Question Paper Preview

Question Paper Name: Chemical Engineering
Subject Name: Chemical Engineering

Mathematics

Number of Questions:	50
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 1 Question Id : 6780944404 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the traces of A and B are 20 and -8 then the trace of (A+B) is ___

Options :

1. 12
2. -12
3. 28
4. -28

Question Number : 2 Question Id : 6780944405 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix} x & 1 \\ 1 & 0 \end{bmatrix}$ is an involutory matrix then x=

Options :

1. 0
2. -2
3. -1
4. 2

Question Number : 3 Question Id : 6780944406 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The determinant of $\begin{bmatrix} \log e & \log e^2 & \log e^3 \\ \log e^2 & \log e^3 & \log e^4 \\ \log e^3 & \log e^4 & \log e^5 \end{bmatrix}$ is ___

Options :

1. 0
2. 1
3. $4\log e$
4. $5\log e$

Question Number : 4 Question Id : 6780944407 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $A=\begin{bmatrix} 1 & 1 & 0 \\ 2 & 1 & 3 \\ 0 & 1 & 2 \end{bmatrix}$ then $\det(adjA) =$ ___

Options :

1. $\det A$
2. $\det A^2$
3. $-\det A$
4. $(\det A)^2$

Question Number : 5 Question Id : 6780944408 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If A, B are two matrices and $AB=B$, $BA=A$ then $A^2+B^2=$

Options :

1. $A+B$
2. $A-B$
3. AB
4. 0

Question Number : 6 Question Id : 6780944409 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. 0
2. 2
3. 3
4. 5

Question Number : 7 Question Id : 6780944410 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\frac{3x}{(x-a)(x-b)}=\frac{2}{x-a}+\frac{1}{x-b}$ then $a:b=$ ___

Options :

1. $-2:1$
2. $2:1$
3. $1:2$
4. $3:1$

Question Number : 8 Question Id : 6780944411 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\tan 855°=$ ____

Options :

1. 1
2. $\frac{1}{\sqrt{2}}$
3. -1
4. $-\frac{1}{\sqrt{2}}$

Question Number : 9 Question Id : 6780944412 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\tan\alpha=\frac{m}{m+1}$ and $\tan\beta=\frac{1}{2m+1}$ then $\tan(\alpha+\beta)=$ ____

Options :

1. -1

2. 0

3. 1

4. 2

Question Number : 10 Question Id : 6780944413 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $6\sin 20° - 8\sin^3 20° =$

Options :

1. 2

2. $\frac{1}{\sqrt{2}}$

3. $\sqrt{3}$

4. $\frac{1}{\sqrt{3}}$

Question Number : 11 Question Id : 6780944414 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $3\sin\theta + 4\cos\theta = 5$ then the value of $4\sin\theta - 3\cos\theta =$

Options :

1. 0

2. -1

3. 1

4. 2

Question Number : 12 Question Id : 6780944415 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The sine function with period 3 is

Options :

1. $sin\frac{2\pi x}{3}$

2. $sin\frac{\pi x}{3}$

3. $sin\ 3\pi x$

4. $sin\frac{3\pi x}{2}$

Question Number : 13 Question Id : 6780944416 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The maximum value of $3\sin^2 x+5\cos^2 x$ is ____

Options :

1. 8

2. 3

3. 5

4. 34

Question Number : 14 Question Id : 6780944417 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The equation $\sqrt{3}\sin x+\cos x=4$ has ____

Options :

1. Only one solution

2. two solutions

3. Infinite solutions

4. no solution

Question Number : 15 Question Id : 6780944418 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The solution of $\mathrm{Cos}^{-1}\left(\sqrt{3}x\right)+\mathrm{Cos}^{-1}x=\frac{\pi}{2}$ is ___

Options :

1. $\frac{1}{2}$

2. $\frac{1}{5}$

3. $-\frac{1}{2}$

4. $-\frac{1}{5}$

Question Number : 16 Question Id : 6780944419 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The value of $\sin\theta+\sin(\theta+120°)-\sin(120°-\theta)=$ _____

Options :

1. 0
2. $\sin\theta$
3. 1
4. $-\sin\theta$

Question Number : 17 Question Id : 6780944420 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The principal solution of $3\text{Cosec}A = 4\text{Sin}A$ is ____

Options :

1. $\frac{\pi}{4}$
2. $\pm\frac{\pi}{3}$
3. $\pm\frac{\pi}{6}$
4. $\pm 2\pi$

Question Number : 18 Question Id : 6780944421 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\left|z^2-1\right|=\left|z\right|^2+1.$ then z lies in ____

Options :

1. The real axis
2. a circle
3. The imaginary axis
4. a parabola

Question Number : 19 Question Id : 6780944422 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $\left(\frac{1+i}{1-i}\right)^3-\left(\frac{1-i}{1+i}\right)^3=a+ib$, then *a* an *b* are ____

Options :

1. 1,1
2. 2,-2
3. 0,-2
4. 0,-1

Question Number : 20 Question Id : 6780944423 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the line $y=2x+c$ is a tangent to $x^2+y^2=5$ then the value of *c* is ____

Options :

1. 2
2. 3
3. 4
4. 5

Question Number : 21 Question Id : 6780944424 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The vertex of the parabola $x^2+8x+12y+4=0$ is

Options :

1. $(-4,1)$
2. $(4,-1)$
3. $(-4,-1)$
4. $(4,1)$

Question Number : 22 Question Id : 6780944425 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The number of tangents to the ellipse $\frac{x^2}{4}+\frac{y^2}{2}=1$ through (2,1) is ____

Options :

1. 0

2. 1

3. 2

4. 3

Question Number : 23 Question Id : 6780944426 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the latus rectum of the hyperbola $x^2-4y^2=4$ is ____

Options :

1. 2

2. 1

3. 4

4. 3

Question Number : 24 Question Id : 6780944427 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of the diameter of the circle $x^2+y^2-6x-8y=0$ is _____

Options :

