :

1. ✖ $y^2 = 12x$

2. ✖ $y^2 = x$

3. ✔ $y^2 = 32x$

4. ✖ $y^2 = 16x$

Question Number : 22 Question Id : 2106887828 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 ellipse $x^2 + 2y^2 = 3$ is

Options :

1. ✖ $e=\frac{3}{\sqrt{2}}$

2. ✖ $e=\frac{1}{\sqrt{3}}$

3. ✖ $e=-\frac{1}{\sqrt{2}}$

4. ✔ $e=\frac{1}{\sqrt{2}}$

Question Number : 23 Question Id : 2106887829 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In the Ellipse $\frac{x^2}{a^2}+\frac{y^2}{b^2}=1, a>b$ the length of the latus rectum is _____

Options :

1. ✖ $\frac{2a^2}{b}$

2. ✔ $\frac{2b^2}{a}$

3. ✖ $\frac{2a^2}{b^2}$

4. ✖ 2ab

Question Number : 24 Question Id : 2106887830 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 Hyperbola with foci $(\pm 2,0)$ and eccentricity 3/2 is

Options :

1. ✖ $\frac{9x^2}{16^2}+\frac{9y^2}{10^2}=1$

2. ✔

$$\frac{x^2}{16/9} - \frac{y^2}{20/9} = 1$$

3. ✖ $\frac{x^2}{16^2} - \frac{y^2}{20^2} = 1$

4. ✖ $\frac{x^2}{2^2} - \frac{y^2}{20^2} = 1$

Question Number : 25 Question Id : 2106887831 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the coordinates at one end of a diameter of the circle $x^2 + y^2 - 8x - 4y + c = 0$ are $(-3,\ 2)$ then the coordinates at the other end are

Options :

1. ✖ $(5,\ 11)$

2. ✖ $(6,\ 2)$

3. ✖ $(2,\ 11)$

4. ✔ $(11,\ 2)$

Question Number : 26 Question Id : 2106887832 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

If a>0, then $\lim_{x\to 0}\frac{a^x-1}{x}$ =

Options :

1. ✖ $logx$

2. ✖ 1

3. ✔ $loga$

4. ✖ $\log\left(\frac{a}{x}\right)$

Question Number : 27 Question Id : 2106887833 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Differentiation of $\sin x^n$ with respect to x.

Options :

1. ✔ $nx^{n-1}cosx^n$

2. ✖ $x^{n-1}cosx^n$

3. ✖ $cosx^n$

4. ✖

$ncosx^n$

Question Number : 28 Question Id : 2106887834 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\frac{d}{dx}(\sin^{-1}\frac{x}{a})=$

Options :

1. $\frac{1}{\sqrt{a^2-x^2}}$ ✔

2. $\frac{1}{\sqrt{a^2+x^2}}$ ✖

3. $\frac{1}{\sqrt{x^2-a^2}}$ ✖

4. $\frac{-1}{\sqrt{a^2-x^2}}$ ✖

Question Number : 29 Question Id : 2106887835 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$\frac{d}{dx}(e^{3\log x})=$

Options :

1. ✖ $3x$

2. ✖ $3\log x$

3. ✖ $\log 3$

4. ✔ $3x^2$

Question Number : 30 Question Id : 2106887836 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\frac{d}{dx}[\log|x|] =$$

Options :

1. ✖ $\frac{1}{|x|}$

2. ✔ $\frac{1}{x}$

3. ✖ $|x|$

4. ✖ x

Question Number : 31 Question Id : 2106887837 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$y = \cos x$ then $\frac{d^2y}{dx^2}$ is

Options :

1. ✖ $\cos x$

2. ✖ $\sin x$

3. ✔ $-\cos x$

4. ✖ $-\sin x$

Question Number : 32 Question Id : 2106887838 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 $x^2 + 4y = 0, xy = 2$ is

Options :

1. ✔ $\text{Tan}^{-1}3$

2. ✖ $\cot^{-1} 1$

3. ✖ $\text{Tan}^{-1}4$

4. ✖ $\cot^{-1} 3$

Question Number : 33 Question Id : 2106887839 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 $y = \frac{x-1}{x+1}$ at $(0,1)$

Options :

1. ✖ 4

2. ✖ -2

3. ✖ 5

4. ✔ 2

Question Number : 34 Question Id : 2106887840 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $z = x^2 + y^2$ then $x\frac{\partial z}{\partial y} - y\frac{\partial z}{\partial x} =$

Options :

1. ✖ 2y-2x

2. ✖ $2x+2y$

3. ✔ 0

4. ✖ $4xy$

Question Number : 35 Question Id : 2106887841 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$z = \frac{x^3+y^3}{x+y}$, is a homogeneous function of degree _____

Options :

1. ✔ 2

2. ✖ 3

3. ✖ 0

4. ✖ 1

Question Number : 36 Question Id : 2106887842 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int (x^{2/3} + 1)dx =$$

Options :

1. ✔ $\frac{3}{5}x^{\frac{5}{3}} + x + c$

2. ✖ $\frac{5}{3}x^{\frac{5}{3}} + x + c$

3. ✖ $\frac{3}{5}x^{\frac{5}{3}} + c$

4. ✖ $\frac{3}{5}x^{\frac{3}{5}} + x + c$

Question Number : 37 Question Id : 2106887843 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int \frac{dx}{x^2-16} =$$

Options :

1. ✖ $\frac{1}{16}\log\left|\frac{x-8}{x+4}\right| + c$

2. ✖ $\frac{1}{4}\log\left|\frac{x-4}{x+4}\right| + c$

3. $\frac{1}{8}\log\left|\frac{x-4}{x+4}\right| + c$ ✔

4. $\frac{1}{16}\log\left|\frac{x-4}{x+4}\right| + c$ ✖

Question Number : 38 Question Id : 2106887844 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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

Options :

1. $-\cos x + c$ ✖

2. $-\cos(\tan^{-1}x) + c$ ✔

3. $-\sin(\tan^{-1}x) + c$ ✖

4. $(\tan^{-1}x) + c$ ✖

Question Number : 39 Question Id : 2106887845 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int \cos\frac{x}{2}dx \quad =$$

Options :

1. ✖ $2\cos\frac{x}{2}+c$

2. ✔ $2\sin\frac{x}{2}+c$

3. ✖ $2\sin 2x+c$

4. ✖ $-2\sin\frac{x}{2}+c$

Question Number : 40 Question Id : 2106887846 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$$\int e^x \cos x\, dx =$$

