Telangana State Council Higher Education

Notations :

1.Options shown in green color and with ✔ icon are correct.

2.Options shown in red color and with ✖ icon are incorrect.

Question Paper Name :	Chemical Engineering 1st Aug 2022 Shift2
Subject Name :	Chemical Engineering
Creation Date :	2022-08-01 18:29:51
Duration :	180
Total Marks :	200
Display Marks:	No
Calculator :	None
Magnifying Glass Required? :	No
Ruler Required? :	No
Eraser Required? :	No
Scratch Pad Required? :	No
Rough Sketch/Notepad Required? :	No
Protractor Required? :	No
Show Watermark on Console? :	Yes
Highlighter :	No
Auto Save on Console?	Yes
Change Font Color :	No
Change Background Color :	No
Change Theme :	No
Help Button :	No
Show Reports :	No
Show Progress Bar :	No

Chemical Engineering

Group Number :	1
Group Id :	81959968
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics

Section Id :	819599262
Section Number :	1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	819599304
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 81959913436 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ I

2. ✔ A

3. ✖ A^{-1}

4. ✖ A^3

Question Number : 2 Question Id : 81959913437 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $adjA = \begin{bmatrix} 1 & -1 & 0 \\ 2 & 3 & 1 \\ 2 & 1 & -1 \end{bmatrix}$ then $adj\ 2A =$

Options :

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

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

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

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

Question Number : 3 Question Id : 81959913438 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a, b and c are distinct and $\begin{vmatrix} a & a^2 & a^3-1 \\ b & b^2 & b^3-1 \\ c & c^2 & c^3-1 \end{vmatrix} = 0$ then

Options :

1. ✖ $a+b+c=1$

2. ✖ $a+b+c=0$

3. ✖ $ab+bc+ca=0$

4. ✔ $abc=1$

Question Number : 4 Question Id : 81959913439 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The System of linear equations $x+y+z=2,\ 2x+y-z=3$ and $3x+2y+kz=4$ has a unique solution if

Options :

1. ✔ $k \neq 0$

2. ✖ $-1 < k < 1$

3. ✖ $-2 < k < 2$

4. ✖ $k = 0$

Question Number : 5 Question Id : 81959913440 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ -1

2. ✖ -4

3. ✖ -3

4. ✔ -2

Question Number : 6 Question Id : 81959913441 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 3

2. ✔ 4

3. ✖ 5

4. ✖ 6

Question Number : 7 Question Id : 81959913442 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Period of $cos(x + 2x + 3x + \cdots + nx)$

Options :

1. ✖ $2\pi(n+1)$

2. ✔ $\frac{4\pi}{n(n+1)}$

3. ✖ $\frac{2\pi}{n(n+1)}$

4. ✖ 2π

Question Number : 8 Question Id : 81959913443 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $3sin\alpha = 5sin\beta$ then $\frac{tan\left(\frac{\alpha+\beta}{2}\right)}{tan\left(\frac{\alpha-\beta}{2}\right)} =$

Options :

1. ✖ 1

2. ✖ 2

3. ✖ 3

4. ✔ 4

Question Number : 9 Question Id : 81959913444 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $x = sin(2tan^{-1}2)$ and $y = sin\left(\frac{1}{2}tan^{-1}\left(\frac{4}{3}\right)\right)$ then

Options :

1. ✔ $x > y \text{ and } y^2 = 1 - x$

2. ✖ $x < y$

3. ✖ $x > y \text{ and } y^2 = x$

4. ✖ $y^2 = 1 + x$

Question Number : 10 Question Id : 81959913445 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

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

2. ✖ $\frac{n\pi}{7}, n \in Z$

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

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

Question Number : 11 Question Id : 81959913446 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 30^0

2. ✖ 45^0

3. ✔ 60^0

4. ✖ 135^0

Question Number : 12 Question Id : 81959913447 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a $\left(\sqrt{3}+i\right)^{100} = 2^{99}(a+ib)$, then $a^2+b^2 =$

Options :

1. ✔ 4

2. ✖ 1

3. ✖ 3

4. ✖ 2

Question Number : 13 Question Id : 81959913448 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of "x" so that the line through (3,x) and (2,7) is parallel to the line through (-1,4) and (0,6) is

Options :

1. ✖ 3

2. ✖ 6

3. ✔ 9

4. ✖ 8

Question Number : 14 Question Id : 81959913449 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Equation of the circle with centre $\left(\frac{a}{2},\frac{b}{2}\right)$ and radius $\sqrt{\frac{a^2+b^2}{4}}$ is

Options :

1. ✖ $x^2+y^2-ax-by=(a+b)^2$

2. ✔ $x^2+y^2-ax-by=0$

3. ✖ $x^2+y^2-ax-by=(a-b)^2$

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

Question Number : 15 Question Id : 81959913450 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the parabola $y^2=4ax$ passes through the point (-3,2), then the length of its latus rectum is _____ units

Options :

1. ✖ $\frac{2}{3}$

2. ✔ $\frac{4}{3}$

3. ✖ $\frac{1}{3}$

4. ✖ 4

Question Number : 16 Question Id : 81959913451 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Equation of the ellipse whose latus rectum is 15units and the distance between the foci is 10 units with axes being co ordinate axes is

Options :

1. ✔ $3x^2 + 4y^2 = 300$

2. ✖ $4x^2 + 3y^2 = 300$

3. ✖ $x^2 + 4y^2 = 300$

4. ✖ $3x^2 + y^2 = 300$

Question Number : 17 Question Id : 81959913452 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The eccentricity of the Hyperbola $xy = 10$ *is*

Options :

1. ✔ $\sqrt{2}$

2. ✖ 2

3. ✖ $\sqrt{3}$

4. ✖ $\sqrt{\frac{3}{2}}$

Question Number : 18 Question Id : 81959913453 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 0

2. ✔ $-\frac{1}{2}$

3. ✖ 1

4. ✖ -1

Question Number : 19 Question Id : 81959913454 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $2^x + 2^y = 2^{x+y}$ then $\frac{dy}{dx} =$

Options :

1. ✖ 0

2. ✖ 1

3. ✔ -2^{y-x}

4. ✖ 2^{x-y}

Question Number : 20 Question Id : 81959913455 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $y = \sqrt{cos2x}$ then $y\frac{d^2y}{dx^2} + 2y^2 =$

Options :

1. ✖ 0

2. ✖ $\left(\frac{dy}{dx}\right)^2$

3. ✔ $-\left(\frac{dy}{dx}\right)^2$

4. ✖ $y\left(\frac{dy}{dx}\right)$

Question Number : 21 Question Id : 81959913456 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If $u = e^x cosy,$ and $v = e^x siny$ then $\frac{\partial u}{\partial x} =$

Options :

1. ✖ $\frac{\partial u}{\partial y}$

2. ✖ $\frac{-\partial u}{\partial y}$

3. ✖ $\frac{-\partial v}{\partial y}$

4. ✔ $\frac{\partial v}{\partial y}$

Question Number : 22 Question Id : 81959913457 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ a^2

2. ✖ $2a^2$

3. ✖ $3a^2$

4. ✖ $4a^2$

Question Number : 23 Question Id : 81959913458 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Maximum value of x^{-x} is

Options :

1. ✖ $\frac{1}{e}$

2. ✔ $e^{1/e}$

3. ✖ $e^{-1/e}$

4. ✖ e

Question Number : 24 Question Id : 81959913459 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The rate of change of volume of a sphere is equal to the rate of change of its radius. Then its radius is