1. 10

2. 15

3. 5

4. 20

Question Number : 25 Question Id : 6780944428 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the line $2y=5x+k$ touches the parabola $y^2=6x$ then k= ___

Options :

1. $\frac{2}{3}$

2. $\frac{4}{3}$

3. $\frac{3}{5}$

4. $\frac{6}{5}$

Question Number : 26 Question Id : 6780944429 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\lim_{x\to 2+} \frac{x|x-2|}{x-2} = \_\_\_\_\_$$

Options :

1. 1
2. -1
3. 2
4. -2

Question Number : 27 Question Id : 6780944430 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $f(x) = (1+x)^{\frac{2}{x}}$ is continuous at $x = 0$ then $f(0) = \_\_\_$

Options :

1. e
2. e^2
3. e^3
4. e^4

Question Number : 28 Question Id : 6780944431 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x = a\sec\theta, y = b\tan\theta$ then $\frac{dy}{dx} = \_\_\_\_$

Options :

1. $\frac{b}{a}\sec\theta$
2. $\frac{b}{a}\operatorname{cosec}\theta$
3. $\frac{a}{b}\sec\theta$
4. $\frac{a}{b}\operatorname{cosec}\theta$

Question Number : 29 Question Id : 6780944432 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $x^y = e^{x-y}$ then $\frac{dy}{dx} =$ ____

Options :

1. $\frac{\log x}{(1+\log x)^2}$

2. $\frac{\log x}{(1-\log x)^2}$

3. $\frac{-\log x}{(1+\log x)^2}$

4. $\frac{-1}{(1+\log x)^2}$

Question Number : 30 Question Id : 6780944433 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $y = \sin^{-1}\left(\frac{x}{\sqrt{1+x^2}}\right)$ then $\frac{dy}{dx} =$ ____

Options :

1. $-\frac{1}{1+x^2}$

2. $\frac{1}{1+x^2}$

3. $\frac{2}{1+x^2}$

4. $-\frac{2}{1+x^2}$

Question Number : 31 Question Id : 6780944434 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The slope of the normal to the curve $x = a\sec\theta, y = a\tan\theta$ at $\theta = \frac{\pi}{6}$ is ____

Options :

1. 2
2. 0
3. $-\frac{1}{2}$
4. 1

Question Number : 32 Question Id : 6780944435 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of change of area of a circle with respect to radius when r=5cm is

Options :

1. 2π sq.cm/sec
2. 10π sq.cm/sec
3. 100π sq.cm/sec
4. 20π sq.cm/sec

Question Number : 33 Question Id : 6780944436 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following function has maxima or minima?

Options :

1. e^x
2. $\log x$
3. x^3+x^2+x+1
4. $\sin x$

Question Number : 34 Question Id : 6780944437 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the increase in the side of a square is 2% then the approximate percentage increase in the area of the square is _____

Options :

1. 2
2. 4
3. 6
4. 8

Question Number : 35 Question Id : 6780944438 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the function $f(x) = \log(x^2 + y^2)$, which of the following is true?

Options :

1. $f_x + f_y = 0$

2. $f_{xx} + f_{yy} = 0$

3. $f_x - f_y = 0$

4. $f_{xx} - f_{yy} = 0$

Question Number : 36 Question Id : 6780944439 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int \text{cosec}^5\theta \cot\theta d\theta = \_\_\_\_\_$

Options :

1. $\frac{\cot^2\theta}{2}$

2. $\frac{-\text{cosec}^5\theta}{5}$

3. $\frac{\text{cosec}^6\theta}{6}$

4. $\frac{-\text{cosec}^6\theta}{6}$

Question Number : 37 Question Id : 6780944440 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int_2^3 \frac{dx}{x^2 - x} = \_\_\_\_$

Options :

1. $\log\frac{2}{3}$

2. $\log\frac{4}{3}$

3. $\log\frac{8}{3}$

4. $\log\frac{1}{4}$

Question Number : 38 Question Id : 6780944441 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $a<0<b$ then $\int_a^b \frac{|x|}{x}dx =$ _____

Options :

1. $b-a$

2. $a-b$

3. $a+b$

4. 0

Question Number : 39 Question Id : 6780944442 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\int_0^1 x\tan^{-1}x dx =$ _____

Options :

1. $\frac{\pi}{4}-\frac{1}{2}$

2. $\frac{\pi}{8}-\frac{1}{2}$

3. $\frac{\pi}{4}+\frac{1}{2}$

4. $\frac{\pi}{8}+\frac{1}{2}$

Question Number : 40 Question Id : 6780944443 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$\lim_{n\to\infty}\sum_{r=1}^{n}\frac{1}{n}e^{\frac{r}{n}} =$ _____

Options :

1. e

2. $(1+e)$

3. $(1-e)$

4. $(e-1)$

Question Number : 41 Question Id : 6780944444 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$$\int_0^{\pi/4} \sec^6 x dx = \_\_\_\_\_$$

Options :

1. $\frac{8}{3}$

2. $\frac{28}{15}$

3. $-\frac{28}{15}$

4. $\frac{4}{5}$

Question Number : 42 Question Id : 6780944445 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The area bounded by the curve $y = \log x$, x-axis and the straight line $x - e = 0$ is _____square units

Options :

1. e

2. $(e-1)$

3. 0

4. $(1-e)$

Question Number : 43 Question Id : 6780944446 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The volume of the solid generated by rotating one arch of the curve $y = Sin3x$ about the x-axis is----

Options :

1. π^2

2. $\frac{\pi^2}{2}$

3. $\frac{\pi^2}{4}$

4. $\frac{\pi^2}{6}$

Question Number : 44 Question Id : 6780944447 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

$y = cx - c^2$ is the general solution of the differential equation

Options :

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

2. $\frac{d^2y}{dx^2} = 0$

3. $\frac{dy}{dx} = c$

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

Question Number : 45 Question Id : 6780944448 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of the differential equation $\frac{dy}{dx} + \frac{y}{3} = 1$ is

Options :