Options :

1. ✔ $\frac{1}{2}e^x(\cos x+\sin x)+c$

2. ✖ $\frac{1}{2}e^x(\cos x-\sin x)+c$

3. ✖ $\frac{1}{2}e^x \sin x + c$

4. ✖ $\frac{1}{2}(\cos x + \sin x) + c$

Question Number : 41 Question Id : 2106887847 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 the region bounded by the curve $y = f(x), x - axis$ *and the lines* $x = a$ *and* $x = b$ $(b>a)$ is given by

Options :

1. ✖ $\int_b^a y dx$

2. ✖ $-\int_a^b y dx$

3. ✖ $\int_a^b x dy$

4. ✔ $\int_a^b y dx$

Question Number : 42 Question Id : 2106887848 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If $f(x)$ is an even function, then $\int_{-a}^{a} f(x)dx =$

Options :

1. ✖ $-\int_{-a}^{a} f(x)dx$

2. ✖ $2\int_{-a}^{a} f(x)dx$

3. ✔ $2\int_{0}^{a} f(x)dx$

4. ✖ $\int_{0}^{a} f(x)dx$

Question Number : 43 Question Id : 2106887849 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Find maxima (or) minima for the curve $y = 2x^4 - x^2$

Options :

1. ✔ 'y' is minimum at $x = \pm\frac{1}{2}$

2. ✖ 'y' is maximum for $x = -\frac{1}{4}$

3. ✖ 'y' is maximum for $x = \pm\frac{1}{2}$

4. ✖ 'y'is maximum for $x = +\frac{1}{4}$

Question Number : 44 Question Id : 2106887850 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Order of the differential equation $\left[\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^3\right]^{6/5} = 6y$ is

Options :

1. ✖ 3

2. ✔ 2

3. ✖ 5

4. ✖ 1

Question Number : 45 Question Id : 2106887851 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 $\frac{dy}{dx} = \frac{1+y^2}{1+x^2}$ is

Options :

1. ✔ $tan^{-1}y - tan^{-1}x = c$

2. ✖ $tan^{-1}y + tan^{-1}x = c$

3. ✖ $tan^{-1}y = c$

4. ✖ $tan^{-1}y/x = c$

Question Number : 46 Question Id : 2106887852 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The differential equation representing the family of curves y =mx where, m is arbitrary Constant is

Options :

1. ✖ $\frac{dy}{dx} - y = 0$

2. ✖ $\frac{dy}{dx} + y = 0$

3. ✔ $x\frac{dy}{dx} - y = 0$

4. ✖ xdx-ydy =y

Question Number : 47 Question Id : 2106887853 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Which one of the statement is true?

Options :

1. ✖ Order of differential equation is the order of the lowest order derivative occurring in the differential equation.

2. ✖ A function which satisfies the given differential equation is not its solution .

3. ✖ An equation involving derivatives of the dependent variable with respect to dependent variable is known as a differential equation.

4. ✔ Degree of a differential equation is defined if it is a polynomial equation in its Derivatives.

Question Number : 48 Question Id : 2106887854 Display Question Number : Yes Is Question

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

The Integrating factor of the differential equation $x\frac{dy}{dx} + 2y = x^2 (x \neq 0)$ is

Options :

1. ✖ x

2. ✖ $\log x$

3. ✖ $x\log x$

4. ✔ x^2

Question Number : 49 Question Id : 2106887855 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The linear form of $x\log x\frac{dy}{dx} + y = 2\log x$ is

Options :

1. ✖ $\frac{dy}{dx} - \frac{y}{x\log x} = \frac{1}{x}$

2. ✔ $\frac{dy}{dx} + \frac{y}{x\log x} = \frac{2}{x}$

3. ✖ $\frac{dy}{dx}+\frac{y}{x\log x}=\frac{1}{x}$

4. ✖ $\frac{dy}{dx}+\frac{y}{x\log x}=1$

Question Number : 50 Question Id : 2106887856 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The particular integral of $\frac{d^2y}{dx^2}-4y=e^{2x}$ is

Options :

1. ✖ $\frac{1}{4}e^{2x}$

2. ✖ $\frac{1}{4x}e^{2x}$

3. ✔ $\frac{1}{4}xe^{2x}$

4. ✖ 0

Physics

Section Id : 210688155

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 : 2106887857 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

$N\ Kg^{-1}$ is the unit of

Options :

1. ✖ Velocity

2. ✔ Acceleration

3. ✖ Force

4. ✖ Momentum

Question Number : 52 Question Id : 2106887858 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A system has basic dimensions as density 'D', velocity 'V' and area 'A'. The dimensional representation of force in this system is

Options :

1. ✔ $A\ V^2\ D$

2. ✖ $A\ V\ D^2$

3. ✖ $A^2\ V\ D$

4. ✖ $A^0\ V^2\ D$

Question Number : 53 Question Id : 2106887859 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If The magnitude of vectors **A**, **B** and **C** are 5, 4 and 3 units respectively and **A** = **B** + **C**, then the angle between vectors **A** and **C** is

Options :

1. ✖ $Cos^{-1}(4/5)$

2. ✖ Π

3. ✔ $Cos^{-1}(3/5)$

4. ✖ $Sin^{-1}(3/4)$

Question Number : 54 Question Id : 2106887860 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the sum of two unit vectors is also a unit vector, then the magnitude of their difference is

Options :

1. ✖ 1

2. ✖ $1/2$

3. ✖ $1/\sqrt{2}$

4. ✔ $\sqrt{3}$

Question Number : 55 Question Id : 2106887861 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A particle starting from rest moves in a straight line with uniform acceleration a. The average velocity of the particle in first 's' distance is

Options :

1. ✔ $\sqrt{\frac{as}{2}}$

2. ✖ $\sqrt{\frac{3as}{2}}$

3. ✖ $\sqrt{2as}$

4. ✖ as

Question Number : 56 Question Id : 2106887862 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A projectile is thrown with speed **u** making angle θ with the horizontal at t = 0. It just crosses two points of equal height at time t = 1s and t = 3s respectively. The maximum height attained by the projectile is (take $g = 10\ ms^{-2}$)

Options :

1. ✖ 10m

2. ✔ 20m

3. ✖ 15m

4. ✖ 22m

Question Number : 57 Question Id : 2106887863 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A body is falling from height 'H' takes time 'T' seconds to reach the ground. The time taken to cover the first half of height is

