Andhra Pradesh State Council of Higher Education

Notations :

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

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

Question Paper Name :	Chemical Engineering 06th May 2025 Shift 1
Subject Name :	Chemical Engineering
Creation Date :	2025-05-06 14:10:34
Duration :	180
Total Marks :	200
Display Marks:	No
Share Answer Key With Delivery Engine :	Yes
Change Font Color :	No
Change Background Color :	No
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Chemical Engineering

Group Number :	1
Group Id :	89040171
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	200

Mathematics

Section Id :	890401275
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	50
Number of Questions to be attempted :	50
Section Marks :	50
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401299
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 89040114013 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$, then which of the following is true?

Options :

1. ✖ *The matrix is invertible*

2. ✔ *The matrix is singular*

3. ✖ The matrix is diagonalizable

4. ✖ The matrix is symmetric.

Question Number : 2 Question Id : 89040114014 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and the determinant of A is 5, then determinant of the matrix 2A is

Options :

1. ✖ 10

2. ✔ 20

3. ✖ 5

4. ✖ 25

Question Number : 3 Question Id : 89040114015 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If the matrix A is of order 3x3 and the system of equations AX = B has a unique solution,

what can be concluded about the determinant of A?

Options :

1. ✖ The determinant of A is zero

2. ✔ The determinant of A is non-zero

3. ✖ The determinant of A must be 1 only

4. ✖ The determinant of A cannot be negative

Question Number : 4 Question Id : 89040114016 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} x & 3 \\ 2 & 4 \end{bmatrix}$ and $A^{-1} = \begin{bmatrix} -2 & 1.5 \\ 1 & -0.5 \end{bmatrix}$ then the value of x is

Options :

1. ✖ -2

2. ✔ 1

3. ✖ 1.5

4. ✖ -0.5

Question Number : 5 Question Id : 89040114017 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$, then $(AB)^T =$

Options :

1. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 4 \end{bmatrix}$

2. ✗ $\begin{bmatrix} 0 & 0 \\ 3 & 7 \end{bmatrix}$

3. ✓ $\begin{bmatrix} 3 & 7 \\ 0 & 0 \end{bmatrix}$

4. ✗ $\begin{bmatrix} 3 & 6 \\ 0 & 0 \end{bmatrix}$

Question Number : 6 Question Id : 89040114018 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{2x+5}{(x-1)(x+3)} = \frac{A}{(x-1)} + \frac{B}{(x+3)}$ then A+B =

Options :

1. ✗ -2

2. ✓ 2

3. ✗ 1

4. ✗ -1

Question Number : 7 Question Id : 89040114019 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\frac{3x-1}{(x-1)(x-2)(x-3)} = \frac{A}{(x-1)} + \frac{B}{(x-2)} + \frac{C}{(x-3)}$ then the values of (A, B, C) are

Options :

1. ✔ $(1, -5, 4)$

2. ✖ $(1, 5, 4)$

3. ✖ $(4, 5, 1)$

4. ✖ $(1, 4, 5)$

Question Number : 8 Question Id : 89040114020 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin\theta = \frac{3}{5}$, *then* $\cos\theta =$

Options :

1. ✖ $\frac{4}{5}$ *but not* $-\frac{4}{5}$

2. ✔ $-\frac{4}{5}$ *or* $\frac{4}{5}$

3. ✖ $-\frac{4}{5}$ *but not* $\frac{4}{5}$

4. ✖ $\frac{3}{5}$ *but not* $-\frac{3}{5}$

Question Number : 9 Question Id : 89040114021 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\cos\theta \operatorname{cosec}\theta = -1$ *and* θ *lies in the second quadrant then* $\cos\theta =$

Options :

1. ✖

$\frac{-\sqrt{3}}{2}$

2. ✖ $\frac{\sqrt{2}}{2}$

3. ✔ $-\frac{\sqrt{2}}{2}$

4. ✖ $-\sqrt{2}$

Question Number : 10 Question Id : 89040114022 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $5\sin\theta = 4$ *then the value of* $\frac{Cosec\,\theta - \cot\theta}{Cosec\,\theta + \cot\theta}$ *is*

Options :

1. ✖ -1/4

2. ✖ -1/2

3. ✖ 1/2

4. ✔ 1/4

Question Number : 11 Question Id : 89040114023 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For real x and if $x + \frac{1}{x} = 2\cos\theta$ *then* $\cos\theta$ *is*

Options :

1. ✔ ± 1

2. ✖ 1/2

3. ✖ 1

4. ✖ $\pm\frac{1}{2}$

Question Number : 12 Question Id : 89040114024 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$sin^6\,\theta + cos^6\,\theta + 3sin^2\,\theta\,cos^2\,\theta\, =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 2

4. ✖ -1

Question Number : 13 Question Id : 89040114025 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The maximum value of $3\cos\theta + 4\sin\theta$ *is*

Options :

1. ✖ 2

2. ✖ 4

3. ✔ 5

4. ✖ 1

Question Number : 14 Question Id : 89040114026 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $\sin 5x + \sin 3x + \sin x = 0$ then the value of x other than zero lying between $0 \le x \le \frac{\pi}{2}$ is

Options :

1. ✖ $\frac{\pi}{6}$

2. ✔ $\frac{\pi}{3}$

3. ✖ $\frac{\pi}{12}$

4. ✖ $\frac{\pi}{4}$

Question Number : 15 Question Id : 89040114027 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The general solution of the equation $tan^2 x = 1$ *is*

Options :

1. ✖ $n\pi + \frac{\pi}{4}$ only

2. ✔ $n\pi \pm \frac{\pi}{4}$

3. ✖ $2n\pi \pm \frac{\pi}{4}$

4. ✖ $n\pi - \frac{\pi}{4}$ only

Question Number : 16 Question Id : 89040114028 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\cos\frac{5\pi}{17}+\cos\frac{7\pi}{17}+2\cos\frac{11\pi}{17}\cos\frac{\pi}{17}$ is

Options :

1. ✔ 0

2. ✖ 1

3. ✖ -1

4. ✖ $1/2$

Question Number : 17 Question Id : 89040114029 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{5}{\sqrt{34}}$

2. ✖ $-\frac{5}{\sqrt{34}}$

3. ✖ $-\frac{\sqrt{34}}{25}$

4. ✔ $\frac{\sqrt{34}}{5}$

Question Number : 18 Question Id : 89040114030 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The real part of $\frac{1+2i}{(2-i)^2}$ is

Options :

1. ✔ $-\frac{1}{5}$

2. ✖ $\frac{1}{5}$

3. ✖ $-\frac{2}{5}$

4. ✖ $\frac{2}{5}$

Question Number : 19 Question Id : 89040114031 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Modulus of the complex number $\frac{(1+i)^{10}}{(2i-4)^4}$ is equal to

Options :

1. ✔ $\frac{2}{25}$

2. ✖ $-\frac{2}{25}$

3. ✖ $\frac{1}{25}$

4. ✖ $-\frac{1}{25}$

Question Number : 20 Question Id : 89040114032 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a circle with center O, a 6cm long chord is at a distance 4 cm from the center.