1. $y = 3 + ce^{\frac{x}{3}}$

2. $y = 3 + ce^{-\frac{x}{3}}$

3. $3y = c + e^{\frac{x}{3}}$

4. $3y = c + e^{-\frac{x}{3}}$

Question Number : 46 Question Id : 6780944449 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation corresponding to the family of curves $y = ae^{bx}$, where *a* and *b* are arbitrary constants, is ____

Options :

1. $\frac{d^2y}{dx^2} = y\frac{dy}{dx}$

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

3. $y\frac{d^2y}{dx^2} = \left(\frac{dy}{dx}\right)^2$

4. $\frac{dy}{dx} - y^2 = 0$

Question Number : 47 Question Id : 6780944450 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An integrating factor of the differential equation $(x^2y + y + 1)dx + (x + x^3)dy = 0$ is __

Options :

1. e^x

2. x^2

3. $\frac{1}{x}$

4. x

Question Number : 48 Question Id : 6780944451 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The differential equation whose solution is $Ax^2 + By^2$, where A,B are arbitrary constants are of ----

Options :

1. 1^{st} order and 1^{st} degree

2. 2^{nd} order and 1^{st} degree

3. 2^{nd} order and 2^{nd} degree

4. 1^{st} order and 2^{nd} degree

Question Number : 49 Question Id : 6780944452 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The general solution of the differential equation $\frac{d^2x}{dt^2}-4\frac{dx}{dt}+5x=0$ is

Options :

1. $x=(c_1\cos t+c_2\sin t)e^{2t}$

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

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

4. $t=(c_1\cos 2x+c_2\sin 2x)e^{x}$

Question Number : 50 Question Id : 6780944453 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The particular integral of $(D-2)^2y=\sin 2x$ is

Options :

1. $\frac{\cos 2x}{8}$

2. $\frac{\sin 2x}{8}$

3. $\frac{-\cos 2x}{2}$

4. $\frac{-\sin 2x}{2}$

Physics

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 51 Question Id : 6780944454 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The unit of impulse is the same as that of

Options :

1. moment of force

2. linear momentum

3. force

4. pressure

Question Number : 52 Question Id : 6780944455 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If the force is given by $F = at+bt^2$ where t is the time. The dimensions of a and b are

Options :

1. MLT^{-4}, MLT^{-2}

2. MLT^{-3}, MLT^{-4}

3. ML^2T^{-3}, ML^2T^{-2}

4. ML^2T^{-3}, ML^3T^{-4}

Question Number : 53 Question Id : 6780944456 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Vector parallel to $6\hat{i} + 8\hat{j}$ and having a magnitude of 5 is

Options :

1. $4\hat{i} + 3\hat{j}$

2. $12\hat{i} + 16\hat{j}$

3. $16\hat{i} + 8\hat{j}$

4. $3\hat{i} + 4\hat{j}$

Question Number : 54 Question Id : 6780944457 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

If $|\vec{A} \times \vec{B}| = K(AB)$ then angle between $\vec{A}$ and $\vec{B}$ is

Options :

1. $\cos^{-1}K$

2. $\cos^{-1}(1/K)$

3. $\sin^{-1}K$

4. $\sin^{-1}(1/K)$

Question Number : 55 Question Id : 6780944458 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cricket ball is thrown at a speed of 28 m/s in a direction 30^0 above the horizontal. The maximum height reached by the ball is

Options :

1. 10 m

2. 20 m

3. 30 m

4. 40 m

Question Number : 56 Question Id : 6780944459 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Two bodies are projected at angles of 45^0 and 60^0 with the horizontal with same velocity simultaneously. Ratio of their horizontal ranges is

Options :

1. $\sqrt{3}:2$

2. $2:\sqrt{3}$

3. 1:2

4. 2:1

Question Number : 57 Question Id : 6780944460 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A ball thrown by a boy is caught 2 seconds later by another at some distance away on the same level. If the angle of projection is 30^0, the velocity of projection is

Options :

1. 19.6 m/sec

2. 9.8 m/sec

3. 4.9 m/sec

4. 5.2 m/sec

Question Number : 58 Question Id : 6780944461 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A 200 m wide river flows with a velocity of 5 m/sec. A man crosses the river in the shortest time of 25 sec. If there is no flow and he swims with the same velocity, the time taken to cross the river is

Options :

1. $\frac{200}{5\sqrt{3}}$ sec

2. 20 sec

3. 25 sec

4. $25\sqrt{2}$ sec

Question Number : 59 Question Id : 6780944462 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A body of mass 1 Kg lies on an inclined plane of angle 60^0 to the horizontal. If the coefficient of friction is 0.4, the frictional force along the inclined plane is

Options :

1. 1.96 N

2. 0.98 N

3. 0.49 N

4. 0.245 N

Question Number : 60 Question Id : 6780944463 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A force of 20 Kg weight is required to just slide a wooden box weighing 50 Kg over ice. Then coefficient of static friction between the surfaces in contact is

Options :

1. 0.2

2. 0.4

3. 0.8

4. 0.1

Question Number : 61 Question Id : 6780944464 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A cyclist comes to a skidding stop in 10m. During this process, the force on the cycle due to the road is 200N and is directly opposed to the motion. The work done by the road on the cycle is

Options :

1. 1000 J

2. 2000J

3. -1000J

4. -2000J

Question Number : 62 Question Id : 6780944465 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A sphere of mass 4 Kg is dropped from a certain height. After 5s, its kinetic energy is ($g=10\ m/s^2$)

Options :

1. 5J

2. 50 J

3. 5 KJ

4. 50 KJ

Question Number : 63 Question Id : 6780944466 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

An elevator weighing 500 kg is to be lifted up at a constant velocity of 0.20 m/s. What would be the minimum power of the motor to be used?