Options :

1. ✔

$\frac{T}{\sqrt{2}}$

2. ✖ $\sqrt{2}\,T$

3. ✖ $\sqrt{3}\,T$

4. ✖ $\frac{T}{\sqrt{3}}$

Question Number : 58 Question Id : 2106887864 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A body sliding on ice with a velocity 8 ms^{-1} comes to rest after travelling 40 m. The coefficient of friction between the body and ice is ($g = 10\ ms^{-2}$)

Options :

1. ✖ 0.02

2. ✖ 0.05

3. ✔ 0.08

4. ✖ 0.2

Question Number : 59 Question Id : 2106887865 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 placed on a rough inclined plane of gradient 1 in 4, just begins to slide, then coefficient of friction between the plane and body is

Options :

1. ✖ $\frac{2}{\sqrt{15}}$

2. ✖ $\frac{1}{\sqrt{2}}$

3. ✖ $\frac{1}{\sqrt{5}}$

4. ✔ $\frac{1}{\sqrt{15}}$

Question Number : 60 Question Id : 2106887866 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A cube of 10 N weight rests on a rough inclined plane of slope 3 in 5. If the coefficient of friction between plane and cube is 0.6, then minimum force required to start the cube moving up the plane is

Options :

1. ✖ 2N

2.

✖ 6N

3. ✔ 10.8N

4. ✖ 4.5N

Question Number : 61 Question Id : 2106887867 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A pump can take out 7200 Kg of water per hour from a 100 m deep well. If the efficiency of the pump is 50% then power of the pump is ($g = 10\ ms^{-2}$)

Options :

1. ✖ 2 KW

2. ✔ 4 KW

3. ✖ 7.2 KW

4. ✖ 3.6 KW

Question Number : 62 Question Id : 2106887868 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 $\mathbf{F} = \mathbf{i} + 2\mathbf{j} + 3\mathbf{k}$ acts on a body to move it from $\mathbf{r}_1 = \mathbf{i} + \mathbf{j} + \mathbf{k}$ to $\mathbf{r}_2 = \mathbf{i} - \mathbf{j} + 2\mathbf{k}$, then the work done by the force is

Options :

1. ✖ -3 J

2. ✔ -1 J

3. ✖ 2 J

4. ✖ 3 J

Question Number : 63 Question Id : 2106887869 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The K.E. of a body moving with a speed of 10 m/s is 30 J. If its speed becomes 30 m/s, then its K.E. will be

Options :

1. ✖ 10 J

2. ✖ 90 J

3. ✖ 180 J

4. ✔ 270 J

Question Number : 64 Question Id : 2106887870 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The maximum speed of a particle executing SHM is 1 m/s and maximum acceleration is 1.57 m/s^2. Its time period is

Options :

1. ✔ 4 sec

2. ✖ 1.57 sec

3. ✖ 2 sec

4. ✖ $\frac{1}{1.57}$

Question Number : 65 Question Id : 2106887871 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A girl is swinging on a swing in the sitting position. If the girl stands up, the time period of the string will

Options :

1. ✖ Increase

2. ✔

Decrease

3. ✖ Remains same

4. ✖ Becomes erratic

Question Number : 66 Question Id : 2106887872 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A light spring supports 200 gm weight at its lower end; it oscillates with a period of 1 sec. How much weight must be removed from the lower end to reduce the period to 0.5 sec?

Options :

1. ✖ 100 gm.

2. ✖ 50 gm.

3. ✔ 150 gm.

4. ✖ 200 gm.

Question Number : 67 Question Id : 2106887873 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The velocity of sound in any medium depends upon

Options :

1. ✖ Intensity and elasticity

2. ✖ Amplitude and density

3. ✔ elasticity and density

4. ✖ Amplitude and elasticity

Question Number : 68 Question Id : 2106887874 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The beat frequency produced by the vibrations of $x_1 = A \sin(320\pi t)$ and $x_2 = A \sin(326\pi t)$ is

Options :

1. ✖ 6

2. ✖ 4

3. ✖ 2

4. ✔ 3

Question Number : 69 Question Id : 2106887875 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The Boyle's law is stated by PV = C, C depends on

Options :

1. ✖ Nature of gas

2. ✖ Atomic weight of gas

3. ✖ Temperature of gas

4. ✔ Quantity and temperature of gas

Question Number : 70 Question Id : 2106887876 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 for 5g of oxygen(O_2) at pressure P and temperature T, when occupying a volume V, will be (R is universal gas constant)

Options :

1. ✖ $PV = 5RT$

2. ✖ $PV = \frac{5}{2} RT$

3. ✖

$PV = \frac{5}{16} RT$

4. ✔ $PV = \frac{5}{32} RT$

Question Number : 71 Question Id : 2106887877 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 gas at constant pressure of 10^3 N/m^2 expands by 0.25m^3. The work done in this process is

Options :

1. ✖ 25J

2. ✖ 50J

3. ✔ 250J

4. ✖ 5J

Question Number : 72 Question Id : 2106887878 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For an adiabatic expansion of a perfect gas the value of $\frac{\Delta P}{P}$ is equal to

Options :

1. ✖

$\frac{\Delta V}{V}$

2. ✖ $\gamma \frac{\Delta V}{V}$

3. ✔ $-\gamma \frac{\Delta V}{V}$

4. ✖ $\gamma - \frac{\Delta V}{V}$

Question Number : 73 Question Id : 2106887879 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

First law of Thermodynamics is a special case of

Options :

1. ✖ Boyle's law

2. ✖ Charles law

3. ✖ Law of conservation of mass

4. ✔ Law of conservation of energy

Question Number : 74 Question Id : 2106887880 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the critical angle for total internal reflection from a medium to vacuum is 30°, the velocity of light in the medium is

Options :

1. ✖ 3×10^8 m/s

2. ✔ 1.5×10^8 m/s

3. ✖ $\sqrt{3} \times 10^8$ m/s

4. ✖ 2×10^8 m/s

Question Number : 75 Question Id : 2106887881 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Light rays of wave length 4.36×10^{-7} m incident on a metal surface of work function 1.24 eV. The stopping potential required to stop the emission of photoelectrons is

Options :

1. ✔ 1.6 eV

2. ✖ 1.24 eV

3. ✖ 3.2 eV

4. ✖ 4.8 eV

Chemistry

Section Id :	210688156
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 : 2106887882 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