Options :

1. ✖ $\frac{1}{2\pi}$

2. ✖ $2\sqrt{\pi}$

3. ✖ $\sqrt{2\pi}$

4. ✔ $\frac{1}{2\sqrt{\pi}}$

Question Number : 25 Question Id : 81959913460 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

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

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

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

4. ✖ $\frac{\cos\sqrt{x}}{2\sqrt{x}}$

Question Number : 26 Question Id : 81959913461 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $\frac{\pi}{4}$

2. ✖ e^{π}

3. ✖ $\frac{\pi}{2}$

4. ✖ 0

Question Number : 27 Question Id : 81959913462 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The area of the region enclosed by the curve $y = e^{x/a} + e^{-x/a}$ the x- axis and the lines $x = \pm a$ is _____ sq. units

Options :

1. ✖ $\left(e - \frac{1}{e}\right)$

2. ✔ $2a\left(e - \frac{1}{e}\right)$

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

4. ✖ $a\left(e-\frac{1}{e}\right)$

Question Number : 28 Question Id : 81959913463 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The volume generated by the rotation of the area bounded by the curve $y^2 = x^3$, the y- axis and the lines $y = 0, y = 8$ about y- axis is _____ cu. units

Options :

1. ✖ 192π

2. ✔ $\frac{384\pi}{7}$

3. ✖ $\frac{384\pi^2}{7}$

4. ✖ $\frac{384\pi}{5}$

Question Number : 29 Question Id : 81959913464 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Mean Square Value of $f(x) = tanx$ as "x" varies from 0 to $\frac{\pi}{3}$

Options :

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

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

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

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

Question Number : 30 Question Id : 81959913465 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Values of function $f(x)$at 5 discrete points are given below

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

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

Options :

1. ✖ 24

2. ✖ 23

3. ✔ 22

4. ✖ 20

Question Number : 31 Question Id : 81959913466 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The order and degree of the differential equation $\frac{d^2y}{dx^2}=\left(y+\left(\frac{dy}{dx}\right)^2\right)^{1/4}$ is

Options :

1. ✔ 2, 4

2. ✖ 4, 2

3. ✖ 2, 2

4. ✖ 2, 1

Question Number : 32 Question Id : 81959913467 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The differential equation associated with the primitive $Ax^2 + By^2 = 1$ is

Options :

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

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

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

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

Question Number : 33 Question Id : 81959913468 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $ye^{-3x} = x^2 + C$

2. ✔ $ye^{3x} = x^2 + C$

3. ✖ $ye^{3x} = -x^2 + C$

4. ✖ $ye^{3x} = \frac{1}{2}x^2 + C$

Question Number : 34 Question Id : 81959913469 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Integrating Factor for the differential equation $\frac{dp}{dt} + k_2 p = k_1 e^{-k_1 t}$ is

Options :

1. ✖ $e^{-k_1 t}$

2. ✖ $e^{-k_2 t}$

3. ✖ $e^{k_1 t}$

4. ✔ $e^{k_2 t}$

Question Number : 35 Question Id : 81959913470 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Solution of $4\frac{d^2y}{dx^2} - 4\frac{dy}{dx} + y = 0$ is

Options :

1. ✖ $y = (A + Bx)e^{-x/2}$

2. ✔ $y = (A + Bx)e^{x/2}$

3. ✖ $y = Ae^{x/2} + Be^{-x/2}$

4. ✖ $y = (A + Bx)e^{x}$

Question Number : 36 Question Id : 81959913471 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The particular integral of $2\frac{d^2y}{dx^2} + \frac{dy}{dx} - 6y = e^{-2x}$ is

Options :

1. ✔ $-\frac{x}{7}e^{-2x}$

2. ✖ $\frac{x}{7}e^{-2x}$

3. ✖ $\frac{1}{7}e^{-2x}$

4. ✖ $-\frac{1}{7}e^{-2x}$

Question Number : 37 Question Id : 81959913472 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Particular Integral of $\frac{d^3y}{dx^3} - 1 = sin3x$ is

Options :

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

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

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

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

Question Number : 38 Question Id : 81959913473 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Particular Integral of $\frac{d^2y}{dx^2} - 3\frac{dy}{dx} + 2y = x + x^2$ is

Options :

1. ✔ $\frac{1}{2}(x^2 + 4x + 5)$

2. ✖ $\frac{1}{2}(x^2 - 4x - 5)$

3. ✖ $\frac{1}{2}(x^2 - 4x + 5)$

4. ✖ $-\frac{1}{2}(x^2 + 4x + 5)$

Question Number : 39 Question Id : 81959913474 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\{cos4tsin2t\} =$

Options :

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

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

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

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

Question Number : 40 Question Id : 81959913475 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

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

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

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

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

Question Number : 41 Question Id : 81959913476 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

$L\{tcos3t\} =$

Options :

1. ✖ $\frac{9}{(s^2+9)^2}$

2. ✖ $\frac{s^2}{(s^2+9)^2}$

3. ✖ $\frac{s^2+9}{(s^2-9)^2}$

4. ✔ $\frac{s^2-9}{(s^2+9)^2}$

Question Number : 42 Question Id : 81959913477 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $log\sqrt{\frac{s^2+1}{s^2}}$

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

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

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

Question Number : 43 Question Id : 81959913478 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ $e^{-t}(1-t)$

2. ✖ $e^{t}(t-1)$

3. ✖ $e^{-t}(t-1)$

4. ✖ $e^{t}(1-t)$

Question Number : 44 Question Id : 81959913479 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $f'(t)$

2. ✖ $tf'(t)$

3. ✖ $tf(t)$

4. ✔ $\frac{f(t)}{t}$

Question Number : 45 Question Id : 81959913480 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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

A system is described by the differential equation $\frac{d^2y}{dt^2} + 4\frac{dy}{dt} + 5y = 0$

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

Options :

1. ✖ $\frac{1}{s(s^2+4s+5)}$

2. ✖ $\frac{s}{(s^2+4s+5)}$

3. ✖ $\frac{5}{(s^2+4s+5)}$

4. ✔ $\frac{5}{s(s^2+4s+5)}$

Question Number : 46 Question Id : 81959913481 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{1-sinat}{a^2}$

2. ✖ $\frac{1+cosat}{a^2}$

3. ✔ $\frac{1-cosat}{a^2}$

4. ✖ $\frac{1+sinat}{a^2}$

Question Number : 47 Question Id : 81959913482 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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

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

the value of $b_n =$

Options :

1. ✔ 0

2. ✖ $\frac{2}{l(n^2-1)}$

3. ✖ $\frac{4}{l(n^2-1)}$

4. ✖ $\frac{4}{l(1-n^2)}$

Question Number : 48 Question Id : 81959913483 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

If $f(x) = \begin{cases} 0, -\pi < x < 0 \\ x^2, \ 0 < x < \pi \end{cases}$ and

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

Options :

1. ✖ $\frac{\pi}{3}$

2. ✖ $\frac{3}{\pi}$

3. ✔ $\frac{\pi^2}{3}$

4. ✖ $\frac{\pi^2}{2}$

Question Number : 49 Question Id : 81959913484 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The Half range cosine series expansion of the function $f(x) = x - x^2,\ 0 < x < 1$ is represented by $a_2 =$

Options :