Options :

1. 100 W

2. 500 W

3. 980 W

4. 900 W

Question Number : 64 Question Id : 6780944467 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

At t=0, the displacement of a particle in SHM is half its amplitude. Its initial phase is (referring to mean position)

Options :

1. $\frac{\pi}{6}$

2. $\frac{\pi}{3}$

3. $\frac{2\pi}{3}$

4. $\frac{\pi}{2}$

Question Number : 65 Question Id : 6780944468 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The length of seconds pendulum is 100 cm. To have a period half of this value, the length is to be reduced by

Options :

1. 25 cm

2. 75 cm

3. 50 cm

4. 100 cm

Question Number : 66 Question Id : 6780944469 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Inside a big hall, the reverberation time is

Options :

1. directly proportional to volume

2. inversely proportional to sound absorption

both directly proportional to volume

and

inversely proportional to sound absorption

3.

depends on temperature

4.

Question Number : 67 Question Id : 6780944470 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The voice of lion is different from that of a mosquito because

Options :

1. the sounds have different pitch

2. they are of different size

3. the two voices travel with different velocities

4. the sounds have different phases

Question Number : 68 Question Id : 6780944471 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A car is travelling at $\frac{v}{10}$ m/s and sounds horn of frequency 990 Hz. The apparent frequency heard by a police chasing the car at $\frac{v}{9}$ m/s (v is the velocity of sound) is

Options :

1. 990 Hz

2. 900 Hz

3. 100 Hz

4. 1000Hz

Question Number : 69 Question Id : 6780944472 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When ice cube melts and becomes water, the ice-water system undergoes a change such that

Options :

1. entropy of the system decreases and internal energy decreases

2. entropy of the system decreases and internal energy increases

3. entropy of the system increases and internal energy increases

4. entropy of the system increases and internal energy decreases

Question Number : 70 Question Id : 6780944473 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A mass of 300 gm falls from a height of 3 m(g=9.8 m/s^2). Assuming that the whole energy is converted into heat, the amount of heat produced is

Options :

1. 2 cal

2. 2.1 cal

3. 4 cal

4. 4.2 cal

Question Number : 71 Question Id : 6780944474 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During an adiabatic expansion of 2 moles of a gas, the change in internal energy was found to be equal to 100 J. The work done during the process will be equal to

Options :

1. zero

2. -100 J

3. 200 J

4. 100 J

Question Number : 72 Question Id : 6780944475 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pressure and density of a diatomic gas ($\gamma = \frac{7}{5}$) change adiabatically from (P,d) to (P^1,d^1). If $\frac{d^1}{d} = 32$, then $\frac{P^1}{P}$ is

Options :

1. 128

2. 32

3. 256

4. 64

Question Number : 73 Question Id : 6780944476 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Boyle's law holds good for an ideal gas during

Options :

1. isobaric changes

2. isothermal changes

3. isochoric changes

4. isotopic changes

Question Number : 74 Question Id : 6780944477 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The threshold frequency of metal is υ_0. When a light of frequency 4 υ_0 is incident on metal then the $K.E_{max}$ of emitted electrons is

Options :

1. $2\upsilon_0 h$

2. $3\upsilon_0 h$

3. $4\upsilon_0 h$

4. $\upsilon_0 h$

Question Number : 75 Question Id : 6780944478 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Superconductors are _____ materials

Options :

1. dielectric

2. paramagnetic

3. ferromagnetic

4. diamagnetic

Number of Questions:	25
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 76 Question Id : 6780944479 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Pauli exclusion principle is concerned with

Options :

1. Energy of orbital.
2. Spin of electron.
3. Energy of electron
4. Angular momentum of electron

Question Number : 77 Question Id : 6780944480 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

According to Bohr's model of hydrogen atom, the following is quantized

Options :

1. Linear momentum
2. Linear velocity
3. Angular momentum
4. Angular velocity

Question Number : 78 Question Id : 6780944481 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

How many 'd' – orbitals have two perpendicular nodal planes

Options :

1. Two
2. Three
3. Four
4. Five

Question Number : 79 Question Id : 6780944482 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In sodium chloride crystal, each Na^+ ion is surrounded by

Options :

1. Two Cl^- ions
2. Four Cl^- ions
3. Six Cl^- ions
4. Eight Cl^- ions

Question Number : 80 Question Id : 6780944483 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which among the following molecule contains a π – bond

Options :

1. H_2
2. O_2
3. F_2
4. HCl

Question Number : 81 Question Id : 6780944484 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which among the following is insoluble in water?

Options :

1. Alcohol
2. Ammonia
3. Benzene
4. Acetone

Question Number : 82 Question Id : 6780944485 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The normality of 2.3 M H_2SO_4 solution is

Options :

1. 0.46N
2. 0.23 N
3. 2.3 N

4. 4.6N

Question Number : 83 Question Id : 6780944486 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

8 grams of substance of molecular weight 40 is dissolved in 250 g of water. Then the **molality** of the solution is

Options :

1. 0.4

2. 0.8

3. 0.2

4. 0.6

Question Number : 84 Question Id : 6780944487 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The pH value of 0.05M $Ba(OH)_2$ solution is

Options :

1. 10

2. 12

3. 13

4. 11

Question Number : 85 Question Id : 6780944488 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following molecule is not a Lewis Base?

Options :

1. H_2O

2. BF_3

3. NH_3

4. CO

Question Number : 86 Question Id : 6780944489 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

During the electrolysis of brine, 710 g of Cl_2 was liberated at anode. The weight of NaOH formed

Options :

1. 800 g

2. 400 g

3. 80 g

4. 40 g

Question Number : 87 Question Id : 6780944490 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In the Danniel cell, which electrode acts as anode?

Options :

1. Cu

2. Hg

3. Zn

4. Pt

Question Number : 88 Question Id : 6780944491 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The molar conductance of HCl is more than that of NaCl because

Options :

1. NaCl is more polar than KCl

2. NaCl is ionic while HCl is covalent

3. Ionic mobility of H^+ is more than that of Na^+

4. H^+ get hydrated.

Question Number : 89 Question Id : 6780944492 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The units for electrochemical equivalent are

Options :

1. grams

2. grams ampere

3. Coulomb

4. Grams per coulomb

Question Number : 90 Question Id : 6780944493 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Zeolite softening process removes

Options :

1. Only permanent hardness of water
2. Only temporary hardness of water
3. Both temporary and permanent hardness of water
4. The dissolved gases in permanent hard water.