Then the length of diameter is

Options :

1. ✖ $5\ cm$

2. ✔ $10\ cm$

3. ✖ $15\ cm$

4. ✖ $8\ cm$

Question Number : 21 Question Id : 89040114033 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The length of the tangent from the point (5, 1) to the circle $x^2 + y^2 + 6x - 4y - 3 = 0$ is

Options :

1. ✖ 81

2. ✔ 7

3. ✖ 29

4. ✖ 21

Question Number : 22 Question Id : 89040114034 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If length of the tangent is 8 cm and the distance between the center of the circle and the external point is 11 cm, then the area of the circle is

Options :

1. ✖ $100\ cm$

2. ✖ $197.14\ cm$

3. ✔ $179.14\ cm$

4. ✖ $110.14\ cm$

Question Number : 23 Question Id : 89040114035 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The equation of the parabola with focus (2, 0) and vertex (1, 0) is

Options :

1. ✖ $y^2 = 4x$

2. ✔ $y^2 = 4x - 4$

3. ✖ $y^2 = 4(x + 1)$

4. ✖ $y^2 = -4(x - 1)$

Question Number : 24 Question Id : 89040114036 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

If (2,0) is the vertex and y-axis is the directrix of a parabola then its focus is

Options :

1. ✖ (2, 0)

2. ✖ (-2, 0)

3. ✔ (4, 0)

4. ✖ (-4, 0)

Question Number : 25 Question Id : 89040114037 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The *eccentricity of* the ellipse $16x^2 + 7y^2 = 112$ *is*

Options :

1. ✖ $\frac{4}{3}$

2. ✖ $\frac{7}{16}$

3. ✖ $\frac{3}{\sqrt{7}}$

4. ✔ $\frac{3}{4}$

Question Number : 26 Question Id : 89040114038 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{n\to\infty} \frac{4x^3-x+1}{x^2-4x(1-x^2)} =$

Options :

1. ✖ 0

2. ✔ 1

3. ✖ -1

4. ✖ ∞

Question Number : 27 Question Id : 89040114039 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\lim_{x\to 1}\left(\frac{x^3-1}{x-1}\right)$ is

Options :

1. ✗ 0

2. ✗ 1

3. ✓ 3

4. ✗ Limit does not exist

Question Number : 28 Question Id : 89040114040 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The derivative of x^x with respective to x is

Options :

1. ✗ $x^x(x+logx)$

2. ✗ $x^x(x-logx)$

3. ✗ $x^x(1-logx)$

4. ✓ $x^x(1+logx)$

Question Number : 29 Question Id : 89040114041 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $\frac{a}{a^2-x^2}$

2. ✖ $\frac{1}{a^2+x^2}$

3. ✖ $\frac{1}{a^2-x^2}$

4. ✔ $\frac{a}{a^2+x^2}$

Question Number : 30 Question Id : 89040114042 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$$If\ y=\sqrt{sinx+\sqrt{sinx+\sqrt{sinx+----\infty}}}\ \text{ then } \frac{dy}{dx}=$$

Options :

1. ✖ $\frac{cosx}{1-2y}$

2. ✖ $\frac{sinx}{1-2y}$

3. ✖ $\frac{-sinx}{1-2y}$

4. ✔ $\frac{-cosx}{1-2y}$

Question Number : 31 Question Id : 89040114043 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Slope of the normal to the curve $x^{2/3}+y^{2/3}=2$ *at the point* $(1,1)$ is

Options :

1. ✖ -1

2. ✔ 1

3. ✖ $1/2$

4. ✖ $-1/2$

Question Number : 32 Question Id : 89040114044 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equation of the tangent to the curve $y = x^3$ at $(1, 1)$ is

Options :

1. ✖ $3x - y + 2 = 0$

2. ✖ $x - 10y - 50 = 0$

3. ✔ $3x - y - 2 = 0$

4. ✖ $x - 10y + 50 = 0$

Question Number : 33 Question Id : 89040114045 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For what value of x, the function $2x^3 + 3x^2 - 36x + 10$ has minimum

Options :

1. ✖ - 2

2. ✖ - 3

3. ✔

4. ✖ 1

Question Number : 34 Question Id : 89040114046 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $z = x^2 - y^2$ then $\frac{1}{x}\frac{\partial z}{\partial x} + \frac{1}{y}\frac{\partial z}{\partial y} =$

Options :

1. ✖ 1

2. ✖ $2x + 2y$

3. ✔ 0

4. ✖ $2x - 2y$

Question Number : 35 Question Id : 89040114047 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $u = e^{xy}$, then the value of $\frac{\partial^2 u}{\partial x^2} + \frac{\partial^2 u}{\partial y^2}$ at $(1, 1)$ is

Options :

1. ✖ e

2. ✔ $2e$

3. ✖ 1

4. ✖ 0

Question Number : 36 Question Id : 89040114048 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int (\log secx) \tan x \ dx$ *is*

Options :

1. ✖ $\sec x + c$

2. ✖ $\log \sec x + c$

3. ✔ $\frac{1}{2} (\log sec\ x)^2 + c$

4. ✖ $\log (\log \sec x)$

Question Number : 37 Question Id : 89040114049 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int sin^2 x \ dx =$

Options :

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

2. ✖ $\frac{x}{2} - \frac{\cos 2x}{4} + c$

3. ✖ $\frac{x}{2} + \frac{\cos 2x}{4} + c$

4. ✔ $\frac{x}{2} - \frac{\sin 2x}{4} + c$

Question Number : 38 Question Id : 89040114050 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int \frac{dx}{25-x^2} =$

Options :

1. ✖ $\frac{1}{5} log \left|\frac{x-5}{x+5}\right| + c$

2. ✖ $\frac{1}{5} log \left|\frac{x+5}{x-5}\right| + c$

3. ✔ $\frac{1}{10} log \left|\frac{5+x}{5-x}\right| + c$

4. ✖ $\frac{1}{10} log \left|\frac{5-x}{5+x}\right| + c$

Question Number : 39 Question Id : 89040114051 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The value of $\int_0^1 x(1-x)^9 \, dx$ *is*

Options :

1. ✔ $\frac{1}{110}$

2. ✖ $\frac{1}{120}$

3. ✖ $\frac{-1}{110}$

4. ✖ $\frac{-1}{120}$

Question Number : 40 Question Id : 89040114052 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{-a}^{a}|x|\ dx\ =$

Options :

1. ✖ a

2. ✖ $2a$

3. ✖ 0

4. ✔ a^2

Question Number : 41 Question Id : 89040114053 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

$\int_{0}^{\pi/2}\frac{\cos 2x}{\sin x+\cos x}\ dx\ =$

Options :

1. ✖ -1

2. ✔ 0

3. ✖ 1

4. ✖ $\frac{\pi}{2}$

Question Number : 42 Question Id : 89040114054 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area bounded by the curve $y = 4x^2$, the x-axis, the line x=0 and the line x = 1 is

Options :

1. ✖ 2

2. ✖ $2/3$

3. ✖ $1/3$

4. ✔ $4/3$

Question Number : 43 Question Id : 89040114055 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The RMS value of x^2 in $[0, 1]$ is

Options :