According to Bohr`s theory of hydrogen atom, the angular momentum of electron in fourth orbit of H-atom is equal to

Options :

1. ✖ $\frac{h}{2\pi}$

2. ✔ $\frac{2h}{\pi}$

3. ✖ $\frac{3h}{2\pi}$

4. ✖ $\frac{4h}{\pi}$

Question Number : 77 Question Id : 2106887883 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The quantum number which describes the shape of an atomic orbital is

Options :

1. ✔ Azimuthal Quantum Number

2. ✖ Principal Quantum Number

3. ✖ Spin Quantum Number

4. ✖ Magnetic Quantum Number

Question Number : 78 Question Id : 2106887884 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the element in which the ratio of s-electrons to p-electrons is 3:5

Options :

1. ✖ P

2. ✖ Al

3. ✔ S

4. ✖ K

Question Number : 79 Question Id : 2106887885 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The pair of molecules in which the central atom has octet of electrons is

Options :

1. ✖ $BeCl_2$, BF_3

2. ✖ H_2O, $BeCl_2$

3. ✔ H_2O, NH_3

4. ✖ NH_3, BF_3

Question Number : 80 Question Id : 2106887886 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The electronic configuration of an element M is $[Ne]3S^1$ and that of element X is $[He]2S^22P^5$. The type of bond present between M and X is

Options :

1. ✖ Covalent Bond

2. ✔ Electrovalent Bond

3. ✖ Co-ordinate Covalent Bond

4. ✖ Hydrogen Bond

Question Number : 81 Question Id : 2106887887 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The absolute weight of one molecule of water (in g) is (N_A=6x10^{23} mol^{-1})

Options :

1. ✖ 1.5×10^{-23}

2. ✔ 3.0×10^{-23}

3. ✖ 4.5×10^{-23}

4. ✖ 2.0×10^{-23}

Question Number : 82 Question Id : 2106887888 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 sodium sulphate (molar mass 142 g mol^{-1}) required to prepare 500 ml of 0.03 M solution is

Options :

1. ✔ 2.13 g

2. ✖ 4.26 g

3. ✖ 1.065 g

4. ✖ 3.195 g

Question Number : 83 Question Id : 2106887889 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The number of H^+ ions present in 100 ml of 0.05 M H_2SO_4 solution is (N_A=6x10^{23} mol^{-1})

Options :

1. ✖ 6.0×10^{24}

2. ✖ 6.0×10^{22}

3. ✔ 6.0×10^{21}

4. ✖ 3.0×10^{23}

Question Number : 84 Question Id : 2106887890 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The conjugate acid and conjugate base of HCO_3^- are respectively

Options :

1. ✖

CO_3^{2-}, HCO_3^-

2. ✖ CO_3^{2-}, H_2CO_3

3. ✔ H_2CO_3, CO_3^{2-}

4. ✖ HCO_3^-, H_2CO_3

Question Number : 85 Question Id : 2106887891 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The pH of 0.005 M H_2SO_4 solution will be;

Options :

1. ✖ 5

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 86 Question Id : 2106887892 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In an electrochemical cell, the electrons flow from

Options :

1. ✖ Cathode to Anode

2. ✔ Anode to Cathode

3. ✖ Anode to Solution

4. ✖ Solution to Cathode

Question Number : 87 Question Id : 2106887893 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

How many faradays are required to reduce 1 mole of MnO_4^- ions to Mn^{2+} ions?

Options :

1. ✔ 5

2. ✖

2

3. ✖ 4

4. ✖ 3

Question Number : 88 Question Id : 2106887894 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

At 298 K, the emf of the cell, $M|M^{2+}(1M) \,||\, Cu^{2+}(1M)\,|\,Cu$ is 'x' V. If $E^0_{Cu^{2+}|Cu} = +0.34V$, then $E^0_{M^{2+}|M,}$ (in V) is

Options :

1. ✖ $(x - 0.34)$

2. ✔ $(0.34 - x)$

3. ✖ $(0.34 + x)$

4. ✖ $\frac{0.34}{x}$

Question Number : 89 Question Id : 2106887895 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Identify the strongest reducing agent from the following:

Options :

1. ✔ $E^0_{K^+|K}$ = -2.93 v

2. ✖ $E^0_{Al^{3+}|Al}$ = -1.66 v

3. ✖ $E^0_{Zn^{2+}|Zn}$ = - 0.76 v

4. ✖ $E^0_{Ag^+|Ag}$ = +0.34 v

Question Number : 90 Question Id : 2106887896 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The formula of Zeolite can be represented as Na_2Z. The metal atom present in Z is

Options :

1. ✖ Zn

2. ✖ Ca

Mg

3. ✖

Al

4. ✔

Question Number : 91 Question Id : 2106887897 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 salts causes maximum hardness to water sample, when they are in equal amounts?

Options :

$MgSO_4$ (Molecular Weight = 120u)

1. ✖

$MgCl_2$ (Molecular Weight = 95u)

2. ✔

$CaCl_2$ (Molecular Weight = 111u)

3. ✖

$Ca(HCO_3)_2$ (Molecular Weight = 162u)

4. ✖

Question Number : 92 Question Id : 2106887898 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Permanent hardness of water cannot be removed by

Options :

1. ✔ Boiling the hard water

2. ✖ Treatment with washing soda

3. ✖ Passing through Zeolite

4. ✖ Passing through ion exchange resins

Question Number : 93 Question Id : 2106887899 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 statements is not correct about stress cells?

Options :

1. ✖ They are formed between different parts of the same metal

2. ✔ Stressed part of the metal acts as cathode

3. ✖ Stressed part of the metal acts as anode

4. ✖ Anodic part undergoes corrosion

Question Number : 94 Question Id : 2106887900 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Tarnishing of silver is due to the formation of

Options :

1. ✖ $AgCl$

2. ✖ Ag_2CO_3

3. ✖ Ag_2O

4. ✔ Ag_2S

Question Number : 95 Question Id : 2106887901 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 natural polymer?