Question Number : 91 Question Id : 6780944494 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The permanent hardness of water is caused by the presence of

Options :

1. Bicarbonates of Ca and Mg
2. Carbonates of Na and K
3. Chlorides and Sulphates of Ca and Mg.
4. Phosphates of Na and K

Question Number : 92 Question Id : 6780944495 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The secondary treatment of water uses _____ to consume wastes in water.

Options :

1. Filtration
2. Sedimentation
3. Chemicals
4. Microorganisms

Question Number : 93 Question Id : 6780944496 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Difficult to monitor and very dangerous form of corrosion is

Options :

1. Galvanic
2. Pitting

3. Crevice

4. Stress

Question Number : 94 Question Id : 6780944497 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

When Pt and Co are electrically connected, which one gets corroded?

Options :

1. Co

2. Pt

3. None

4. both

Question Number : 95 Question Id : 6780944498 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What rubber was invented when Dr. Joseph C. Patrick tried to make antifreeze?

Options :

1. Methyl rubber

2. Chloroprene

3. Bruna N

4. Thiokol

Question Number : 96 Question Id : 6780944499 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The first plastic ever synthesized was called _____.

Options :

1. Bakelite

2. Nylon

3. Dacron

4. Cellulose

Question Number : 97 Question Id : 6780944500 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is a brand of polyester textile fiber that is wrinkle resistant and strong

Options :

1. Cellulose

2. Dacron

3. Bakelite

4. Nylon

Question Number : 98 Question Id : 6780944501 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Water gas is a mixture of

Options :

1. $H_2 + CO$

2. $N_2 + CO$

3. $H_2 + CO_2$

4. $H_2 + CH_4$

Question Number : 99 Question Id : 6780944502 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a greenhouse gas?

Options :

1. CO

2. CO_2

3. water vapour

4. CH_4

Question Number : 100 Question Id : 6780944503 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Burning of fossil fuels causes

Options :

1. Global warming

2. Ozone depletion

3. Acid rain

4. Eutrophication

Number of Questions:	100
Display Number Panel:	Yes
Group All Questions:	No

Question Number : 101 Question Id : 6780944504 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Presence of _____ impurity in cast iron makes it hard and brittle

Options :

1. Silicon
2. Manganese
3. Sulphur
4. Phosphorus

Question Number : 102 Question Id : 6780944505 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Galvanization means coating of _____ on the iron and steel objects.

Options :

1. Carbon
2. Chromium
3. Rubber
4. Zinc

Question Number : 103 Question Id : 6780944506 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Blast furnace produces _____ by reduction of iron ore

Options :

1. Cast Iron
2. Wrought iron
3. Pig iron
4. Malleable iron

Question Number : 104 Question Id : 6780944507 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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. All of the above

Question Number : 105 Question Id : 6780944508 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Constantan is an alloy of

Options :

1. Copper and tin
2. Copper and nickel
3. Copper and iron
4. Copper and zinc

Question Number : 106 Question Id : 6780944509 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Example for an amorphous material

Options :

1. Glass
2. Silver
3. Mica
4. Lead

Question Number : 107 Question Id : 6780944510 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Percentage of S in SO_2 is

Options :

1. 20
2. 25

3. 50

4. 75

Question Number : 108 Question Id : 6780944511 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Kopp's rule is concerned with the calculation of

Options :

1. Thermal conductivity

2. Heat capacity

3. Viscosity

4. Surface tension

Question Number : 109 Question Id : 6780944512 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

With rise in pressure, the solubility of gases in solvent, at a fixed temperature

Options :

1. Decreases

2. Remains unchanged

3. Decrease linearly

4. increases

Question Number : 110 Question Id : 6780944513 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A solution is made by dissolving 1 kilo mole of solute in 2000 kg of solvent. The molality of the solution is

Options :

1. 0.5

2. 1

3. 2

4. 5

Question Number : 111 Question Id : 6780944514 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Average molecular weight of air is about

Options :

1. 21

2. 27

3. 29

4. 23

Question Number : 112 Question Id : 6780944515 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Avogadro number is the number of molecules in one _____of a gas.

Options :

1. Gram

2. Litre

3. Kilo gram

4. Gram mole

Question Number : 113 Question Id : 6780944516 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

40 g each of the methane and oxygen are mixed in an empty container maintained at 40^0C. The fraction of the total pressure exerted by oxygen is

Options :

1. 0.5

2. 0.33

3. 0.25

4. 0.2

Question Number : 114 Question Id : 6780944517 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A sugar solution containing _____ percent sugar is equivalent to 1^o Brix.

Options :

1. 1

2. 10

3. 0.1

4. 4

Question Number : 115 Question Id : 6780944518 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The vapor pressures of benzene and toluene are 3 and 4/3 atmospheres respectively. A liquid feed of 0.4 moles of benzene and 0.6 moles of toluene is vapourised. Assuming that the products are in equilibrium, the vapor phase mole fraction of benzene is

Options :

1. 0.2
2. 0.4
3. 0.6
4. 0.8

Question Number : 116 Question Id : 6780944519 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Nylon-6 is manufactured from

Options :

1. adipic acid and hexamethylene diamine.
2. sebasic acid and hexamethylene diamine
3. caprolactum.
4. maleic anhydride and hexamethylene diamine

Question Number : 117 Question Id : 6780944520 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Cellulose is the main constituent of most _____ fibers.

Options :

1. Acrylic
2. Synthetic
3. Sephadex
4. Natural

Question Number : 118 Question Id : 6780944521 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a coal chemical?

Options :

1. Methanol

2. SBR

3. Ethylene

4. Formaldehyde

Question Number : 119 Question Id : 6780944522 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Petroleum is a complex, naturally occurring liquid mixture containing mostly_____.

Options :

1. Hydro carbons

2. Carbohydrates

3. Oxygen

4. Sulphur

Question Number : 120 Question Id : 6780944523 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ are the materials, which are added in detergents to alter their physical characteristics and properties.