1. ✔ $\frac{1}{\sqrt{5}}$

2. ✖ $\frac{1}{5}$

3. ✖ $\frac{1}{\sqrt{3}}$

4. ✖ $\frac{1}{3}$

Question Number : 44 Question Id : 89040114056 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The degree of the differential equation $y' + y = \frac{5}{y'}$ is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 45 Question Id : 89040114057 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The order of the differential equation whose general solution is y = a sin x + b cos x is

(where a and b are arbitrary constants)

Options :

1. ✔ 2

2. ✖ 4

3. ✖ 1

4. ✖ 3

Question Number : 46 Question Id : 89040114058 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The differential equation $\frac{dy}{dx} = -\left(\frac{x+y}{1+x^2}\right)$ is

Options :

1. ✖ of Variable separable form

2. ✔ First order Linear equation

3. ✖ Homogeneous

4. ✖ Exact differentia Equation

Question Number : 47 Question Id : 89040114059 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ $y = tanx + c$

2. ✔ $y = \tan(x + c)$

3. ✖ $y = tanx$

4. ✖ $y = -\tan(x + c)$

Question Number : 48 Question Id : 89040114060 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{dy}{dx} + \frac{y}{x} = x^2$ under the condition that $y(1) = 1$ is

Options :

1. ✖ $4xy = x^3 + 3$

2. ✔ $4xy = x^4 + 3$

3. ✖ $4xy = x^3 - 3$

4. ✖ $4xy = x^4 - 3$

Question Number : 49 Question Id : 89040114061 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The solution of the differential equation $\frac{d^3y}{dx^3} + 3\frac{d^2y}{dx^2} + 2\frac{dy}{dx} = 0$ *is*

Options :

1. ✔ $y = a + be^{-x} + ce^{-2x}$

2. ✖ $y = a + be^{x} + ce^{2x}$

3. ✖ $y = ae^{-x} + be^{-2x} + ce^{x}$

4. ✖ $y = a + be^{-2x} + ce^{-3x}$

Question Number : 50 Question Id : 89040114062 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The particular integral of $\frac{d^2y}{dx^2} + 3\frac{dy}{dx} + 2y = e^{-2x}$ is

Options :

1. ✔ $-xe^{-2x}$

2. ✖ xe^{-2x}

3. ✖ $-\frac{x}{2}e^{-2x}$

4. ✖ $\frac{x}{2}e^{-2x}$

Physics

Section Id :	890401276
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory

Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401300
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 89040114063 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If we choose velocity V, length L and force F as fundamental physical quantities then how would you express power in terms of V, L and F ?

Options :

1. ✔ $F^1 L^0 V^1$

2. ✖ $F^1 L^{-1} V^1$

3. ✖ $F^1 L^{-1} V^2$

4. ✖ $F^1 L^{-2} V^3$

Question Number : 52 Question Id : 89040114064 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which pair of physical quantities have same dimensional formula

Options :

1. ✖ Torque and momentum

2. ✖ Surface tension and tension

3. ✔ Pressure and modulus of elasticity

4. ✖ Force constant and Planck's constant

Question Number : 53 Question Id : 89040114065 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If $A + B = C$ and $A^2 + B^2 = C^2$ then the angle between vectors A and B is

Options :

1. ✖ $0°$

2. ✖ $60°$

3. ✔ $90°$

4. ✖ $120°$

Question Number : 54 Question Id : 89040114066 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The area of rectangle with sides as $A = 3i + 4j$ and $B = i + 3j$ is

Options :

1. ✔ $5\sqrt{10}$ units

2. ✖ 10 units

3. ✖ $2\sqrt{10}$ units

4. ✖ $10\sqrt{5}$ units

Question Number : 55 Question Id : 89040114067 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a pebble is thrown vertically upwards from the top of a tower with velocity 5 m/s. It strikes the ground after 3 seconds. With what velocity the pebble strikes the ground? (take $g = 10\ ms^{-2}$)

Options :

1. ✖ 10 m/s

2. ✖ 20 m/s

3. ✔ 25 m/s

4. ✖ 30 m/s

Question Number : 56 Question Id : 89040114068 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a body released from the top of a tower of height H meter takes T seconds to reach the ground , where is the body at time T/2 seconds from the ground ?

Options :

1. ✖ $\frac{H}{2}$

2. ✖ $\frac{H}{4}$

3. ✔ $\frac{3H}{4}$

4. ✖ $\frac{2H}{3}$

Question Number : 57 Question Id : 89040114069 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body starts from rest and travels with uniform acceleration. If the distance covered in first 2 seconds is 'x' and next 2 seconds is 'y', then

Options :

1. ✗ $y = x$

2. ✗ $y = 2x$

3. ✓ $y = 3x$

4. ✗ $y = 4x$

Question Number : 58 Question Id : 89040114070 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A juggler throws ball into air. He throws one whenever the previous one is at its highest point. How high do the balls rise if he throws n balls each second ?

Options :

1. ✓ $\frac{g}{2n^2}$

2. ✗ $\frac{g}{n}$

3. ✗ $\frac{g}{2n}$

4. ✗ $\frac{n^2}{g}$

Question Number : 59 Question Id : 89040114071 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A block of mass m is lying on an inclined plane. The coefficient of friction between the plane and the block is μ. The force required to move the block up the inclined plane will be

Options :

1. ✖ $mg \sin\theta - \mu mg \cos\theta$

2. ✔ $mg \sin\theta + \mu mg \cos\theta$

3. ✖ $mg \cos\theta - \mu mg \sin\theta$

4. ✖ $mg \cos\theta + \mu mg \sin\theta$

Question Number : 60 Question Id : 89040114072 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The time taken by a body to slide down the smooth inclined plane is 4sec. The time taken by a body to slide $1/4^{th}$ of the length of the plane is

Options :

1. ✖ 1 sec

2. ✔ 2 sec

3. ✖ 3 sec

4. ✖ 0.5 sec.

Question Number : 61 Question Id : 89040114073 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A body of mass 2 Kg changes its velocity from (3 i - 4 j) m/s to (6j + 2 k) m/s.

what is the change in kinetic energy of the body?

Options :

1. ✔ 15 J

2. ✖ 12 J

3. ✖ 18 J

4. ✖ 20 J

Question Number : 62 Question Id : 89040114074 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

At her maximum height a girl in a swing is 3m above the ground and at the lowest point she is 2m above the ground. Her maximum velocity is

Options :

1. ✖ $\sqrt{29.4}$ m/s

2. ✖ $\sqrt{9.8}$ m/s

3. ✔ $\sqrt{19.6}$ m/s

4. ✖ 9.8 m/s

Question Number : 63 Question Id : 89040114075 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An engine delivers 1000 watt of power with 80% efficiency. The input power is

Options :

1. ✖ 800 W

2. ✖ 1000 W

3. ✔ 1250 W

4. ✖ 1500 W

Question Number : 64 Question Id : 89040114076 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a seconds pendulum on the earth is taken to a planet whose gravity is half of the gravity on earth , its time period on that planet is

Options :

1. ✖ 2 sec

2. ✖ 4 sec

3. ✖ $4\sqrt{2}$ sec

4. ✔ $2\sqrt{2}$ sec

Question Number : 65 Question Id : 89040114077 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amplitude of a simple harmonic oscillator is A. When the velocity of particle is half of its maximum velocity, then its position is at

Options :

1. ✖ $\frac{A}{2}$

2. ✖

$\frac{\sqrt{3}A}{4}$

3. ✖ $\frac{A}{4}$

4. ✔ $\frac{\sqrt{3}A}{2}$

Question Number : 66 Question Id : 89040114078 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The displacement of a particle executing SHM is $x = 3\sin 2t + 4\cos 2t$.