Options :

1. ✖ Wool

2. ✖ Cellulose

3. ✖ Strach

4. ✔ Rayon

Question Number : 96 Question Id : 2106887902 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Neoprene is an example of

Options :

1. ✔ Elastomer

2. ✖ Thermoplastic Polymer

3. ✖ Thermosetting Polymer

4. ✖ Co-Polymer

Question Number : 97 Question Id : 2106887903 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction

Time : 0

The element that is added to raw rubber vulcanization is

Options :

1. ✔ S

2. ✖ Se

3. ✖ C

4. ✖ B

Question Number : 98 Question Id : 2106887904 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 water gas are

Options :

1. ✔ H_2, CO

2. ✖ H_2, CO_2

3. ✖ CO, N_2

CO_2, N_2

4. ✖

Question Number : 99 Question Id : 2106887905 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 greenhouse gas?

Options :

1. ✖ O_3

2. ✖ CO_2

3. ✖ CH_4

4. ✔ N_2

Question Number : 100 Question Id : 2106887906 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The acid that is believed to be mainly responsible for the damage of Taj mahal is

Options :

1. ✔ H_2SO_4

2. ✖ HF

3. ✖ H_3PO_4

4. ✖ HCl

Chemical Engineering

Section Id :	210688157
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 : 2106887907 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pencil lead is made with a mixture of clay and

Options :

1. ✖ Lead

2. ✖ Charcoal

3. ✔ Graphite

4. ✖ Lead sulphide

Question Number : 102 Question Id : 2106887908 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Carbon composition in cast iron is

Options :

1. ✖ Zero

2. ✖ Less than 0.5 percent

3. ✖ Less than 2 percent

4. ✔ Greater than 2 percent

Question Number : 103 Question Id : 2106887909 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Brittle material is

Options :

1. ✖ Copper wire

2. ✖ Nickel sheet

3. ✖ Aluminium rod

4. ✔ Glass mirror

Question Number : 104 Question Id : 2106887910 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Corrosion of iron occurs due to its reactivity with

Options :

1. ✖ Nitrogen

2. ✖ Argon

3. ✖ Hydrogen

4. ✔ Oxygen

Question Number : 105 Question Id : 2106887911 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Prevention of corrosion of a material is not possible by

Options :

1. ✖ Electroplating

2. ✖ Painting

3. ✖ Galvanization

4. ✔ Scraping of surface

Question Number : 106 Question Id : 2106887912 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The nature of material to deform permanently without breaking is called

Options :

1. ✖ Annealing

2. ✖ Hardening

3. ✔ Plasticity

4. ✖ Viscosity

Question Number : 107 Question Id : 2106887913 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Molecular weight of sulphuric acid is 98. What is its equivalent weight?

Options :

1. ✖ 196

2. ✖ 147

3. ✖ 98

4. ✔ 49

Question Number : 108 Question Id : 2106887914 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If fifteen grams of sodium chloride (molecular weight = 60) is dissolved in water to prepare 500 ml of solution, then the normality of the solution is

Options :

1. ✖ 0.25

2. ✔ 0.5

3. ✖ 1.0

4. ✖ 2.0

Question Number : 109 Question Id : 2106887915 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pressure is in pascals. Volume is in cubic meters. Temperature is in kelvins. What is the value of R in corresponding units?

Options :

1. ✔ 8.314 J/(mol.K)

2. ✖ 83.14 m^3.atm/(kmol.K)

3. ✖ 8.314 kcal/(kmol.K)

4. ✖ 0.0832 Pa.m^3/(kmol.K)

Question Number : 110 Question Id : 2106887916 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a mixing process, two salt solutions having the following compositions are mixed:

20 kg of 25 percent solution

10 kg of 10 percent solution

Calculate the concentration of the final salt solution.

Options :

1. ✖ 50 percent

2. ✔ 20 percent

3. ✖ 35 percent

4. ✖ 17.5 percent

Question Number : 111 Question Id : 2106887917 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A single effect evaporator is fed with 4000 kg of dilute liquor containing 20 percent by weight of potassium chloride. This liquor is concentrated to get thick liquor containing 50 percent by weight of potassium chloride. Calculate the amount of water evaporated.

Options :

1. ✖ 3200 kg

2. ✖ 1600 kg

3. ✔ 2400 kg

4. ✖ 800 kg

Question Number : 112 Question Id : 2106887918 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 gaseous fuel?

Options :

1. ✖ Natural gas

2. ✖ Water gas

3. ✖ Coal gas

4. ✔ Gasoline

Question Number : 113 Question Id : 2106887919 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In proximate analysis of a fuel, _____ is determined.

Options :

1. ✖ Nitrogen

2. ✖ Hydrogen

3. ✖ Sulphur

4. ✔ Moisture

Question Number : 114 Question Id : 2106887920 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Hess law is related to _____

Options :

1. ✔ Heat of reaction

2. ✖ Heat of fusion

3. ✖ Heat of transition

4. ✖ Heat of vaporization

Question Number : 115 Question Id : 2106887921 Display Question Number : Yes Is Question

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

The total amount of heat generated when a unit mass of substance is completely burnt in the presence of oxygen is known as _____

Options :

1. ✖ Heat of solution

2. ✖ Heat of mixing

3. ✖ Heat of crystallization

4. ✔ Calorific value

Question Number : 116 Question Id : 2106887922 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Multiple effect evaporators are employed in the production of

Options :

1. ✖ Edible oils

2. ✔ Sugar

3. ✖

Ethanol

4. ✖ Manganese

Question Number : 117 Question Id : 2106887923 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Catalyst used in the hydrogenation of oils is

Options :

1. ✖ Tantalum

2. ✔ Nickel

3. ✖ Sulphur

4. ✖ Titanium

Question Number : 118 Question Id : 2106887924 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is a paraffin.

Options :

1.

✖ Ethylene

2. ✖ Benzene

3. ✔ Butane

4. ✖ Naphthalene

Question Number : 119 Question Id : 2106887925 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is a characteristic of fuel of a petrol engine.