1. ✔ $-\frac{4}{\pi^2}$

2. ✖ $\frac{4}{\pi^2}$

3. ✖ $\frac{1}{\pi^2}$

4. ✖ $-\frac{1}{\pi^2}$

Question Number : 50 Question Id : 81959913485 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The value of "b_4" in the Fourier series expansion of $f(x) = 3x^2 - 2$ in $(-3,3)$ is_____

Options :

1. ✖ 14

2. ✖ $\frac{-108}{\pi^2}$

3. ✖ $\frac{108}{\pi^2}$

4. ✔ 0

Physics

Section Id :	819599263
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25

Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	819599305
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 81959913486 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The dimensional formula for kinetic energy is

Options :

1. ✖ $M^0L^0T^0$

2. ✔ $M^1L^2T^{-2}$

3. ✖ $M^1L^2T^{-1}$

4. ✖ $M^1L^1T^{-2}$

Question Number : 52 Question Id : 81959913487 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In photoelectric effect, the photo current

Options :

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

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

3. ✖ decreases with increase of frequency of incident photon

4. ✖ increases with increase of frequency of incident photon

Question Number : 53 Question Id : 81959913488 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Optical fibers uses the phenomenon of

Options :

1. ✔ total internal reflection

2. ✖ refraction

3. ✖ dispersion

4. ✖ scattering

Question Number : 54 Question Id : 81959913489 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The volume of 1 mole of an ideal gas at STP

Options :

1. ✔ $2.24 \times 10^{-2} m^3$

2. ✖ $2.24 \times 10^{-3} m^3$

3. ✖ $2.42 \times 10^{-3} m^3$

4. ✖ $24.2 \times 10^{-3} m^3$

Question Number : 55 Question Id : 81959913490 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following statement is correct in the case of an isothermal process of a gas

Options :

1. ✖ Temperature changes

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

3. ✖ Boyle's law does not valid

4. ✖ It is a quick process

Question Number : 56 Question Id : 81959913491 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the angle between $\overrightarrow{P}$ and the resultant of $(\overrightarrow{P}+\vec{Q})$ and $(\vec{P}-\vec{Q})$

Options :

1. ✖ $\tan^{-1}\frac{(P-Q)}{(P+Q)}$

2. ✖ $\tan^{-1}(\frac{P}{Q})$

3. ✖ $\tan^{-1}(\frac{Q}{P})$

4. ✔ Zero

Question Number : 57 Question Id : 81959913492 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If the magnitudes of scalar and vector products of two vectors are 6 and $6\sqrt{3}$ respectively, then the angle between the vectors

Options :

1. ✖ 15^0

2. ✖ 30^0

3. ✔ 60^0

4. ✖ 75^0

Question Number : 58 Question Id : 81959913493 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two equal forces (F each) act at a point inclined to each other at an angle of 120^0.

The magnitude of their resultant is

Options :

1. ✖ F/2

2. ✖ F/4

3. ✔ F

4. ✖ 2F

Question Number : 59 Question Id : 81959913494 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The quantity which remains unchanged during the flight of an oblique projectile is

Options :

1. ✖ Horizontal distance

2. ✖ Vertical distance

3. ✖ Vertical component of velocity

4. ✔ Horizontal component of velocity

Question Number : 60 Question Id : 81959913495 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

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

which of the following is correct

Options :

1. ✖ R=H

2. ✖ R=2H

3. ✖ R=3H

4. ✔ R=4H

Question Number : 61 Question Id : 81959913496 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A bullet is fired with a velocity 10 m/s making an angle of 60^0 with the horizontal plane.

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

Options :

1. ✖ 10 m/s

2. ✖ 0

3. ✖ 8 m/s

4. ✔ 5 m/s

Question Number : 62 Question Id : 81959913497 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If μ_s, μ_k, μ_r are coefficients of static friction, sliding friction and rolling friction, then

Options :

1. ✔ $\mu_r < \mu_k < \mu_s$

2. ✖ $\mu_k < \mu_r < \mu_s$

3. ✖ $\mu_k < \mu_s < \mu_r$

4. ✖ $\mu_s = \mu_k = \mu_r$

Question Number : 63 Question Id : 81959913498 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A body falling from a height of 10 metre rebounds from a hard floor. If it loses 20% of its energy in impact, it will rise

Options :

1. ✖ 10m

2. ✔ 8m

3. ✖ 5m

4. ✖ 12m

Question Number : 64 Question Id : 81959913499 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A body of mass 10 kg is travelling with uniform speed of 5m/s. Its kinetic energy is

Options :

1. ✖ 25 J

2. ✔ 125 J

3. ✖ 1250 J

4. ✖ 1000 J

Question Number : 65 Question Id : 81959913500 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If a stone is thrown up vertically and returns to ground, its potential energy is maximum

Options :

1. ✖ During upward journey

2. ✔ At the maximum height

3. ✖ During return journey

4. ✖ On the ground

Question Number : 66 Question Id : 81959913501 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A second's pendulum is taken from earth to moon. If it is to act as a second's pendulum there also, the length of the pendulum

Options :

1. ✖ Should be increased

2. ✔ Should be decreased

3. ✖ Need not be changed

Difficult to imagine

4. ✖

Question Number : 67 Question Id : 81959913502 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a simple harmonic motion, the maximum acceleration and maximum velocity are $31.4m/s^2$ and 10m/s. The time period is

Options :

1. ✖ 4s

2. ✖ 3s

3. ✔ 2s

4. ✖ 0.5s

Question Number : 68 Question Id : 81959913503 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A person standing between two hills fires a gun. He hears first echo after 1 second and second echo after 2 second. If velocity of sound in air is 340m/s, the distance between the hills is

Options :

1. ✖ 170m

2. ✖ 340m

3. ✔ 510m

4. ✖ 1020m

Question Number : 69 Question Id : 81959913504 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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

Two tuning forks of frequencies 256 and 258 vibrations /second are sounded together.

Then the time interval between two consecutive maxima heard by an observer is

Options :

1. ✖ 2 s

2. ✔ 0.5 s

3. ✖ 250 s

4. ✖ 252 s

Question Number : 70 Question Id : 81959913505 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ Stress α Strain

2. ✖ Stress $\alpha \frac{1}{Strain}$

3. ✖ Stress α $(Strain)^2$

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

Question Number : 71 Question Id : 81959913506 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ of elasticity

2. ✖ of viscosity

3. ✔ of surface tension

4. ✖ of its shape

Question Number : 72 Question Id : 81959913507 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What happens to the force between magnetic poles when their pole strength and the distance between them are both doubled

Options :

1. ✖ Force increases by two times

2. ✔ Force remains unchanged

3. ✖ Force becomes halved

4. ✖ Force increases by four times

Question Number : 73 Question Id : 81959913508 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✔ Diamagnetic substances

2. ✖ Paramagnetic substances

3. ✖ Ferromagnetic substances

4. ✖ Ferrimagnetic substances

Question Number : 74 Question Id : 81959913509 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The resistance of wire of length 'L' and diameter 'D' is R Ω. The resistance of another wire of same material having length 'L' and diameter $\frac{D}{2}$ is _____ Ω.