The amplitude of particle is

Options :

1. ✖ 7

2. ✖ 3

3. ✖ 4

4. ✔ 5

Question Number : 67 Question Id : 89040114079 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The beats are produced by two sound sources of same amplitude and of nearly equal frequencies. The maximum intensity of beats will be _____ when compared to that of one source is

Options :

1. ✖ Same

2. ✖ Double

3. ✔ Four times

4. ✖ Eight times

Question Number : 68 Question Id : 89040114080 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A siren emitting sound of frequency 800 Hz is going away from a static listener with a speed of 30 m/s. Frequency of sound heard by the listener is (Velocity of sound in air = 340 m/s)

Options :

1. ✖ 286.5 Hz

2. ✖ 418.2 Hz

3. ✔ 733.3 Hz

4. ✖ 644.5 Hz

Question Number : 69 Question Id : 89040114081 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

During the melting of a slab of ice at 273K at atmospheric pressure

Options :

1. ✖ Positive work is done by the ice-water system on the atmosphere

2. ✔ Positive work is done on the ice-water system by the atmosphere

3. ✖ Negative work is done on the ice-water system by the atmosphere

4. ✖ The internal energy of the ice-water system decreases

Question Number : 70 Question Id : 89040114082 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A gas is compressed at a constant pressure of 50 N/m^2 from a volume of 10 m^3 to a volume of 4 m^3. Energy of 100 J is then added to the gas by heating. Its internal energy is

Options :

1. ✔ Increases by 400 J

2. ✖ Increases by 200 J

3. ✖ Increases by 100 J

4. ✖ Decreases by 200 J

Question Number : 71 Question Id : 89040114083 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A vessel containing 10 liters of an ideal gas at a pressure of 760 mm of Hg is connected to an evacuated 9 liter vessel. The resultant pressure is

Options :

1. ✔ 400 mm of Hg

2. ✖ 1440 mm of Hg

3. ✖ 40 mm of Hg

4. ✖ 760 mm of Hg

Question Number : 72 Question Id : 89040114084 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A sealed glass jar is full of water. When its temperature is decreased to 0° C

Options :

1. ✖ The glass jar remains as it is with ice

2. ✖ The glass jar remains as it is with water

3. ✖ Glass jar contains half the amount of ice mixed with water

4. ✔ The glass jar breaks due to the formation of ice

Question Number : 73 Question Id : 89040114085 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A bubble rises from the bottom of a lake 90 m deep on reaching the surface, its volume becomes (Atmospheric pressure is 10 m of water)

Options :

1. ✖ 4 times

2. ✖ 8 times

3. ✔ 10 times

4. ✖ 3 times

Question Number : 74 Question Id : 89040114086 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

An endoscope is employed by a physician to view the internal parts of a body organ. It is based on the principle of

Options :

1. ✖ Refraction

2. ✖ Reflection

3. ✖ Dispersion

4. ✔ Total internal reflection

Question Number : 75 Question Id : 89040114087 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Light of wavelength 5000 A° falls on a sensitive plate with photo electric work function of 1.9 eV. The kinetic energy of the emitted photoelectron will be

Options :

1. ✔ 0.58 eV

2. ✖ 2.48 eV

3. ✖ 1.24 eV

4. ✖ 1.16 eV

Chemistry

Section Id :	890401277
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	25
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401301

Question Shuffling Allowed : Yes

Question Number : 76 Question Id : 89040114088 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 1 to Z=20. The number of

elements with only one unpaired electron in their ground state is

Options :

1. ✖ 10

2. ✖ 6

3. ✔ 8

4. ✖ 12

Question Number : 77 Question Id : 89040114089 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the orbital which has lobes not orienting on the axis

Options :

1. ✖ P_x

2. ✖ P_y

3. ✖ $d_{x^2-y^2}$

4. ✔ d_{yz}

Question Number : 78 Question Id : 89040114090 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If n, l, m and s represent the symbols of quantum numbers, the impossible quantum number set for the electron in terms of n, l, m and s respectively is

Options :

1. ✔ 2, 0, -1, +1/2

2. ✖ 3, 0, 0, -1/2

3. ✖ 4, 1, +1, +1/2

4. ✖ 3, 2, -1, -1/2

Question Number : 79 Question Id : 89040114091 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Consider the elements with atomic numbers Z = 8, 9, 11, 19 and 20. The number of ionic compounds possible with the elements having these atomic numbers is

Options :

1. ✔ 6

2. ✖ 5

3. ✖ 10

4. ✖ 8

Question Number : 80 Question Id : 89040114092 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In which of the molecules lone pair, bond pair of electrons ratio is 2:3 ?

Options :

1. ✖ Cl_2

2. ✖ O_2

3. ✖ HCl

4. ✔ N_2

Question Number : 81 Question Id : 89040114093 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

How many moles of urea is present in 250 ml of 0.2 M solution of it?

Options :

1. ✖ 0.03

2. ✖ 0.04

3. ✔ 0.05

4. ✖ 0.06

Question Number : 82 Question Id : 89040114094 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

x ml of 0.1 M NaOH solution is diluted with distilled water to get 250 ml of 0.01 M solution.

The value of x (in ml) is

Options :

1. ✖ 12.5

2. ✔ 25

3. ✖ 37.5

4. ✖ 50

Question Number : 83 Question Id : 89040114095 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

3×10^{22} molecules of Na_2CO_3 (molecular weight = 106) present in 500 ml of solution.

The normality of the solution formed is ($N = 6 \times 10^{23}$ mol^{-1})

Options :

1. ✖ 0.1 N

2. ✔ 0.2 N

3. ✖ 0.4 N

4. ✖ 0.05 N

Question Number : 84 Question Id : 89040114096 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair containing only Lewis acids

Options :

1. ✔ BF_3, NH_3

2. ✖ H^+, BF_3

3. ✖ F^-, H_2O

4. ✖ NH_4^+, NH_3

Question Number : 85 Question Id : 89040114097 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

4 g of NaOH is dissolved in 1.0 L solution. The pH of solution is

Options :

1. ✔ 13

2. ✖ 1

3. ✖ 12

4. ✖ 7.4

Question Number : 86 Question Id : 89040114098 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Number of coulombs corresponding to 1 mol of electrons approximately is equal to

Options :

1. ✖ 1.93×10^5

2. ✔ 9.65×10^4

3. ✖ 1.93×10^4

4. ✖ 9.65×10^5

Question Number : 87 Question Id : 89040114099 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Aqueous solution of which of the following does not act as electrolyte?