Options :

1. Detergent fillers

2. Detergent builders

3. Detergent boosters

4. Detergent activators

Question Number : 121 Question Id : 6780944524 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Catalyst used in gasoline production is

Options :

1. HCl

2. H_2SO_4

3. Na_2SO_4

4. KOH

Question Number : 122 Question Id : 6780944525 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Country that produces the most paper & paper board is

Options :

1. China
2. Japan
3. USA
4. Canada

Question Number : 123 Question Id : 6780944526 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Largest sugar producing state in India is

Options :

1. Karnataka
2. Maharashtra
3. Tamilnadu
4. Uttar Pradesh

Question Number : 124 Question Id : 6780944527 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Prilling tower is found in the flow sheet for the manufacture of

Options :

1. Ammonia
2. Superphosphate
3. Triple superphosphate
4. Urea

Question Number : 125 Question Id : 6780944528 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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

Options :

1. Filtration
2. Disinfection
3. Coagulation

4. Flocculation

Question Number : 126 Question Id : 6780944529 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Both temporary and permanent hardness of water can be removed by

Options :

1. Boiling

2. Decantation

3. Distillation

4. Filtration

Question Number : 127 Question Id : 6780944530 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

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 : 128 Question Id : 6780944531 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Non drying oils can be used in paints, for_____

Options :

1. Fast drying

2. Slow drying

3. Activate chemical reaction

4. Flexibility

Question Number : 129 Question Id : 6780944532 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Pigment, which dissolves in a binder is called

Options :

1. Lacquer

2. Dye

3. Varnish

4. Solute

Question Number : 130 Question Id : 6780944533 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Country can be stated as more developed if it is utilizing which of the following chemical more?

Options :

1. Sulphuric Acid

2. Nitric Acid

3. Acetic Acid

4. Benzoic Acid

Question Number : 131 Question Id : 6780944534 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Major component of cement

Options :

1. Silica

2. Lime

3. Alumina

4. Magnesia

Question Number : 132 Question Id : 6780944535 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The head loss in turbulent flow is proportional to

Options :

1. Velocity

2. Diameter

3. $(\text{Velocity})^2$

4. $(\text{Diameter})^2$

Question Number : 133 Question Id : 6780944536 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A Newtonian fluid is defined as the fluid which

Options :

1. Obeys Hook's law

2. Obeys Fick's law

3. Obeys Newton's law of viscosity

4. Obeys Fourier's law

Question Number : 134 Question Id : 6780944537 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Reynolds number signifies the ratio of

Options :

1. gravity force to viscous forces

2. inertial forces to viscous forces

3. inertia forces to gravity forces

4. buoyant forces to inertia forces

Question Number : 135 Question Id : 6780944538 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a hydrodynamic pump?

Options :

1. vane pump

2. centrifugal pump

3. gear pump

4. piston pump

Question Number : 136 Question Id : 6780944539 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which one of the following helps in avoiding cavitation in centrifugal pumps?

Options :

1. Low suction pressure

2. High delivery pressure

3. Low delivery pressure

4. High suction pressure

Question Number : 137 Question Id : 6780944540 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Venturi meters have

Options :

1. High head loss, low co-efficient of discharge and small size

2. low head loss, low co-efficient of discharge and large size

3. low head loss, high co-efficient of discharge and large size

4. High head loss, low co-efficient of discharge and large size

Question Number : 138 Question Id : 6780944541 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Fluid is a substance which offers no resistance to change of

Options :

1. Shape

2. Pressure

3. Temperature

4. Volume

Question Number : 139 Question Id : 6780944542 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Falling drops of water become spheres due to the property of

Options :

1. Compressibility

2. Viscosity

3. Surface tension

4. Cohesion

Question Number : 140 Question Id : 6780944543 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For the transfer of powdered material, best conveyor is _____

Options :

1. Screw conveyor

2. Chain conveyor

3. Belt conveyor

4. Wheel conveyor

Question Number : 141 Question Id : 6780944544 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The body which absorbs all radiations incident upon it, is called as

Options :

1. Black body

2. White body

3. Opaque body

4. Transparent body

Question Number : 142 Question Id : 6780944545 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Thermal conductivity is minimum for

Options :

1. Asphalt

2. Coke

3. Water

4. Air

Question Number : 143 Question Id : 6780944546 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Grashof number is proportional to

Options :

1. the ratio of viscous force to buoyancy force

2. the ratio of buoyancy force to elastic force

3. the ratio of buoyancy force to viscous force

4. the ratio of viscous force to inertial force

Question Number : 144 Question Id : 6780944547 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

What is Pradntl number?

Options :

1. $\frac{C_p \cdot \mu}{k}$

2. $\frac{hD}{k}$

3. $\frac{h \cdot C_p}{\mu}$

4. $\frac{C_p \cdot \mu}{h}$

Question Number : 145 Question Id : 6780944548 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The ratio of energy transferred by convection to that by conduction is called

Options :

1. Stanton number

2. Nusselt number

3. Biot number

4. Peclet number

Question Number : 146 Question Id : 6780944549 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Units for thermal conductivity

Options :

1. J/kg.K

2. J/mol.K

3. J.ohm/sec.K^2

4. W/m.K

Question Number : 147 Question Id : 6780944550 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Maximum heat transfer rate is achieved in _____ flow.

Options :

1. Turbulent
2. Co-current
3. Counter current
4. Laminar

Question Number : 148 Question Id : 6780944551 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

With increase in temperature, the surface tension of water

Options :

1. increases
2. decreases
3. remains same
4. first increases up to a certain temperature and then become constant

Question Number : 149 Question Id : 6780944552 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The rate of heat transfer is a product of overall heat transfer co-efficient, the difference in temperature and the

Options :

1. Heat transfer area
2. Heat transfer volume
3. Nusselt number
4. Velocity

Question Number : 150 Question Id : 6780944553 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Value of Nusselt number [Nu = (hD/k)] for the heat transfer by conduction from a droplet or a spherical particle to a surrounding stagnant film is

Options :

1. 100
2. 10

3. 0.5

4. 2

Question Number : 151 Question Id : 6780944554 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a pressure filter?