Options :

1. ✖ $\frac{1}{2}$R

2. ✖ 2R

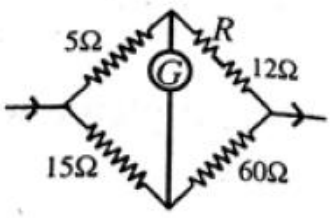
3. ✔ 4R

4. ✖ 16R

Question Number : 75 Question Id : 81959913510 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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



Options :

1. ✔ 8 Ω

2. ✖ $4\ \Omega$

3. ✖ $20\ \Omega$

4. ✖ $12\ \Omega$

Chemistry

Section Id :	819599264
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	819599306
Question Shuffling Allowed :	Yes

Question Number : 76 Question Id : 81959913511 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Number of electrons present in outermost shell of copper atom is

Options :

1. ✖ 2

2. ✔ 1

3. ✖ 18

4. ✖ 11

Question Number : 77 Question Id : 81959913512 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The bond exists between NH_3 and H^+ in NH_4^+ is

Options :

1. ✖ Ionic

2. ✖ Covalent

3. ✔ Coordinate covalent

4. ✖ Metallic

Question Number : 78 Question Id : 81959913513 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Possible all oxidation numbers of hydrogen are

Options :

1. ✖ -1 and 0

2. ✖ +1 and 0

3. ✖ +1 and -1

4. ✔ +1, -1 and 0

Question Number : 79 Question Id : 81959913514 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ M

2. ✔ $M/2$

3. ✖ 2M

4. ✖ M+2

Question Number : 80 Question Id : 81959913515 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Lyophobic colloids are

Options :

1. ✔ required stabilisers

2. ✖ prepared by direct mixing

3. ✖ more stable

4. ✖ solvent attracting colloids

Question Number : 81 Question Id : 81959913516 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following is not a Lewis acid

Options :

1. ✔ HCl

2. ✖ BF_3

3. ✖ Mg^{2+}

4. ✖ SO_2

Question Number : 82 Question Id : 81959913517 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The solution with more pH value

Options :

1. ✖ 0.1 M HCl

2. ✖ 0.5 M HCl

3. ✖ 0.1 M NaOH

4. ✔ 0.5 M NaOH

Question Number : 83 Question Id : 81959913518 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Froth floatation is used concentrate _____ ores

Options :

1. ✖ oxide

2. ✖ carbonate

3. ✔ sulphide

4. ✖ chloride

Question Number : 84 Question Id : 81959913519 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which one of the following element is not present in German silver

Options :

1. ✔ Fe

2. ✖ Ni

3. ✖ Cu

4. ✖ Zn

Question Number : 85 Question Id : 81959913520 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A device that converts the energy of combustion of fuels like hydrogen and methane directly into electrical energy is known as

Options :

1. ✖ Electrolytic cell

2. ✖ Leclanche cell

3. ✔ Fuel cell

4. ✖ Ni- Cd cell

Question Number : 86 Question Id : 81959913521 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Anode used in the electrolytic refining of copper is

Options :

1. ✖ Pt

2. ✔ Impure Cu

3. ✖ Graphite

pure copper

4. ✖

Question Number : 87 Question Id : 81959913522 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Number of Faradays of current required to decompose 36 grams of water completely

Options :

1. ✖ 2

2. ✔ 4

3. ✖ 3

4. ✖ 6

Question Number : 88 Question Id : 81959913523 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The atomic weight of Cu is x, the electrochemical equivalent of Cu in the solution of copper sulphate is

Options :

1. ✖ $\frac{2x}{F}$

2. ✔ $\frac{x}{2F}$

3. ✖ $\frac{x}{F}$

4. ✖ xF

Question Number : 89 Question Id : 81959913524 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Rate of corrosion increases with

Options :

1. ✖ decrease of temperature

2. ✖ decrease of humidity

3. ✔ reactivity of metal

4. ✖ purity of metal

Question Number : 90 Question Id : 81959913525 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Chemical formula of the rust is

Options :

1. ✔ $Fe_2O_3.XH_2O$

2. ✖ Fe_3O_4

3. ✖ $Fe_2(C_2O_4)_3$

4. ✖ $FeCl_3$

Question Number : 91 Question Id : 81959913526 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Exhausted permutit is regenerated by using

Options :

1. ✖ $CaCl_2$

2. ✖ HCl

3. ✔ NaCl

4. ✖ $MgSO_4$

Question Number : 92 Question Id : 81959913527 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 10 mg/lit

2. ✖ 5 mg/lit

3. ✔ 15 mg/lit

4. ✖ 20 mg/lit

Question Number : 93 Question Id : 81959913528 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Bakelite is an example of

Options :

1. ✔ thermosetting plastic

2. ✖ fibre

3. ✖ thermoplastic

4. ✖ elastomer

Question Number : 94 Question Id : 81959913529 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following are monomers of butyl rubber

Options :

1. ✖ Butadiene and styrene

2. ✖ Chloroprene

3. ✖ Phenol and formaldehyde

4. ✔ Isobutylene and isoprene

Question Number : 95 Question Id : 81959913530 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Main gases present in producer gas

Options :

1. ✖ CO & H_2

2. ✖ CH_4 & CO_2

3. ✔ CO & N_2

4. ✖ H_2 & CH_4

Question Number : 96 Question Id : 81959913531 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Number of moles of oxygen required for combustion of 30 grams of ethane is

Options :

1. ✖ 7

2. ✖ 2

3. ✖ 2.5

4. ✔ 3.5

Question Number : 97 Question Id : 81959913532 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which layer of the atmosphere contains the ozone layer that absorbs of UV light?

Options :

1. ✔ Stratosphere

2. ✖ Troposphere

3. ✖ Mesosphere

4. ✖ Ionosphere

Question Number : 98 Question Id : 81959913533 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The contaminant among the following

Options :

1. ✖ SO_2

2. ✔ MIC

3. ✖ CO_2

4. ✖ CH_4

Question Number : 99 Question Id : 81959913534 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gases responsible for depletion of Ozone layer are

Options :

1. ✖ CO_2, CFC, CH_4

2. ✖ SO_2, NO_2, CH_4

3. ✔ CFC, NO, Cl_2

4. ✖ CO, SO_2, CH_4

Question Number : 100 Question Id : 81959913535 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most harmful air pollutant produced by automobiles is

Options :

1. ✖ SO_2

2. ✖ NO

3. ✔ CO

4. ✖ Cl_2

Chemical Engineering

Section Id :	819599265
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100

Number of Questions to be attempted :	100
Section Marks :	100
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	819599307
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 81959913536 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Presence of manganese in alloy steel improves its:

Options :

1. ✖ corrosion resistance

2. ✖ cutting ability

3. ✔ abrasion resistance and toughness

4. ✖ elasticity and creep resistance

Question Number : 102 Question Id : 81959913537 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Bronze is an alloy of:

Options :

1. ✖ lead and copper

2. ✔ copper and tin

3. ✖ nickel and copper

4. ✖ copper and zinc

Question Number : 103 Question Id : 81959913538 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is used for measuring the hardness of brittle materials.

Options :

1. ✔ Vickers hardness test

2. ✖ Brinell hardness test

3. ✖ Rockwell hardness test

4. ✖ Shore hardness test

Question Number : 104 Question Id : 81959913539 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following has maximum melting point?