Options :

1. ✔ Urea

2. ✖ Copper Sulphate

3. ✖ Silver Nitrate

4. ✖ Sodium Chloride

Question Number : 88 Question Id : 89040114100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The amount of silver (in mg) deposited when 9.65 coulombs of electricity is passed through an aqueous solution of silver nitrate is (Ag=108 u) (1F=96500 C mol^{-1})

Options :

1. ✖ 16.2

2. ✖ 21.2

3. ✔ 10.8

4. ✖ 6.4

Question Number : 89 Question Id : 89040114101 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The standard electrode potentials of Zn, Ag and Cu are -0.76, +0.80 and +0.34 V respectively. Identify the correct statement from the following.

Options :

1. ✖ Ag can oxidize Zn and Cu

2. ✖ Ag can reduce Zn^{2+} and Cu^{2+}

3. ✔ Zn can reduce Ag^{+} and Cu^{2+}

4. ✖ Cu can oxidize Zn and Ag

Question Number : 90 Question Id : 89040114102 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In the removal of permanent hardness of water by permutit process, Na^{+} ions of permutit are exchanged with which ions of water ?

Options :

1. ✖ K^{+}, Ba^{2+}

2. ✖ Fe^{2+}, K^{+}

3. ✔ Ca^{2+}, Mg^{2+}

4. ✖ Zn^{2+}, Cu^{2+}

Question Number : 91 Question Id : 89040114103 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

What is the degree of hardness (in ppm) of a sample containing 19 mg of $MgCl_2$ (Molecular Weight = 95) in 2 kg water sample? (express it in terms of equivalents of $CaCO_3$)

Options :

1. ✔ 10

2. ✖ 20

3. ✖ 30

4. ✖ 40

Question Number : 92 Question Id : 89040114104 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Identify the pair of chlorides responsible for permanent hardness of water.

Options :

1. ✖ NaCl, KCl

2. ✖ $CaCl_2$, KCl

3. ✖ $AlCl_3$, $MgCl_2$

4. ✔ $MgCl_2$, $CaCl_2$

Question Number : 93 Question Id : 89040114105 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The cell formed in bent pipes is an example of

Options :

1. ✖ Concentration Cell

2. ✖ Composition Cell

3. ✔ Stress Cell

4. ✖ Electrolytic Cell

Question Number : 94 Question Id : 89040114106 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Tarnishing of silver is due to formation of

Options :

1. ✖ Its sulphate layer

2. ✖ Its nitrate layer

3. ✔ Its sulphide layer

4. ✖ Its chloride layer

Question Number : 95 Question Id : 89040114107 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is not a co-polymer?

Options :

1. ✖ Buna-S rubber

2. ✔ Neoprene rubber

3. ✖ Bakelite

4. ✖ Urea – Formaldehyde

Question Number : 96 Question Id : 89040114108 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The monomer involved in the formation of polystyrene is

Options :

1. ✖ $CH_2 = CH - Cl$

2. ✖ $CH_2 = CH - CN$

3. ✔ $CH_2 = CH - C_6H_5$

4. ✖ $CH_2 = CH - CH_3$

Question Number : 97 Question Id : 89040114109 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

We can overcome the undesirable properties of natural rubber by heating natural rubber with

Options :

1. ✖ Carbon

2. ✔ Sulphur

3. ✖ Phosphorus

4. ✖ Silicon

Question Number : 98 Question Id : 89040114110 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Liquefied petroleum gas (LPG) mainly contains

Options :

1. ✖ Methane, Ethane

2. ✖ Ethane, Propane

3. ✔ Butane, Isobutane

4. ✖ Ethene, Ethyne

Question Number : 99 Question Id : 89040114111 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Greenhouse effect is caused by

Options :

1. ✖ NO_2

2. ✖ CO

3. ✖ NO

4. ✔ CO_2

Question Number : 100 Question Id : 89040114112 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which compound is mainly responsible for the depletion of ozone layer?

Options :

1. ✖ CO_2

2. ✖ CH_4

3. ✖ CH_3OH

4. ✔ CF_2Cl_2

Chemical Engineering

Section Id : 890401278

Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	100
Number of Questions to be attempted :	100
Section Marks :	100
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	890401302
Question Shuffling Allowed :	Yes

Question Number : 101 Question Id : 89040114113 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Ball bearings are made of

Options :

1. ✖ Plain carbon steel

2. ✔ Chrome carbon steel

3. ✖ Stainless steel

4. ✖ Malleable cast iron

Question Number : 102 Question Id : 89040114114 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following metal is the most prone to atmospheric corrosion?

Options :

1. ✖ Silver

2. ✖ Tin

3. ✔ Iron

4. ✖ Copper

Question Number : 103 Question Id : 89040114115 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A suitable material of construction to use with fuming sulphuric acid is

Options :

1. ✔ Monel

2. ✖ Nickel

3. ✖ Carbon steel

4. ✖ Stainless steel type 304

Question Number : 104 Question Id : 89040114116 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The main reducing agent in iron blast furnace is

Options :

1. ✖ Air

2. ✖ Carbon dioxide

3. ✔ Carbon monoxide

4. ✖ Oxygen

Question Number : 105 Question Id : 89040114117 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Glass reacts with

Options :

1. ✖ H_2SO_3

2. ✔ HF

3. ✖ HNO_3

4. ✖ $K_2Cr_2O_7$

Question Number : 106 Question Id : 89040114118 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Eutectic reaction for iron-carbon system occurs at

Options :

1. ✖ 650^oC

2. ✖ 780^oC

3. ✖ 570^oC

4. ✔ 1147^oC

Question Number : 107 Question Id : 89040114119 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A bypass stream in a chemical process is useful to

Options :

1. ✔ Control the flow streams

2. ✖ Improve conversion

3. ✖ limit the inerts

4. ✖ Increase the product yield

Question Number : 108 Question Id : 89040114120 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Weight of 56 litres of chlorine gas at S.T.P. is ------- g

Options :

1. ✖ 142

2. ✖ 71

3. ✔ 177.5

4. ✖ 197.5

Question Number : 109 Question Id : 89040114121 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following terms of Vander Walls equation of state for a non-ideal gas accounts for intermolecular attraction forces?

Options :

1. ✖ RT

2. ✔ $(P+ a/V^2)$

3. ✖ (V- b)

4. ✖ 1/RT

Question Number : 110 Question Id : 89040114122 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The density of a gas 'X' is twice that of another gas 'Y'.
If the molecular weight of gas 'Y' is 'M';
then the molecular weight of the gas 'X' will be

Options :

1. ✔ 2 M

2. ✖ M/2

3. ✖ M

4. ✖ M/4

Question Number : 111 Question Id : 89040114123 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

500 C.C each of hydrogen at 700 mm Hg pressure and oxygen at 600 mm Hg pressure are put together in a vessel of 1 litre capacity. The final pressure of the gas mixture will be ---------- mm Hg

Options :

1. ✖ 600

2. ✖ 700

3. ✖

375

4. ✔ 650

Question Number : 112 Question Id : 89040114124 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Pure oxygen is mixed with air to produce an enriched air containing 50 volume % of oxygen. The ratio of moles of air to oxygen used is

Options :

1. ✖ 1.72

2. ✔ 0.58

3. ✖ 0.5

4. ✖ 0.2

Question Number : 113 Question Id : 89040114125 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Assuming that carbon dioxide obeys ideal gas law, the density of carbon dioxide (Kg/m^3) at 263°C and 2 atm is

Options :