Options :

1. Rotary drum filter

2. Plate and frame filter

3. Sand filter

4. Leaf filter(Moore filter)

Question Number : 152 Question Id : 6780944555 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the commonly used 'filter aid'

Options :

1. Vermiculite

2. Fuller's earth

3. Diatomaceous earth

4. Semi plastic clay

Question Number : 153 Question Id : 6780944556 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gravity settling process is not involved in the working of a

Options :

1. Hydro cyclone

2. Sedimentation tank

3. Dorr-thickener

4. Classifier

Question Number : 154 Question Id : 6780944557 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Trommels separate a mixture of particles depending on their

Options :

1. Wettability

2. Electrical and magnetic properties

3. Density

4. Size

Question Number : 155 Question Id : 6780944558 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Basic slag is not ground in

Options :

1. Tube mills

2. Ball mills

3. Jaw crushers

4. Compartment mills

Question Number : 156 Question Id : 6780944559 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Grindability of a material does not depend upon its

Options :

1. Toughness

2. Elasticity

3. Hardness

4. Size

Question Number : 157 Question Id : 6780944560 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Screen capacity is not a function of

Options :

1. Atmospheric humidity

2. Screening surface

3. Screening mechanism

4. Its openings size

Question Number : 158 Question Id : 6780944561 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Size reduction in a Hammer mill is done by the _____ action.

Options :

1. attrition
2. impact
3. compression
4. cutting

Question Number : 159 Question Id : 6780944562 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

For any system, what is the minimum number of degrees of freedom?

Options :

1. 0
2. 1
3. 2
4. 3

Question Number : 160 Question Id : 6780944563 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Throttling process is a/an _____ process.

Options :

1. reversible and isothermal
2. reversible and constant entropy
3. irreversible and constant enthalpy
4. reversible and constant enthalpy

Question Number : 161 Question Id : 6780944564 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an ideal gas mixture, fugacity of a species is equal to its

Options :

1. Partial pressure
2. Vapor pressure
3. Chemical potential
4. Density

Question Number : 162 Question Id : 6780944565 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

C_p - C_v, for an ideal gas is equal to

Options :

1. R /2
2. R
3. $2R$
4. $3R$

Question Number : 163 Question Id : 6780944566 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A refrigerator works on the principle of _____ law of thermodynamics.

Options :

1. Zeroth
2. First
3. Second
4. Third

Question Number : 164 Question Id : 6780944567 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The excess energy of reactants in a chemical reaction required to dissociate into products is termed as the _____ energy.

Options :

1. activation
2. potential
3. binding
4. threshold

Question Number : 165 Question Id : 6780944568 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A reaction in which one of the products of reaction acts as a catalyst is called a/an _____ reaction.

Options :

1. catalytic
2. autocatalytic

3. photochemical

4. data insufficient

Question Number : 166 Question Id : 6780944569 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The units of frequency factor in Arrhenius equation

Options :

1. are same as those of the rate constant.

2. depend on temperature, pressure etc. of the reaction.

3. depend on the order of the reaction.

4. are cycles per unit time.

Question Number : 167 Question Id : 6780944570 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

A catalyst

Options :

1. initiates a reaction.

2. lowers the activation energy of reacting molecules.

3. is capable of reacting with any one of the reactants.

4. cannot be recovered chemically unchanged at the end of a chemical reaction.

Question Number : 168 Question Id : 6780944571 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

In an exothermic chemical reaction, the reactants compared to the products have

Options :

1. less energy

2. same energy

3. more energy

4. higher temperature

Question Number : 169 Question Id : 6780944572 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Rayleigh equation applies to _____ distillation.

Options :

1. molecular

2. flash

3. steam

4. differential

Question Number : 170 Question Id : 6780944573 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The relative volatility required for separation of a non-ideal binary mixture by distillation should be

Options :

1. 0

2. 1

3. > 1

4. < 1

Question Number : 171 Question Id : 6780944574 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

With increase in Temperature, the mutual solubility of two liquids

Options :

1. Decreases

2. Increases

3. Remains constant

4. Decays exponentially

Question Number : 172 Question Id : 6780944575 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The binary diffusivity in gases and liquids vary respectively as

Options :

1. $T^{3/2}$ and T

2. T and $T^{3/2}$

3. $T^{1/2}$ and $T^{3/2}$

4. $T^{3/2}$ and $T^{1/2}$

Question Number : 173 Question Id : 6780944576 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Drying operation under vacuum is carried out to

Options :

1. dry materials having high bound moisture content.

2. dry those materials which have very high unbound moisture content.

3. increase drying temperature.

4. reduce drying temperature.

Question Number : 174 Question Id : 6780944577 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Solutions which distill without change in compositions are called _____ solutions.

Options :

1. Ideal

2. Saturated

3. Super saturated

4. Azeotropic

Question Number : 175 Question Id : 6780944578 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gases diffuse faster compared to liquids because of the reason that the liquid molecules

Options :

1. are held together by stronger inter-molecular forces

2. Move faster

3. have no definite shape

4. are heavier

Question Number : 176 Question Id : 6780944579 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Sherwood number is a ratio of

Options :

1. diffusion mass transfer to the convective mass transfer

2. convective mass transfer to the diffusion mass transfer

3. thermal mass transfer to the diffusion mass transfer

4. diffusion mass transfer to the thermal mass transfer

Question Number : 177 Question Id : 6780944580 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Extractor most suitable for extraction in a system having very low density difference is

Options :

1. Mixer-settler extractor

2. Pulsed extractor

3. Packed extraction tower

4. Centrifugal extractor

Question Number : 178 Question Id : 6780944581 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following temperature measuring instruments need not touch the object whose temperature is being measured ?

Options :

1. Radiation/infrared pyrometer

2. Filled system thermometer

3. Mercury in glass thermometer

4. Thermo electric pyrometer

Question Number : 179 Question Id : 6780944582 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Response of a system to a sinusoidal input is called _____ response.