Options :

1. ✖ Moisture content

2. ✔ Octane number

3. ✖ Cetane number

4. ✖ Smoke point

Question Number : 120 Question Id : 2106887926 Display Question Number : Yes Is Question

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

Removal of sulphur and its compounds from petroleum products is called as

Options :

1. ✖ Isomerization

2. ✔ Sweetening process

3. ✖ Catalytic cracking

4. ✖ Steam reforming

Question Number : 121 Question Id : 2106887927 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The principal constituent of natural gas is

Options :

1. ✔ Methane

2. ✖ Ethane

3. ✖ Propane

4. ✖ Butane

Question Number : 122 Question Id : 2106887928 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Higher acid number means

Options :

1. ✔ Corrosion problems

2. ✖ Less knocking

3. ✖ Higher aromatic content

4. ✖ Lower boiling point

Question Number : 123 Question Id : 2106887929 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Polyvinyl Chloride is produced by

Options :

1. ✖ Condensation polymerization

2. ✖ Copolymerization

3. ✔ Addition polymerization

4. ✖ Reacting polypropylene with glycerol

Question Number : 124 Question Id : 2106887930 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Process not connected to sulphur or sulphuric acid manufacture is

Options :

1. ✖ Contact process

2. ✔ Solvay process

3. ✖ Frasch process

4. ✖ Chamber process

Question Number : 125 Question Id : 2106887931 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Raw material used in the manufacture of caustics soda by electrolytic process is

Options :

1. ✔ Brine

2. ✖ Caustic potash

3. ✖ Calcium carbide

4. ✖ Soda ash

Question Number : 126 Question Id : 2106887932 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Main raw materials for urea production are

Options :

1. ✔ Ammonia and carbon dioxide

2. ✖ Ammonia and calcium carbide

3. ✖ Nitric acid and carbon monooxide

4. ✖

Hydrochloric acid and phosphoric acid

Question Number : 127 Question Id : 2106887933 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Haber process is used for manufacture of

Options :

1. ✔ Ammonia

2. ✖ Styrene

3. ✖ Butylenes

4. ✖ Nitrogen

Question Number : 128 Question Id : 2106887934 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Glauber's salt is

Options :

1. ✖ $(COOH)_2.2H_2O$

2. ✖ $CuSO_4.7H_2O$

3. ✔ $Na_2SO_4.10H_2O$

4. ✖ $MgSO_4$

Question Number : 129 Question Id : 2106887935 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Oleum contains

Options :

1. ✖ HCl and H_2SO_4

2. ✔ SO_3 and H_2SO_4

3. ✖ HNO_3 and H_2SO_4

4. ✖ SO_2, SO_3 and H_2SO_4

Question Number : 130 Question Id : 2106887936 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For removing suspended solids from water the coagulant used is

Options :

1. ✔ Alum

2. ✖ Caprolactum

3. ✖ Sulphur

4. ✖ Cresol

Question Number : 131 Question Id : 2106887937 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Chlorination of water is useful for eliminating

Options :

1. ✖ BOD

2. ✖ COD

3. ✖ Dissolved oxygen

4. ✔ Disease causing microorganisms

Question Number : 132 Question Id : 2106887938 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Toothpaste is an example for

Options :

1. ✖ Newtonian fluid

2. ✖ pseudoplastic fluid

3. ✔ Bingham fluid

4. ✖ dilatants fluid

Question Number : 133 Question Id : 2106887939 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Equipment useful for separating kerosene and water is

Options :

1. ✖ Extractor

2. ✖ Distillation column

3. ✖ Crystallizer

4. ✔ Decanter

Question Number : 134 Question Id : 2106887940 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For flow of a fluid through a circular cross section, the value of kinetic energy correction factor for laminar flow is

Options :

1. ✖ Zero

2. ✖ 1

3. ✔ 2

4. ✖ 1.07

Question Number : 135 Question Id : 2106887941 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 of a laminar flow is (where N_{Re} is Reynolds Number)

Options :

1. ✔ $16/N_{Re}$

2. ✖ $64/N_{Re}$

3. ✖ $N_{Re}/16$

4. ✖ $N_{Re}/64$

Question Number : 136 Question Id : 2106887942 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Burke-Plummer equation is applicable for

Options :

1. ✖ Centrifuges

2. ✖ Cyclones

3. ✖ Dryers

4. ✔ Packed beds

Question Number : 137 Question Id : 2106887943 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a well designed venturimeter, the coefficient of discharge would be

Options :

1. ✖ 0.6

2. ✖ 0.7

3. ✖ 0.95

4. ✔ 0.98

Question Number : 138 Question Id : 2106887944 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The removal of air from the suction line and pump casing is known as

Options :

1. ✖ Cavitation

2. ✖ Air binding

3. ✔ Priming

4. ✖ Centrifuging

Question Number : 139 Question Id : 2106887945 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Valves used in a piston pump are

Options :

1. ✖ Globe valves

2. ✖ Gate valves

3. ✔ Check valves

4. ✖ Control valves

Question Number : 140 Question Id : 2106887946 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pumps used for handling corrosive fluids are

Options :

1. ✖ Centrifugal

2. ✖ Screw

3. ✔ Diaphragm

4. ✖ Plunger

Question Number : 141 Question Id : 2106887947 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Logarithmic mean radius is applicable for

Options :

1. ✔ Hollow cylinders

2. ✖ Hollow spheres

3. ✖ Parallel plates

4. ✖ Tapered plates

Question Number : 142 Question Id : 2106887948 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, which material has low value of thermal conductivity?

Options :

1. ✖ Silver

2. ✖ Gold

3. ✖ Aluminium

4. ✔ Asbestos

Question Number : 143 Question Id : 2106887949 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rate of transfer process can be expressed as

Options :

1. ✖ (driving force)x(resistance)

2. ✔ (driving force)/(resistance)

3. ✖ (resistance)/(driving force)

4. ✖ (driving force)x(resistance)^2

Question Number : 144 Question Id : 2106887950 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The inner surface of a hollow cylinder is maintained at a higher temperature than the outer surface.

Which of the following is correct?

Options :

1. ✔ Temperature gradient dT/dr is negative.

2. ✖ Temperature gradient dT/dr is positive.

3. ✖ Heat flux obtained by Fourier's law is negative

4. ✖ Heat flow occurs from outer surface to the inner surface

Question Number : 145 Question Id : 2106887951 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Wilson plot is used to determine

Options :

1. ✖ Enthalpy of steam

2. ✖ Latent heat of vaporization

3. ✔ Film heat transfer coefficient

Heat of fusion

4. ✖

Question Number : 146 Question Id : 2106887952 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Select the false statement.

Options :

Heat transfer coefficients are very high in dropwise condensation

1. ✖

Oily surfaces give dropwise condensation

2. ✖

The condensate does not wet the surface in dropwise condensation

3. ✖

The dropwise condensation is stable and easy to maintain.