1. ✖ 1

2. ✔ 2

3. ✖ 3

4. ✖ 4

Question Number : 114 Question Id : 89040114126 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A solution of specific gravity 1 consists of 35 % A by weight and the remaining B. If the specific gravity of A is 0.7, the specific gravity of B is

Options :

1. ✖ 1.25

2. ✖ 1.3

3. ✖ 1.35

4. ✔ 1.2

Question Number : 115 Question Id : 89040114127 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Air at a temperature of 20°C and 750 mm Hg pressure has a relative humidity of 80%. What is its percentage humidity? Vapor pressure of water at 20°C is 17.5 mm Hg

Options :

1. ✔ 88

2. ✖ 80

3. ✖ 79.62

4. ✖ 78.51

Question Number : 116 Question Id : 89040114128 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Rancidity of the oils can be reduced by

Options :

1. ✔ Hydrogenation

2. ✖ Oxidation

3. ✖ Decolouration

4. ✖ Winterization

Question Number : 117 Question Id : 89040114129 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Cooking liquor in case of sulphite process is

Options :

1. ✖ Sodium sulphide and sodium bisulphide

2. ✖ magnesium sulphide and magnesium bisulphite

3. ✔ sodium sulphite and sodium bisulphite

4. ✖ magnesium sulphite and magnesium bisulphite

Question Number : 118 Question Id : 89040114130 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following coal has the highest calorific value?

Options :

1. ✖ Lignite

2. ✔ Anthracite

3. ✖ Peat

4. ✖ Sub-bituminous

Question Number : 119 Question Id : 89040114131 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Ultimate analysis of coal determines

Options :

1. ✖ Carbon, ash, sulphur and nitrogen

2. ✖ Moisture, volatile matter, ash and carbon

3. ✖ Carbon, hydrogen, oxygen and sulphur

4. ✔ Carbon, hydrogen, nitrogen and sulphur

Question Number : 120 Question Id : 89040114132 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The catalyst used in shift converter is

Options :

1. ✔ Nickel

2. ✖

Vanadium

3. ✖ Silica gel

4. ✖ Alumina

Question Number : 121 Question Id : 89040114133 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Poly tetra fluoro ethylene is known as

Options :

1. ✖ Nylon

2. ✔ Teflon

3. ✖ Bakelite

4. ✖ Rayon

Question Number : 122 Question Id : 89040114134 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Hydrophilic group of a soap or detergent solution is

Options :

1. ✖ Water hating

2. ✖ Soil loving

3. ✔ Water loving

4. ✖ Soil hating

Question Number : 123 Question Id : 89040114135 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The end bleaching agent used to remove last traces of colour bodies from the pulp is

Options :

1. ✔ ClO_2

2. ✖ MgO

3. ✖ SO_2 gas

4. ✖ Mercaptans

Question Number : 124 Question Id : 89040114136 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Carborundum mainly consists of

Options :

1. ✖ bauxite

2. ✔ Silicon carbide

3. ✖ Boron carbide

4. ✖ Calcium carbide

Question Number : 125 Question Id : 89040114137 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Unsaturated fatty acid is

Options :

1. ✖ Palmitic acid

2. ✖ Stearic acid

3. ✖ Oxalic acid

4. ✔ Oleic acid

Question Number : 126 Question Id : 89040114138 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Commercially ethylene is produced from naphtha by

Options :

1. ✖ Catalytic cracking

2. ✖ Pyrolysis

3. ✔ Hydrocracking

4. ✖ Thermal cracking

Question Number : 127 Question Id : 89040114139 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Triple superphosphate is manufactured by reacting

Options :

1. ✔ Phosphate rock with phosphoric acid

2. ✖ Phosphate rock with sulfuric acid

3. ✖ Phosphate rock with nitric acid

4. ✖ Ammonium phosphate with phosphoric acid

Question Number : 128 Question Id : 89040114140 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the manufacture of sulphuric acid from elemental sulphur, the sequence of major operations is

Options :

1. ✖ Converter to furnace to absorber

2. ✔ Furnace to converter to absorber

3. ✖ Furnace to evaporator to absorber

4. ✖ Furnace to absorber to converter

Question Number : 129 Question Id : 89040114141 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the chemical process industries, the term BOD signifies

Options :

1. ✖ characterisation of solid wastes

2. ✖ characterisation of gaseous effluents

3. ✖ characterisation of boiler feed water

4. ✔ characterisation of liquid effluents

Question Number : 130 Question Id : 89040114142 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The key raw material for the commercial production of methanol is

Options :

1. ✖ formaldehyde

2. ✖ Acetic acid

3. ✔ Synthesis gas

4. ✖ Ethanol

Question Number : 131 Question Id : 89040114143 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A bio-degradable detergent is one which

Options :

1. ✖ Contains branch chain alkyl benzenes

2. ✔ is easily decomposed by microorganisms

3. ✖ contains straight chain alkyl benzenes

4. ✖

is manufactured using microorganisms

Question Number : 132 Question Id : 89040114144 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The kinetic energy correction factor for velocity distribution of fully developed laminar flow is

Options :

1. ✖ 0.5

2. ✖ 1.66

3. ✖ 1

4. ✔ 2

Question Number : 133 Question Id : 89040114145 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A pressure head of 320 meters of water in meters of CCl_4 (sp.gr = 1.6)

Options :

1. ✖ 320

2. ✖ 100

3. ✔ 200

4. ✖ 160

Question Number : 134 Question Id : 89040114146 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Stoke's law is valid, when $N_{Re.p}$ is less than

Options :

1. ✔ 2

2. ✖ 100

3. ✖ 700

4. ✖ 2100

Question Number : 135 Question Id : 89040114147 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Tooth paste is a

Options :

1. ✖ Newtonian fluid

2. ✔ Bingham plastic

3. ✖ Pseudo plastic

4. ✖ Dilatant

Question Number : 136 Question Id : 89040114148 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fluidised beds are formed when the

Options :

1. ✖

fluid friction is zero

2. ✔ gravity force is less than the fluid friction

3. ✖ pressure forces equal to gravity forces

4. ✖ pressure force is greater than the gravity force

Question Number : 137 Question Id : 89040114149 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

For an ideal fluid flow, Reynolds number is

Options :

1. ✖ 2100

2. ✖ 0

3. ✔ Infinity

4. ✖ 100

Question Number : 138 Question Id : 89040114150 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The hydrodynamic and thermal boundary layers will merge when

Options :

1. ✖ Prandtl number is zero

2. ✖ Schmidt number tends to infinity

3. ✖ Nusselt number tends to infinity

4. ✔ Prandtl number is one

Question Number : 139 Question Id : 89040114151 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Bernoulli's equation is applicable between any two points in which type of flow of an incompressible fluid

Options :

1. ✖ Unsteady, rotational

2. ✖ Steady, rotational

3. ✖ Unsteady, irrotational

4. ✔ Steady, irrotational

Question Number : 140 Question Id : 89040114152 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

What is the advantage of Gate valve over Globe valve?