Options :

1. ✔ wrought iron

2. ✖ steel

3. ✖ white cast iron

4. ✖ grey cast iron

Question Number : 105 Question Id : 81959913540 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The eutectic mixture of austenite and cementite in Iron-carbon system is called

Options :

1. ✖ Pearlite

2. ✔ Ledeburite

3. ✖ Ferrite

4. ✖ Eutectoid steel

Question Number : 106 Question Id : 81959913541 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of the volume occupied by the atoms to the total volume of the unit cell is called

Options :

1. ✔ Atomic packing factor

2. ✖ Space lattice

3. ✖ Coordination number

4. ✖ Bravais lattice

Question Number : 107 Question Id : 81959913542 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ability of a material to undergo plastic deformation without fracture when subjected to uniaxial tensile force is ----

Options :

1. ✖ Tensile strength

2. ✖ Yield strength

3. ✔ Ductility

4. ✖ Malleability

Question Number : 108 Question Id : 81959913543 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is meant by Passivation?

Options :

1. ✔ Loss of reactivity

2. ✖ increase in reactivity

3. ✖ increase in corrosion rate

4. ✖ Deterioration of metal

Question Number : 109 Question Id : 81959913544 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The two quantities which has the same dimensional formula.

Options :

1. ✖ Heat and power

2. ✖ energy and power

3. ✖ force and work done

4. ✔ Heat and energy

Question Number : 110 Question Id : 81959913545 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Iron metal weighing 50 lb occupies a volume of 29.45 L. Calculate the density of Iron in kg/m^3.

Options :

1. ✖ 7.701

2. ✖ 77

3. ✔ 770

4. ✖ 0.668

Question Number : 111 Question Id : 81959913546 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A sample of caustic soda flakes contains 74.6 % Na_2O by weight. Determine the purity of the flakes.

Options :

1. ✖ 99%

2. ✔ 96.26%

3. ✖ 43.12%

4. ✖ 74.6%

Question Number : 112 Question Id : 81959913547 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Sulphur dioxide reacts with pure oxygen to form sulphur trioxide. The product analysis given as follows:

Constituent	Mole fraction
Sulphur dioxide	0.235
Oxygen	0.412
Sulphur trioxide	0.353

The average molecular weight of the product is:

Options :

1. ✖ 76.43

2. ✔ 56.46

3. ✖ 36.46

4. ✖ 46.46

Question Number : 113 Question Id : 81959913548 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is % yield of the given reaction if the % conversion is 80?

$CO + 2H_2 \rightarrow CH_3OH$

Options :

1. ✖ 100%

2. ✖ 40%

3. ✔ 80%

4. ✖ 50%

Question Number : 114 Question Id : 81959913549 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

100 k mol of SO_2 and 40 k mol of oxygen are fed to a reactor. If the conversion of SO_2 is 80%, find moles of SO_3 formed.

Options :

1. ✖ 40 k mol

2. ✖ 100 k mol

3. ✔ 80 k mol

4. ✖ 50 kmol

Question Number : 115 Question Id : 81959913550 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The standard heats of formation HCl (g) , NH_3 (g) and NH_4Cl (s) are given as -25, -10, and -75 kJ respectively. What is the standard heat of reaction in kJ?

Options :

1. ✖ -110

2. ✖ -60

3. ✖ 40

4. ✔ -40

Question Number : 116 Question Id : 81959913551 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The following is the percentage composition of coal on mass basis. C = 80, H_2 = 3.3, O_2 = 4 and S = 0.9 and remaining is ash. Calculate the theoretical air required for combustion of 1 kg coal completely.

Options :

1. ✖ 10.73 kg

2. ✔ 10.45 kg

3. ✖ 4.56 kg

4. ✖ 14.6 kg

Question Number : 117 Question Id : 81959913552 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A single effect evaporator is fed at the rate of 10000 kg per hour of weak liquor containing 15% of caustic by weight and is concentrated to get thick liquor 40% of caustic. Calculate the mass flow rate of water evaporated in kg/hr.

Options :

1. ✖ 3750

2. ✖ 5000

3. ✔ 6250

4. ✖ 625

Question Number : 118 Question Id : 81959913553 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A _____ Stream is the one where a portion of the outlet of a process unit is combined with fresh feed and sent into the same unit again.

Options :

1. ✖ Bypass

2. ✔ Recycle

3. ✖ Purge

4. ✖ Product

Question Number : 119 Question Id : 81959913554 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Consider the four types of coals, namely, anthracite, semi- anthracite, semi- bituminous,bituminous. Write them in the increasing order of fuel ratio:

Options :

1. ✖ anthracite, semi- anthracite, semi- bituminous, bituminous

2. ✖ semi- anthracite, anthracite, semi- bituminous, bituminous

3. ✔ bituminous, semi- bituminous, semi- anthracite, anthracite

4. ✖ semi- bituminous, bituminous, semi- anthracite, anthracite

Question Number : 120 Question Id : 81959913555 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a detergent?

Options :

1. ✖ fatty alcohol

2. ✔ alkyl benzene sulphonate

3. ✖ fatty acids

4. ✖ methylene chloride

Question Number : 121 Question Id : 81959913556 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Poly vinyl chloride is

Options :

1. ✖ thermosetting

2. ✔ thermoplastic

3. ✖ chemically active

4. ✖ A fibrous material

Question Number : 122 Question Id : 81959913557 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Nylon 6-6 is manufactured from:

Options :

1. ✔ hexamethylene diamine and adipic acid

2. ✖ hexamethylene diamine and maleic anhydride

3. ✖ caprolactum

4. ✖ dimethyl terephthalate and ethylene glycol

Question Number : 123 Question Id : 81959913558 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Oil is:

Options :

1. ✖ a mixture of esters

2. ✔ a mixture of glycerides of fatty acids

3. ✖ solid at normal temperature

4. ✖ esters of alcohols other than glycerin

Question Number : 124 Question Id : 81959913559 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The major constituent of black liquor generated during paper manufacture is

Options :

1. ✔ Sodium carbonate

2. ✖ Sodium sulphate

3. ✖ Sodium hydroxide

4. ✖ Sodium bicarbonate

Question Number : 125 Question Id : 81959913560 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gas oil is part of which fraction of petroleum products?

Options :

1. ✖ Gas fraction

2. ✖ Residues

3. ✔ Intermediate distillates

4. ✖ Light ends

Question Number : 126 Question Id : 81959913561 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In petroleum refining, the process used for conversion of hydrocarbons to aromatics --

Options :

1. ✖ Catalytic cracking

2. ✔ Catalytic reforming

3. ✖ Alkylation

4. ✖ Hydro cracking

Question Number : 127 Question Id : 81959913562 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the items of Group A with the appropriate item in the group B

Group A		Group B
I.	Dacron	(a) Elastomer
II.	Nylon	(b) Polyamide
III.	Rayon	(c) Polyester
IV.	Rubber	(d) Cellulose

Options :

1. ✖ I – (a), II- (b), III- (c), IV- (d)

2. ✔ I – (c), II- (b), III- (d), IV- (a)

3. ✖ I – (c), II- (d), III- (b), IV- (a)

4. ✖ I – (b), II- (c), III- (d), IV- (a)

Question Number : 128 Question Id : 81959913563 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Carborundum consists mainly of:

Options :

1. ✖ bauxite

2. ✖ calcium carbide

3. ✖ boron carbide

4. ✔ silicon carbide

Question Number : 129 Question Id : 81959913564 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The most adverse factor challenging the mercury electrolytic cell process for the manufactureof caustic soda is:

Options :

1. ✖ high cost of mercury

2. ✖ high specific gravity of mercury

3. ✖ non-availability of mercury of high purity

4. ✔ pollution of water stream by mercury

Question Number : 130 Question Id : 81959913565 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The principal raw materials for the manufacture of soda ash by Solvay process are

Options :

1. ✖ limestone and potassium chloride

2. ✔ limestone, brine and coal

3. ✖ dolomite and sodium hydroxide

4. ✖ coal and caustic soda

Question Number : 131 Question Id : 81959913566 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a chemical process involved in the removal of contaminants from water?