4. ✔

Question Number : 147 Question Id : 2106887953 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 boiling occurring in a pool of liquid, if the bulk liquid temperature is less than the saturation temperature is called as

Options :

1. ✖

Saturated pool boiling

2. ✖ Super saturated pool boiling

3. ✖ Critical boiling

4. ✔ Subcooled boiling

Question Number : 148 Question Id : 2106887954 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a specular body, the reflectivity is equal to

Options :

1. ✖ Zero

2. ✔ One

3. ✖ 0.5

4. ✖ Infinity

Question Number : 149 Question Id : 2106887955 Display Question Number : Yes Is Question

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

Scraped surface heat exchangers are primarily

Options :

1. ✔ Double pipe heat exchangers

2. ✖ Shell and tube heat exchangers

3. ✖ Plate type heat exchangers

4. ✖ Pin-fin type heat exchangers

Question Number : 150 Question Id : 2106887956 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The difference between the boiling point of an aqueous solution and that of pure water at any given pressure is known as

Options :

1. ✖ Depletion

2. ✔ Boiling point elevation

3. ✖ Latent heat of vaporization

4. ✖ Dew point

Question Number : 151 Question Id : 2106887957 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Screen size considered in defining work index is

Options :

1. ✖ 200 microns

2. ✔ 100 microns

3. ✖ 185 microns

4. ✖ 80 microns

Question Number : 152 Question Id : 2106887958 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Angle of nip is relevant to

Options :

1. ✖ Jaw crusher

2. ✔ Roll crusher

3. ✖ Ball mill

4. ✖ Hammer mill

Question Number : 153 Question Id : 2106887959 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An example for a revolving screen is

Options :

1. ✖ Grizzly

2. ✔ Trommel

3. ✖ Gyratory screen

4. ✖ Vibrating screen

Question Number : 154 Question Id : 2106887960 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The separation based on the surface properties of the materials is

Options :

1. ✖ Jigging

2. ✖ Classification

3. ✖ Sedimentation

4. ✔ Froth flotation

Question Number : 155 Question Id : 2106887961 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Units of filter medium resistance in SI system are

Options :

1. ✖ $N.m^{-1}$

2. ✖ N

3. ✔ m^{-1}

4. ✖ $s.m^{-1}$

Question Number : 156 Question Id : 2106887962 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If D is the diameter of the impeller, then the power number is proportional to

Options :

1. ✖ $1/D$

2. ✖ $1/D^3$

3. ✔ $1/D^5$

4. ✖ D^2

Question Number : 157 Question Id : 2106887963 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The separation of solids from a suspension in a liquid by gravity settling is called

Options :

1. ✖ Filtration

2. ✔ Sedimentation

Fluidization

3. ✖

Thinning

4. ✖

Question Number : 158 Question Id : 2106887964 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Separation of solid particles into fractions according to their terminal velocities is called as

Options :

Blending

1. ✖

Classification

2. ✔

Coagulation

3. ✖

Screening

4. ✖

Question Number : 159 Question Id : 2106887965 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 path function?

Options :

1.

Temperature

2. Internal Energy

3. Entropy

4. ✔ Work

Question Number : 160 Question Id : 2106887966 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Mathematical statement of second law of thermodynamics is given by

Options :

1. $\Delta H \geq 0$

2. ✔ $\Delta S^{t}_{total} \geq 0$

3. $\Delta S < 0$

4. $\Delta H < 0$

Question Number : 161 Question Id : 2106887967 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The thermodynamic property that is maintained constant during a reversible adiabatic process is

Options :

1. ✖ Enthalpy

2. ✔ Entropy

3. ✖ Temperature

4. ✖ Pressure

Question Number : 162 Question Id : 2106887968 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Obtaining argon from air is possible by

Options :

1. ✖ Refrigeration

2. ✖ Condensation

3. ✔ Liquefaction

4. ✖ Extraction

Question Number : 163 Question Id : 2106887969 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The efficiency of Carnot cycle depends on _____ of reservoirs.

Options :

1. ✔ Temperature

2. ✖ Pressure

3. ✖ Volume

4. ✖ Entropy

Question Number : 164 Question Id : 2106887970 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If P is pressure, then integration of (dP) over a cycle gives

Options :

1. ✔ Zero

2. ✖ Finite value

3. ✖ Infinite value

4. ✖ One

Question Number : 165 Question Id : 2106887971 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Refrigerators operate on _____ cycle.

Options :

1. ✖ Carnot

2. ✔ Vapour compression

3. ✖ Otto

4. ✖ Diesel

Question Number : 166 Question Id : 2106887972 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An example for a homogeneous reaction is

Options :

1. ✖ $CaCO_3 \rightarrow CaO + CO_2$

2. ✔ $NO + ½\ O_2 \rightarrow NO_2$

3. ✖ $SO_2 + ½\ O_2 \rightarrow SO_3$ using V_2O_5 as catalyst

4. ✖ $Na_2O + H_2O \rightarrow NaOH$

Question Number : 167 Question Id : 2106887973 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For a reaction of first order, the rate constant has the units of

Options :

1. ✖ $(liter).(mol)^{-1}.(sec)^{-1}$

2. ✖ $(liter).(mol).(sec)^{-1}$

3. ✖ $(mol).(sec)^{-1}$

4. ✔ $(sec)^{-1}$

Question Number : 168 Question Id : 2106887974 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For an exothermic reaction, which of the following statements is correct?

Options :

1. ✔ Average energy of reactants is greater than average energy of products

2. ✖ Average energy of reactants is less than average energy of products

3. ✖ The enthalpy change of reaction is positive and small value

4. ✖ The enthalpy change of reaction is positive and very large

Question Number : 169 Question Id : 2106887975 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Surface renewal theory was proposed by

Options :

1. ✖ Whitman

2. ✖ Higbie

3. ✔ Danckwert

4. ✖ Holland

Question Number : 170 Question Id : 2106887976 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the relative volatility of a binary mixture is equal to one, then the separation into individual components is not at all possible by

Options :

1. ✖ Extraction

2. ✖ Absorption

3. ✔ Distillation

4. ✖ Membrane separation

Question Number : 171 Question Id : 2106887977 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Rayleigh equation is applicable for

Options :

1. ✔ Simple distillation

2. ✖ Flash vaporization

3. ✖ Fractional distillation

4. ✖ Continuous rectification

Question Number : 172 Question Id : 2106887978 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

If the feed to a plate type distillation column is at its dew point, then q =

Options :

1. ✖ 1

2. ✔ 0

3. ✖

infinity

4. ✖ -1

Question Number : 173 Question Id : 2106887979 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Reverse of absorption process is called as

Options :

1. ✖ Scouring

2. ✔ Stripping

3. ✖ Distillation

4. ✖ Flocculation

Question Number : 174 Question Id : 2106887980 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In liquid-liquid extraction operation, the residual liquid solution from which solute is removed is called as

Options :

1. ✖ Extract

2. ✖ Feed

3. ✔ Raffinate

4. ✖ Solvent

Question Number : 175 Question Id : 2106887981 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In which crystallizer, super saturation is obtained by adiabatic evaporation and cooling?