Options :

1. Impulse

2. Unit step

3. Frequency

4. Setup

Question Number : 180 Question Id : 6780944583 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is an undesirable dynamic characteristic of an instrument ?

Options :

1. Reproducibility

2. Dead zone

3. Static error

4. Time lag

Question Number : 181 Question Id : 6780944584 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is a first order system ?

Options :

1. Interacting system of two tanks in series.

2. Mercury in glass thermometer kept in boiling water.

3. Damped vibrator.

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

Question Number : 182 Question Id : 6780944585 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Venturi meter is a _____ meter

Options :

1. variable area

2. variable head

3. static area

4. static head

Question Number : 183 Question Id : 6780944586 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ controller has the least maximum deviation.

Options :

1. P

2. PID

3. PI

4. PD

Question Number : 184 Question Id : 6780944587 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Mercury thermometer can be used to measure the temperature up to _____ °C.

Options :

1. 100

2. 250

3. 350

4. 750

Question Number : 185 Question Id : 6780944588 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Gas chromatography is used for the measurement of

Options :

1. Temperature

2. Pressure

3. Concentration

4. Flow rate

Question Number : 186 Question Id : 6780944589 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Particulates (< 1μm size) remaining suspended in air indefinitely and transported by wind currents are called

Options :

1. smoke

2. fumes

3. mists

4. aerosols

Question Number : 187 Question Id : 6780944590 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Turbidity of water is an indication of the presence of

Options :

1. dissolved solids
2. suspended inorganic matter
3. floating solids
4. dissolved gases

Question Number : 188 Question Id : 6780944591 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Temporary hardness is caused due to

Options :

1. Magnesium carbonate
2. Calcium sulphate
3. Magnesium sulphate
4. Magnesium chloride

Question Number : 189 Question Id : 6780944592 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Water pollution is primarily caused by

Options :

1. forest fires
2. volcanic eruptions
3. biological decay
4. human activities

Question Number : 190 Question Id : 6780944593 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Layer of atmosphere that absorbs ultraviolet rays from Sun is called

Options :

1. troposphere
2. ozone layer
3. thermosphere

4. mesosphere

Question Number : 191 Question Id : 6780944594 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Problem of solid waste disposal can be reduced through

Options :

1. recycling

2. lesser pollution

3. more timber

4. population control

Question Number : 192 Question Id : 6780944595 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The Indian Parliament passed the Biological Diversity Act in the year_____

Options :

1. 2000

2. 2002

3. 2004

4. 2006

Question Number : 193 Question Id : 6780944596 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is the least polluting fuel for vehicle

Options :

1. Kerosene

2. Petrol

3. Diesel

4. CNG

Question Number : 194 Question Id : 6780944597 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The fuel used in the nuclear reactor is _____.

Options :

1. Cadmium

2. Radium

3. Thorium

4. Uranium

Question Number : 195 Question Id : 6780944598 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The main constituent of natural gas is

Options :

1. Oxygen

2. Hydrogen

3. Methane

4. Carbon dioxide

Question Number : 196 Question Id : 6780944599 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____ is not a fossil fuel.

Options :

1. Coal

2. Natural gas

3. Petroleum

4. Wind energy

Question Number : 197 Question Id : 6780944600 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Outer combustion chamber of blast furnace stove is lined with _____ bricks.

Options :

1. Zirconia

2. Fireclay

3. Chrome Magnesite

4. Silica

Question Number : 198 Question Id : 6780944601 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

The function of moderators in nuclear reactor is to

Options :

1. Slow down the secondary neutrons

2. Absorb the secondary neutrons

3. Speedup the secondary neutrons

4. Control the chain reaction.

Question Number : 199 Question Id : 6780944602 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

_____is best suited to extinguishing oil or flammable liquid fire.

Options :

1. Soda acid

2. Vaporizing liquid

3. Foam

4. Dry chemical

Question Number : 200 Question Id : 6780944603 Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Which of the following is very poisonous gas ?

Options :

1. CO_2

2. N_2

3. O_2

4. CO

APECET 2017 PRELIMINARY KEY
Subject:CHEMICAL ENGINEERING

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	1	51	2	101	3	151	2
2	1	52	2	102	4	152	3
3	1	53	4	103	3	153	1
4	4	54	3	104	1	154	4
5	1	55	1	105	2	155	3
6	2	56	2	106	1	156	4
7	1	57	1	107	3	157	1
8	3	58	3	108	2	158	2
9	3	59	1	109	4	159	1
10	3	60	2	110	1	160	3
11	1	61	4	111	3	161	1
12	1	62	4	112	4	162	2
13	3	63	3	113	2	163	3
14	4	64	1	114	1	164	1
15	1	65	2	115	3	165	2
16	1	66	3	116	3	166	1
17	2	67	1	117	4	167	2
18	3	68	4	118	2	168	3
19	3	69	3	119	1	169	4
20	4	70	2	120	1	170	3
21	1	71	2	121	2	171	2
22	3	72	1	122	3	172	1
23	2	73	2	123	4	173	4
24	1	74	2	124	4	174	4
25	4	75	4	125	1	175	1
26	3	76	2	126	3	176	2
27	2	77	3	127	3	177	4
28	2	78	3	128	4	178	1
29	1	79	3	129	2	179	3
30	2	80	2	130	1	180	4
31	1	81	3	131	2	181	2
32	2	82	4	132	3	182	2
33	4	83	2	133	3	183	4
34	2	84	3	134	2	184	3
35	2	85	2	135	2	185	3
36	2	86	1	136	4	186	4
37	2	87	3	137	3	187	2
38	3	88	3	138	1	188	1
39	3	89	4	139	3	189	4
40	4	90	3	140	1	190	2
41	2	91	3	141	1	191	1
42	3	92	4	142	4	192	2
43	4	93	2	143	3	193	4
44	1	94	1	144	1	194	4
45	2	95	4	145	3	195	3
46	3	96	1	146	4	196	4
47	4	97	2	147	1	197	2
48	2	98	1	148	2	198	1
49	1	99	1	149	1	199	3
50	1	100	3	150	4	200	4