Options :

1. ✖ It controls the flow equally well from either direction

2. ✔ It offers less resistance to flow

3. ✖ It can manually be closing the pipes to control the flow of water

4. ✖ It has quicker opening and closing

Question Number : 141 Question Id : 89040114153 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Natural convection is characterised by

Options :

1. ✔ Grashof number

2. ✖ Peclet number

3. ✖ Reynolds number

4. ✖ Prandtl number

Question Number : 142 Question Id : 89040114154 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The heat transfer coefficient in film type condensation is ----- that for drop wise condensation

Options :

1. ✖ Greater than

2. ✔ lower than

3. ✖ Is same as

4. ✖ twice

Question Number : 143 Question Id : 89040114155 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Viscous and heat sensitive liquids are concentrated in which type of evaporators ?

Options :

1. ✖ Open pan

2. ✖ long tube

3. ✔ agitated film

4. ✖ short tube

Question Number : 144 Question Id : 89040114156 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Prandtl number is the ratio of

Options :

1. ✖ mass diffusivity to thermal diffusivity

2. ✖ thermal diffusivity to mass diffusivity

3. ✖ thermal diffusivity to momentum diffusivity

4. ✔ momentum diffusivity to thermal diffusivity

Question Number : 145 Question Id : 89040114157 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The critical radius 'r' of insulation on a pipe is given by

Options :

1. ✖ $r = 2k/h$

2. ✔ $r = k/h$

3. ✖ $r = k/2h$

4. ✖ $r = h/k$

Question Number : 146 Question Id : 89040114158 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

If a baffle spacing in a shell and tube heat exchanger increases, then the Reynolds number of the shell side fluid

Options :

1. ✖ remains unchanged

2. ✖ increases

3. ✔ decreases

4. ✖ Increases or decreases based on number of shell passes

Question Number : 147 Question Id : 89040114159 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Multiple effect evaporators are commonly used in the manufacture of

Options :

1. ✔ paper

2. ✖ sugar

3. ✖ super phosphate

4. ✖ paint

Question Number : 148 Question Id : 89040114160 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Prandtl number is minimum for

Options :

1. ✖ water

2. ✖ air

3. ✔ mercury

4. ✖ transformer oil

Question Number : 149 Question Id : 89040114161 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The absorptivity for a black body is

Options :

1. ✖ 0

2. ✔ 1

3. ✖ 0.8

4. ✖ 0.95

Question Number : 150 Question Id : 89040114162 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Increasing the liquor level in the evaporator results in the

Options :

1. ✖ Increased steam economy

2. ✖ Decreased steam economy

3. ✖ Increased steam capacity

4. ✔ decreased steam capacity

Question Number : 151 Question Id : 89040114163 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Raw materials are charged in the iron blast furnace using

Options :

1. ✖ Bucket elevator

2. ✔ Skip hoist

3. ✖ Screw conveyor

4. ✖ Belt conveyor

Question Number : 152 Question Id : 89040114164 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most suitable filter for separation of abrasive solids suspended in a corrosive liquid?

Options :

1. ✔ vacuum filter

2. ✖ Sand filter

3. ✖ Basket centrifuge

4. ✖ Plate and frame filter press

Question Number : 153 Question Id : 89040114165 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A fluid energy mill is used for

Options :

1. ✖ Cutting

2. ✖ Grinding

3. ✔ Ultra-grinding

4. ✖ Crushing

Question Number : 154 Question Id : 89040114166 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Energy requirement is highest for

Options :

1. ✖ Jaw crusher

2. ✖ rod mill

3. ✖ ball mill

4. ✔ fluid energy mill

Question Number : 155 Question Id : 89040114167 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a gyratory crusher size reduction is affected primarily by

Options :

1. ✖ Attrition

2. ✔ compression

3. ✖ Impact

4. ✖ Cutting action

Question Number : 156 Question Id : 89040114168 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is a coarse crusher?

Options :

1. ✔ Jaw crusher

2. ✖ Disc crusher

3. ✖ conical crusher

4. ✖ Single roll crusher

Question Number : 157 Question Id : 89040114169 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In the Tayler standard screen scale series, when the mesh number increases from 3 mesh to 10 mesh, then the

Options :

1. ✔ clear opening decreases

2. ✖ clear opening increases

3. ✖ clear opening is unchanged

4. ✖ wire diameter increases

Question Number : 158 Question Id : 89040114170 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Taking the acceleration due to gravity as 10 m/s^2 and with a cyclone 0.5 m in diameter and having a tangential velocity of 20 m/s near the wall, then the separation factor is

Options :

1. ✖ 180

2. ✔ 160

3. ✖ 240

4. ✖ 350

Question Number : 159 Question Id : 89040114171 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The absolute entropy for all crystalline substances at absolute zero temperature is

Options :

1. ✔ zero

2. ✖ negative

3. ✖ positive

4. ✖ Indeterminate

Question Number : 160 Question Id : 89040114172 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Fundamental principle of refrigeration is based on the which law of thermodynamics ?

Options :

1. ✖ Zeroth

2. ✖ First

3. ✔ Second

4. ✖ third

Question Number : 161 Question Id : 89040114173 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The change in Gibbs free energy for vaporisation of a pure substance is

Options :

1. ✖ positive

2. ✖ negative

3. ✔ zero

4. ✖ may be positive or negative

Question Number : 162 Question Id : 89040114174 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A Carnot cycle consists of the following steps

Options :

1. ✖ two isobaric and two isothermal

2. ✖ two isochoric and two isobaric

3. ✖ two isothermal and two isochoric

4. ✔ two isothermal and two isentropic

Question Number : 163 Question Id : 89040114175 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

For a Carnot refrigerator operating between 40°C and 25°C, the coefficient of performance is

Options :

1. ✖ 39.74

2. ✔ 19.88

3. ✖ 1.97

4. ✖ 5.87

Question Number : 164 Question Id : 89040114176 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

A plug flow reactor is characterised by

Options :

1. ✖ high capacity

2. ✖ presence of axial mixing

3. ✔ presence of lateral mixing

4. ✖ constant composition and temperature of the reaction

Question Number : 165 Question Id : 89040114177 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following reactor is the most suitable for very high-pressure gas phase reaction?

Options :

1. ✖ Batch reactor

2. ✔ Tubular flow reactor

3. ✖ CSTR

4. ✖ Fluidised bed reactor

Question Number : 166 Question Id : 89040114178 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Promoter is added to the catalyst to improve its

Options :

1. ✔ sensitivity

2. ✖ porosity

3. ✖ surface area

4. ✖ surface tension

Question Number : 167 Question Id : 89040114179 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The equilibrium constant K of a chemical reaction depends on

Options :

1. ✔ temperature only

2. ✖ pressure only

3. ✖ pressure and temperature

4. ✖ catalyst concentration

Question Number : 168 Question Id : 89040114180 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A plot of ln k versus 1/T indicates

Options :

1. ✖ Vant's-Hoff isotherm

2. ✖ Cox chart

3. ✖ Bode plot

4. ✔ Arrhenius plot

Question Number : 169 Question Id : 89040114181 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a binary system, separation is very efficient, when the relative volatility is

Options :

1. ✔ Greater than 1

2. ✖ 1

3. ✖ less than 1

4. ✖ 0.5

Question Number : 170 Question Id : 89040114182 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Bollman extractor is used for

Options :

1. ✖ Is a static bed leaching equipment

2. ✔ for extraction of oil from oil seeds

3. ✖ is a centrifugal extractor

4. ✖ employs counter-current extraction

Question Number : 171 Question Id : 89040114183 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

A slurry is to be dried to produce flaky solid. Which dryer is recommended?