Options :

1. ✔ Filtration

2. ✖ Coagulation

3. ✖ Disinfection

4. ✖ Flocculation

Question Number : 132 Question Id : 81959913567 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Prilling tower is used for the manufacture of

Options :

1. ✖ Ammonia

2. ✖ Superphosphate

3. ✖ Triple superphosphate

4. ✔ Urea

Question Number : 133 Question Id : 81959913568 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Both temporary and permanent hardness of water can be removed by

Options :

1. ✖ Boiling

2. ✖ Decantation

3. ✔ Distillation

4. ✖ Filtration

Question Number : 134 Question Id : 81959913569 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What substance runs down the absorption tower in DCDA process of sulfuric acid manufacture.

Options :

1. ✖ Sulfur dioxide

2. ✖ Sulfur trioxide

3. ✔ Sulfuric acid

4. ✖ Water

Question Number : 135 Question Id : 81959913570 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

What is the use of ammonia in Linde cycle?

Options :

1. ✔ Precooling

2. ✖ Liquefaction

3. ✖ Refrigeration

4. ✖ Compression of feed stream

Question Number : 136 Question Id : 81959913571 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

_____ is not a product from chlor-alkali industry?

Options :

1. ✖ Caustic soda

2. ✖ Soda ash

3. ✔ Sodium chloride

4. ✖ Chlorine

Question Number : 137 Question Id : 81959913572 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A Newtonian fluid is flowing in a circular pipe under laminar conditions. At a distance far from the entrance of the pipe, (average velocity)/ (maximum velocity) =

Options :

1. ✖ 0

2. ✖ 1

3. ✔ 0.5

4. ✖ $\sqrt{2}$

Question Number : 138 Question Id : 81959913573 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a pump, the relation between inlet pressure, vapor pressure and NPSH is:

Options :

1. ✔ inlet pressure = vapor pressure + NPSH

2. ✖ inlet pressure = vapor pressure - NPSH

3. ✖ inlet pressure = vapor pressure x NPSH

4. ✖ inlet pressure = vapor pressure/ NPSH

Question Number : 139 Question Id : 81959913574 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A pipe of I.D. 4 m is bifurcated into two pipes of I.D. 2m each. If the average velocity of water flowing through the main pipe is 10 m/sec, the average velocity through the bifurcated pipe is

Options :

1. ✖ 10 m/sec

2. ✖ 40 m/sec

3. ✔ 20 m/sec

4. ✖ $10\sqrt{2}$ m/sec

Question Number : 140 Question Id : 81959913575 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two fluids are flowing through two similar pipes of the same diameter. The Reynold's number is same. For the same flow rate if the viscosity of a fluid is reduced to half the value of the first fluid, the pressure drop will

Options :

1. ✖ increase

2. ✔ decrease

3. ✖ remain unchanged

4. ✖ data insufficient to predict pressure drop

Question Number : 141 Question Id : 81959913576 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Vena - contracta formed during flow a liquid through an orifice meter has

Options :

1. ✖ More diameter compared to orifice diameter

2. ✖ Same diameter as orifice diameter

3. ✔ Minimum liquid cross section

4. ✖ Minimum velocity of the fluid stream

Question Number : 142 Question Id : 81959913577 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The head developed by the centrifugal pump is largely determined by the

Options :

1. ✖ Nature of the liquid to be pumped

2. ✖ Vapor pressure of the liquid

3. ✖ Power of the pump

4. ✔ Angle of the vanes and speed of the tip of the impeller

Question Number : 143 Question Id : 81959913578 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Boundary layer separation occurs when the

Options :

1. ✖ Valve is closed in a pipeline

2. ✖ Pressure reaches a minimum

3. ✔ Cross section of the channel is reduced

4. ✖ flow is turbulent

Question Number : 144 Question Id : 81959913579 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is a Newtonian fluid?

Options :

1. ✖ Sewage sludge

2. ✔ Non colloidal solution

3. ✖ Rubber latex

4. ✖ Quick sand

Question Number : 145 Question Id : 81959913580 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Fluidized beds are formed, when the

Options :

1. ✖ fluid friction is zero

2. ✖ pressure forces equal gravity forces.

3. ✔ gravity force is less than the fluid friction

4. ✖ sum of the fluid friction and pressure force is equal and opposite to gravity forces

Question Number : 146 Question Id : 81959913581 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A 300 mm pipe carries water at a velocity of 25 m/s. At station A and B measurements of pressure and elevation were 360 kN/m^2 and 262 kN/m^2 and 30.5 m and 35 m respectively. Find the loss of head between station A and B.

Options :

1. ✖ 4.5 m

2. ✔ 14.5 m

3. ✖ 96.5 m

4. ✖ 15.7m

Question Number : 147 Question Id : 81959913582 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Heat is transferred from a hot surface to a flowing fluid. If the surface is at a constant temperature of 80^0C and the bulk temperature of the fluid is 25^0C, and heat flux is 3320 W/m^2, then the heat transfer coefficient = ------ W/m^2K .

Options :

1. ✖ 60.66

2. ✖ 182600

3. ✔ 60.36

4. ✖ 100

Question Number : 148 Question Id : 81959913583 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Film boiling is usually not desired in commercial equipments, because

Options :

1. ✔ The heat transfer rate is low in view of the large temperature drop.

2. ✖ It is difficult to maintain.

3. ✖ It is not economic.

4. ✖ It requires high heat transfer surface.

Question Number : 149 Question Id : 81959913584 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a heat exchanger the rate of heat transfer from the hot fluid to the cold fluid

Options :

1. ✖ Directly proportional to LMTD and inversely proportional to the area

2. ✖ Varies indirectly as the area and the LMTD

3. ✖ Varies as square of the area

4. ✔ Varies directly as the area and the LMTD

Question Number : 150 Question Id : 81959913585 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The purpose of floating head in a heat exchanger is to

Options :

1. ✖ Provide support for tubes

2. ✔ Avoid buckling of tubes

3. ✖ Decrease the pressure drop

4. ✖ Facilitate its lengthening if needed

Question Number : 151 Question Id : 81959913586 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

At thermal equilibrium, the ratio of the total radiating power of any body to the absorptivity of that body depends only on temperature of the body. This is the statement of

Options :

1. ✖ Stefan- Boltzmann's law

2. ✖ Wien's displacement law

3. ✔ Kirchoff's law

4. ✖ Planck's law

Question Number : 152 Question Id : 81959913587 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Steam is to be condensed in a shell and tube heat exchanger 5 m long with a shell diameter of 1 m. Cooling water is to be used for removing the heat. Heat transfer co-efficient for the cooling water whether on shell side or tube side is the same. The best arrangement is

Options :

1. ✖ Horizontal heat exchanger with steam on tube side

2. ✖ Horizontal heat exchanger with steam on shell side

3. ✖ Vertical heat exchanger with steam on tube side

4. ✔ Vertical heat exchanger with steam on shell side

Question Number : 153 Question Id : 81959913588 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a heat exchanger with steam outside the tubes a liquid gets heated to 45° C, when its flow velocity in the tubes is 2 m/s. If the flow velocity is reduced to 1 m/s other things remaining the same the temperature of the exit liquid will be

Options :

1. ✖ Less than 45°C

2. ✖ Equal to 45°C

3. ✔ More than 45°C

4. ✖ Initially decreased and remains constant thereafter.