Options :

1. ✖ Swenson-Walker crystallizer

2. ✖ Krystal crystallizer

3. ✖ Draft-tube crystallizer

4. ✔ Vacuum crystallizer

Question Number : 176 Question Id : 2106887982 Display Question Number : Yes Is Question

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

If one kg of moisture is associated with one kg of dry solids, then moisture content on wet basis is

Options :

1. ✖ 2

2. ✖ 1

3. ✔ 0.5

4. ✖ 1.5

Question Number : 177 Question Id : 2106887983 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 present on rate of drying curve?

Options :

1. ✖ Constant rate period

2. ✖ Falling rate period

3. ✖ Warming up period

4. ✔ Leidenfrost point

Question Number : 178 Question Id : 2106887984 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A dynamic characteristic of an instrument is

Options :

1. ✖ Sensitivity

2. ✖ Drift

3. ✔ Fidelity

4. ✖ Dead zone

Question Number : 179 Question Id : 2106887985 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The temperature of a molten metal is decreasing by 2 degrees for every minute. This is example for

Options :

1. ✖ Step function

2. ✖ Sinusoidal function

3. ✖ Impulse function

4. ✔ Ramp function

Question Number : 180 Question Id : 2106887986 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An instrument used for measurement of pressure is

Options :

1. ✖ Hygrometer

2. ✔ Pirani gauge

3. ✖ Hydrometer

4. ✖ Strip chart recorder

Question Number : 181 Question Id : 2106887987 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A wall clock is a time measuring instrument. The function fulfilled by this instrument is

Options :

1. ✖ Registering

2. ✖ Recording

3. ✔ Indicating

4. ✖ Transmitting

Question Number : 182 Question Id : 2106887988 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Ball float is used in measuring

Options :

1. ✖ Temperature

2. ✖ Composition

3. ✖ Humidify

4. ✔ Liquid level

Question Number : 183 Question Id : 2106887989 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

The mode of control employed in a domestic refrigerator is

Options :

1. ✖ Proportion

2. ✖ Cascade

3. ✖ Proportional integral

4. ✔ On-off

Question Number : 184 Question Id : 2106887990 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Inorganic impurities in water can be best identified by

Options :

1. ✖ Optical pyrometer

2. ✔ Emission spectrometer

Thermal conductivity cell

3. ✖

Single coil steam siphon

4. ✖

Question Number : 185 Question Id : 2106887991 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Pertaining to pressure spring thermometers, which of the following errors is difficult for compensating?

Options :

Ambient temperature effect

1. ✖

Barometric effect

2. ✔

Head effect

3. ✖

Immersion effect

4. ✖

Question Number : 186 Question Id : 2106887992 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Air pollution is not caused by

Options :

1. ✖ Sulphur dioxide

2. ✖ Carbon dioxide

3. ✖ Smoke

4. ✔ Nitrogen

Question Number : 187 Question Id : 2106887993 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

One ozone molecule contains how many oxygen atoms?

Options :

1. ✖ One

2. ✖ Two

3. ✔ Three

4. ✖ Four

Question Number : 188 Question Id : 2106887994 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Noise is usually measured in

Options :

1. ✖ ppm

2. ✖ nanometers

3. ✔ decibles

4. ✖ Hertz

Question Number : 189 Question Id : 2106887995 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

For aquatic life _____ is essential.

Options :

1. ✖ Dissolved nitrogen

2. ✖ Dissolved hydrogen

3. ✔ Dissolved oxygen

4. ✖ Dissolved chlorine

Question Number : 190 Question Id : 2106887996 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

_____ is biodegradable waste.

Options :

1. ✖ Plastic material

2. ✖ Broken glass

3. ✖ Iron pieces

4. ✔ Animal corpse

Question Number : 191 Question Id : 2106887997 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Removal of floating debris in water treatment is carried out by

Options :

1. ✖ Coagulation

2. ✔ filtration

3. ✖ Sedimentation

4. ✖ Flocculation

Question Number : 192 Question Id : 2106887998 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In waste management, 3R's are

Options :

1. ✔ Reduce, Reuse, Recycle

2. ✖ Read, Reduce, Redeem

3. ✖ Read, Register, Recall

4. ✖ Restrict, Respond, Retain

Question Number : 193 Question Id : 2106887999 Display Question Number : Yes Is Question

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

Respiratory problems are caused by

Options :

1. ✔ Smog

2. ✖ Mobile phones

3. ✖ Carbohydrates

4. ✖ Oxygen

Question Number : 194 Question Id : 2106888000 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

An example for renewable source of energy is

Options :

1. ✖ Petroleum

2. ✖ Coal

3. ✖ Uranium

4. ✔ Wind

Question Number : 195 Question Id : 2106888001 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Alcohols useful as biofuels are

Options :

1. ✔ Methanol and ethanol

2. ✖ Ethanol and propanol

3. ✖ Methanol and butanol

4. ✖ Ethanol and butanol

Question Number : 196 Question Id : 2106888002 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Nuclear power plant is located at

Options :

1. ✖

Hasan

2. ✔ Kalpakkam

3. ✖ Nellore

4. ✖ Manuguru

Question Number : 197 Question Id : 2106888003 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Maximum carbon content is present in which type of coal?

Options :

1. ✖ Lignite

2. ✖ Peat

3. ✔ Anthracite

4. ✖ Bitumen

Question Number : 198 Question Id : 2106888004 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

In a hydroelectric power plant, the electric power is obtained from

Options :

1. ✖ Nuclear energy

2. ✖ Chemical energy

3. ✔ Potential energy

4. ✖ Water enthalpy

Question Number : 199 Question Id : 2106888005 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

A unit of energy is

Options :

1. ✖ Radian

2. ✖ Ampere

3. ✔ Kilowatt hour

4. ✖ Watt

Question Number : 200 Question Id : 2106888006 Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Essential component of a wind energy system is

Options :

1. ✖ Solar panel

2. ✔ Rotor

3. ✖ Heat engine

4. ✖ Piston cylinder assembly