Question Number : 154 Question Id : 81959913589 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In a backward feed multiple effect evaporator

Options :

1. ✖ Feed is introduced in the first effect

2. ✔ Feed flows from low pressure to high pressure

3. ✖ Feed flows from high pressure to low pressure

4. ✖ No pumps are required between successive effects

Question Number : 155 Question Id : 81959913590 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A composite flat wall of a furnace is made of two materials 'A' and 'B'. The thermal conductivity of 'A' is twice of that of material 'B', while thickness of layer of 'A' is half that of B. If the temperature at the two sides of the wall are 400 and 1200K, then temperature drop (in K) across the layer of material 'A' is

Options :

1. ✖ 133

2. ✔ 160

3. ✖ 125

4. ✖ 150

Question Number : 156 Question Id : 81959913591 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A hot fluid at 423 K is to be cooled to 367K in a double pipe heat exchanger by using a coolant which will be heated from 311K to 339K. If the hot and cold streams flow counter – currently, the driving force for heat transfer is ____ K.

Options :

1. ✖ 60.6

2. ✖ 112

3. ✔ 69

4. ✖ 0

Question Number : 157 Question Id : 81959913592 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The ratio of the area of openings in one screen (Taylor series) to that of the openings in the next smaller screen is

Options :

1. ✔ 2

2. ✖ 1

3. ✖ $\sqrt{2}$

4. ✖ 1.5

Question Number : 158 Question Id : 81959913593 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

As the product becomes finer, the energy required for grinding

Options :

1. ✖ decreases

2. ✔ increases

3. ✖ is same as for coarse grinding

4. ✖ is 1.5 times that for coarse grinding

Question Number : 159 Question Id : 81959913594 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which is most suitable conveyor for transportation of sticky material?

Options :

1. ✖ Belt conveyor

2. ✔ Screw conveyor

3. ✖ Pneumatic conveyor

4. ✖ Bucket elevator

Question Number : 160 Question Id : 81959913595 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Traces of solids are removed from liquid in a

Options :

1. ✖ Classifier

2. ✔ Clarifier

3. ✖ Sparkler filter

4. ✖ Rotary vacuum filter

Question Number : 161 Question Id : 81959913596 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Two identically sized spherical particles A and B having densities ρ_A and ρ_B respectively; are settling in a fluid of density ρ. Assuming free settling under turbulent flow conditions, the ratio of the terminal settling velocity of particle A to that of particle B is given by

Options :

1. ✖ $\sqrt{(\rho_A - \rho) / (\rho_B - \rho)}$

2. ✖ $\sqrt{(\rho_B - \rho) / (\rho_A - \rho)}$

3. ✔ $(\rho_A - \rho) / (\rho_B - \rho)$

4. ✖ $(\rho_B - \rho) / (\rho_A - \rho)$

Question Number : 162 Question Id : 81959913597 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Ultrafine grinders operate by:

Options :

1. ✖ compression

2. ✖ impact

3. ✔ attrition

4. ✖ cutting action

Question Number : 163 Question Id : 81959913598 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For the removal of large amount of solids from liquid, the recommended device is

Options :

1. ✖ cross flow filter

2. ✔ cake filter

3. ✖ clarifying filter

4. ✖ vibrating screen

Question Number : 164 Question Id : 81959913599 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For crushing of solids, Kick's law states that the work required is proportional to ----

Options :

1. ✖ square root of surface to volume ratio of the product

2. ✖ new surface created

3. ✖ square root of equivalent diameter of the product

4. ✔ constant for the same reduction ratio

Question Number : 165 Question Id : 81959913600 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Cumulative analysis for determining average size of particles is more precise than differential analysis, because of the_____?

Options :

1. ✖ Assumption that all particles in a single fraction are equal in size

2. ✖ Fact that screening is more effective

3. ✔ Assumption that all particles in a single fraction are equal in size, is not needed

4. ✖ Fact that two screens are used to specify one material.

Question Number : 166 Question Id : 81959913601 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Gravity settling process is not involved in the working of

Options :

1. ✖ Sedimentation tank

2. ✖ Classifier

3. ✖ Dorr thickener

4. ✔ Hydro cyclone

Question Number : 167 Question Id : 81959913602 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The residence time of all fluid elements is same in _____reactor.

Options :

1. ✖ Continuous flow stirred tank reactor

2. ✔ Ideal plug flow reactor

3. ✖ Batch reactor

4. ✖ Packed bed reactor

Question Number : 168 Question Id : 81959913603 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The relation between space time and space velocity for a flow reactor is given by:

Options :

1. ✖ Space time = (space velocity)/(length of flow reactor)

2. ✖ Space time + space velocity = 0

3. ✔ Space time = 1/(space velocity)

4. ✖ Space time = √(space velocity)

Question Number : 169 Question Id : 81959913604 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Throttling process is a/an process

Options :

1. ✖ Reversible and Isothermal

2. ✖ Irreversible and constant enthalpy

3. ✖ Reversible and constant entropy

4. ✔ Reversible and constant enthalpy

Question Number : 170 Question Id : 81959913605 Question Type : MCQ Option Shuffling : Yes Display Question

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

Correct Marks : 1 Wrong Marks : 0

Rate of a chemical reaction is independent of the concentration of the reactants for a ---------- Reaction.

Options :

1. ✔ Zero Order

2. ✖ First Order

3. ✖ Second Order

4. ✖ Half order

Question Number : 171 Question Id : 81959913606 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If 'n' is the order of reaction, then the unit of rate constant is

Options :

1. ✔ $(time)^{-1}\ (concentration)^{1-n}$

2. ✖ $(time)^{-1}\ (concentration)^{n-1}$

3. ✖ $(time)^{n-1}\ (concentration)$

4. ✖ (time) (concentration)

Question Number : 172 Question Id : 81959913607 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A Catalyst

Options :

1. ✖ Increases the equilibrium concentration of the product

2. ✖ Changes the equilibrium constant of reaction

3. ✔ Shortens the time to reach the equilibrium

4. ✖ Decreases the rate of reaction

Question Number : 173 Question Id : 81959913608 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The rate constant of a chemical reaction increases by increasing ----------

Options :

1. ✔ Temperature

2. ✖ Pressure

3. ✖ Concentration of reactants

4. ✖ Volume of reactor

Question Number : 174 Question Id : 81959913609 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Efficiency of a Carnot Engine working between temperatures T_1 and T_2 ($T_1 < T_2$) is

Options :

1. ✔ $(T_2 - T_1) / T_2$

2. ✖ $(T_2 - T_1) / T_1$

3. ✖ $(T_1-T_2)/T_2$

4. ✖ $(T_1-T_2)/T_1$

Question Number : 175 Question Id : 81959913610 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In Polytropic Process (PV^n = constant), if n=1; the process is

Options :

1. ✖ Adiabatic

2. ✖ Reversible

3. ✔ Isothermal

4. ✖ Isochoric

Question Number : 176 Question Id : 81959913611 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

At absolute zero temperature, the _____ of the gas is zero.

Options :

1. ✖ Pressure

2. ✔ Volume

3. ✖ Mass

4. ✖ Enthalpy

Question Number : 177 Question Id : 81959913612 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ 3

Question Number : 178 Question Id : 81959913613 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For estimation of heat capacity of a solid compound, one can use

Options :

1. ✖ Clapeyron's equation

2. ✖ Gibbs's equation

3. ✔ Kopp's rule

4. ✖ Trouton's rule

Question Number : 179 Question Id : 81959913614 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the wrong statement

Options :

1. ✖ Plait point represents the composition where extract and raffinate phases become mutually soluble

The selectivity of the solvent used in solvent extraction is infinity at the plait point

2. ✔

In case of liquid- liquid extraction no separation is possible, if the selectivity of the solvent used is unity

3. ✖

4. ✖

With increase in temperature the selectivity of the solvent used in solvent extraction decreases

Question Number : 180 Question Id : 81959913615 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In the enriching section of a continuous distillation column

Options :

Vapor is enriched with respect to the more volatile component

1. ✔

Liquid is enriched with respect to the more volatile component

2. ✖

Both vapor and liquid is enriched with respect to the more volatile component

3. ✖

Transfer of more volatile component occurs from the vapor to the liquid

4. ✖

Question Number : 181 Question Id : 81959913616 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

A packed tower compared to the plate tower for a particular mass transfer operation

Options :

1. ✖ Is less costly when built in large sizes/diameters

Incurs small pressure drop

2. ✔

Is more suitable, if suspended solids are present in fluid streams

3. ✖

allows installation of cooling coils

4. ✖

Question Number : 182 Question Id : 81959913617 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Solvent extraction is the terminology applied to the liquid – liquid extraction, which is preferred for the separation of the components of liquids, when

Options :

extracting solvent is cheaply and abundantly available

1. ✖

one of the liquid components is heat sensitive

2. ✖

one of the liquid components has very high affinity towards the solvent

3. ✔

viscosity of liquid components is very high

4. ✖

Question Number : 183 Question Id : 81959913618 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Steam distillation is used to :

Options :

reduce the number of plates

1. ✖

avoid thermal decomposition of a component

2. ✔

increase the efficiency of separation

3. ✖

increase the total pressure of distillation

4. ✖

Question Number : 184 Question Id : 81959913619 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

---------- is the moisture content in a substance that exerts an equilibrium vapour pressure equal to that of the pure liquid at the same temperature.

Options :

1. ✔ Unbound moisture

2. ✖ Bound moisture

3. ✖ Equilibrium moisture

4. ✖ Free moisture

Question Number : 185 Question Id : 81959913620 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

In case of an absorber, the operating

Options :

1. ✖ line always lies below the equilibrium curve

2. ✔ line always lies above the equilibrium curve

3. ✖ line can be either above or below the equilibrium curve

4. ✖ velocity is more than loading velocity

Question Number : 186 Question Id : 81959913621 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Dryer used for evaporation solutions entirely to dryness is _____

Options :

1. ✖ Fluid bed dryer

2. ✖ Tray dryer

3. ✔ Spray dryer

4. ✖ Screw conveyer dryer

Question Number : 187 Question Id : 81959913622 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Flooding results in

Options :

1. ✖ High tray efficiency

2. ✔ Low tray efficiency

3. ✖ Good contact between the fluids

4. ✖ High gas velocity

Question Number : 188 Question Id : 81959913623 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

For a binary mixture with low relative volatility, continuous rectification to get pure products will require

Options :

1. ✖ Less number of trays

2. ✖ Low reflux ratio

3. ✔ High reflux ratio

4. ✖ Small cross section column

Question Number : 189 Question Id : 81959913624 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

At minimum reflux ratio the number plates needed for a given separation is ____

Options :

1. ✖ Zero

2. ✖ Minimum

3. ✖ Optimum

4. ✔ Infinity

Question Number : 190 Question Id : 81959913625 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Methane diffuses at steady state through the tube containing helium. At point 1, the partial pressure of methane is 55 kPa and at point 2, it is 15 kPa. The points 1 and 2 are 30 mm apart. The total pressure is 101.3 kPa and temperature is 298 K. Calculate the flux of CH_4 in kmol /m^2.s at steady state for equimolar counter diffusion. Take the value diffusivity as 6.75 x 10^{-5} m^2/s

Options :

1. ✔ 3.63×10^{-5}

2. ✖ 6.75×10^{-5}

3. ✖ 3.63×10^{-2}

4. ✖ 100

Question Number : 191 Question Id : 81959913626 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Pick out the first order system from among the following

Options :

1. ✖ Damped Vibrator

2. ✔ Mercury in glass thermometer kept in boiling water

3. ✖ Interacting system of two tanks in series

4. ✖ Non-interacting system of two tanks in series

Question Number : 192 Question Id : 81959913627 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

If response of a control system is to be free of offset and oscillation, the most suitable controller is

Options :

1. ✖ Proportional controller.

2. ✖ Proportional - derivative (PD) controller.

3. ✖ Proportional- integral (PI) controller.

4. ✔ Proportional integral – derivative (PID) controller.

Question Number : 193 Question Id : 81959913628 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following relates the absorption and evolution of heat at the junctions of a thermocouple to the current flow in the circuit?

Options :

1. ✖ Seeback effect

2. ✖ Thomson effect

3. ✔ Peltier effect

4. ✖ Joule heating effect

Question Number : 194 Question Id : 81959913629 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

The level of a liquid under pressure can be determined using

Options :

1. ✔ differential pressure manometer

2. ✖ bubbler system

3. ✖ hydrometer

4. ✖ displacement meter

Question Number : 195 Question Id : 81959913630 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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

Emission spectroscopy is used for

Options :

1. ✖ determining water purity

2. ✖ determination of CO_2 in gases

3. ✔ solids and metal analysis

4. ✖ NOx determination.

Question Number : 196 Question Id : 81959913631 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

. Pneumatic control valves are generally designed for pressure up to -------- kgf/cm^2

Options :

1. ✔ 10

2. ✖ 100

3. ✖ 150

4. ✖ 350

Question Number : 197 Question Id : 81959913632 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0
Correct Marks : 1 Wrong Marks : 0

Which one is a controlled variable in a heat exchanger?

Options :

1. ✖ Inlet temperature of cooling fluid

2. ✔ Outlet temperature of cooling fluid

3. ✖ Inlet temperature of heating fluid

4. ✖ Flow rate of cooling fluid.

Question Number : 198 Question Id : 81959913633 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Match the measured process variables with the list of measuring devices given below:

Measured process variable	Measuring devices
P. Temperature	1. Bourdon tube element
Q. Pressure	2. Infrared analyser
R. Liquid level	3. Bubbler system
S. Composition	4. Pyrometer

Options :

1. ✖ P -4, Q-2, R-1, S-3

2. ✔ P -4, Q-1, R-3, S-2

3. ✖ P -3, Q-2, R-1, S-4

4. ✖ P -2, Q-1, R-4, S-3

Question Number : 199 Question Id : 81959913634 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

Which of the following is the chemical compound of calomel:

Options :

1. ✔ mercury and mercurous chloride

2. ✖ mercury and mercuric sulphate

3. ✖ mercurous chloride and mercuric chloride

4. ✖ mercury and mercuric chloride

Question Number : 200 Question Id : 81959913635 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1 Wrong Marks : 0

---------- is a desirable static characteristics of instruments.

Options :

1. ✖ Drift

2. ✖ Static error

3. ✖ Dead zone

4. ✔ Reproducibility