Options :

1. ✖ Tray dryer

2. ✖ drum dryer

3. ✔ spray dryer

4. ✖ rotary dryer

Question Number : 172 Question Id : 89040114184 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In which distillation, a solvent is added to alter the relative volatility of the mixture to be separated

Options :

1. ✖ Flash

2. ✖ azeotropic

3. ✖ steam

4. ✔ Extractive

Question Number : 173 Question Id : 89040114185 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The packed towers are preferred over plate columns in distillation, because of

Options :

1. ✔ low pressure drop and low hold up

2. ✖ low pressure drop and high hold up

3. ✖ high pressure drop and high hold up

4. ✖ high pressure drop and low hold up

Question Number : 174 Question Id : 89040114186 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

In a binary distillation column, if the feed contains 40 mole % vapour, the slope of a 'q' line is

Options :

1. ✖ 0.6

2. ✔ -1.5

3. ✖ -0.6

4. ✖ 1.5

Question Number : 175 Question Id : 89040114187 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Ammonia present in the coke oven gas is removed by washing with

Options :

1. ✖ caustic solution

2. ✖ dilute HCl

3. ✔ dilute ammoniacal liquor

4. ✖ ethanolamine

Question Number : 176 Question Id : 89040114188 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The most efficient cooling tower arrangement is

Options :

1. ✖ Forced draft

2. ✖ Natural draft

3. ✖ atmospheric

4. ✔ induced draft

Question Number : 177 Question Id : 89040114189 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The reflux to a distillation column is 100 mole/hr, when the over head product rate is 50 moles/hr, the reflux ratio is

Options :

1. ✔ 2

2. ✖ 0.5

3. ✖ 1.5

4. ✖ 0.25

Question Number : 178 Question Id : 89040114190 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ Seebeck effect

2. ✔ Peltier effect

3. ✖ Joule heating effect

4. ✖ Thomson effect

Question Number : 179 Question Id : 89040114191 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

_____ is used for measuring the rate of flow in both compressible and incompressible fluids

Options :

1. ✖ Orifice meter

2. ✖ Venturi meter

3. ✔ Pitot tube

4. ✖ Rota meter

Question Number : 180 Question Id : 89040114192 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The following controller has the maximum offset

Options :

1. ✖ P-I-D controller

2. ✖ P-D controller

3. ✖ P-I controller

4. ✔ P-controller

Question Number : 181 Question Id : 89040114193 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Thermal conductivity measurement comprises the working principle of

Options :

1. ✔ CO_2 analyser

2. ✖ polarimeter

3. ✖ spectrometer

4. ✖ chromatograph

Question Number : 182 Question Id : 89040114194 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Radiation pyrometer measurement temperature range ____ ^0C

Options :

1. ✖ 300 to 1200

2. ✔ 800 to 2000

3. ✖ -40 to 1000

4. ✖ 0 to 2000

Question Number : 183 Question Id : 89040114195 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The dynamic characteristic of an instrument is

Options :

1. ✖

reproducibility

2. ✖ sensitivity

3. ✖ dead zone

4. ✔ fidelity

Question Number : 184 Question Id : 89040114196 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Smoke density of the flue gas going out of the chimney is measured by

Options :

1. ✖ polarograph

2. ✖ thermal conductivity meter

3. ✔ photo electric cell

4. ✖ chromatograph

Question Number : 185 Question Id : 89040114197 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The local velocity of a fluid along a stream line can be measured by

Options :

1. ✔ pitot tube

2. ✖ venturi meter

3. ✖ Rota meter

4. ✖ Orifice meter

Question Number : 186 Question Id : 89040114198 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which gas is primarily responsible for the depletion of the ozone layer?

Options :

1. ✖ Carbon dioxide (CO2)

2. ✖ Methane (CH4)

3. ✔ Chlorofluorocarbons (CFCs)

4. ✖ Nitrogen oxides (NOx)

Question Number : 187 Question Id : 89040114199 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following device of particulate collection is least efficient?

Options :

1. ✖ cyclone separator

2. ✖ electrostatic precipitator

3. ✔ fabric filter

4. ✖

wet scrubber

Question Number : 188 Question Id : 89040114200 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

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

Options :

1. ✖ fumes

2. ✖ mist

3. ✖ dust

4. ✔ aerosols

Question Number : 189 Question Id : 89040114201 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The air (prevention & control of pollution) act was legislated in the year

Options :

1. ✖ 1980

2. ✖ 1984

3. ✔ 1981

4. ✖ 1982

Question Number : 190 Question Id : 89040114202 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

1ppm is equivalent to

Options :

1. ✖ 0.1%

2. ✖ 0.01%

3. ✔ 0.0001%

4. ✖ 0.001%

Question Number : 191 Question Id : 89040114203 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

In a food chain of grass land ecosystem the top consumers are

Options :

1. ✖ herbivorous

2. ✔ carnivorous

3. ✖ bacteria

4. ✖ either carnivorous or herbivorous

Question Number : 192 Question Id : 89040114204 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

The greatest industrial disaster leading to serious air pollution took place in Bhopal in the year 1984 where the extremely poisonous methyl isocyanide gas was accidentally released from Union Carbide's ---------- manufacturing plant.

Options :

1. ✖ petrochemical

2. ✖ steel

3. ✖ fertilizer

4. ✔ pesticide

Question Number : 193 Question Id : 89040114205 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Acid rain is caused by increase in the atmospheric concentration of

Options :

1. ✖ ozone & dust

2. ✔ SO_2 & NO_2

3. ✖ carbon monoxide

4. ✖ nitrous oxide

Question Number : 194 Question Id : 89040114206 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is not combustible?

Options :

1. ✖ Hydrogen

2. ✖ CO

3. ✔ CCl_4

4. ✖ CH_4

Question Number : 195 Question Id : 89040114207 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Which of the following is usually not used as the heat exchange fluid in a flat plate solar collector?

Options :

1. ✖ air

2. ✔ fuel oil

3. ✖ water

4. ✖ ethylene glycol and water

Question Number : 196 Question Id : 89040114208 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Wind energy, transferred to the large sea surface, is stored in waves as

Options :

1. ✖ Chemical energy

2. ✖

thermal energy

3. ✖ electrical energy

4. ✔ mechanical energy

Question Number : 197 Question Id : 89040114209 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Which of the following is an example for Renewable Fuels?

Options :

1. ✖ Kerosene

2. ✔ Biodiesel

3. ✖ Diesel

4. ✖ Naphtha

Question Number : 198 Question Id : 89040114210 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Correct Marks : 1 Wrong Marks : 0

Nuclear energy is due to conversion of

Options :

1. ✖ light into heat

2. ✔ mass into energy

3. ✖ protons into neutrons

4. ✖ helium into hydrogen

Question Number : 199 Question Id : 89040114211 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

Polluted water having low BOD is most economically treated in

Options :

1. ✖ sedimentation tanks

2. ✔ oxidation ponds

3. ✖ sludge digester

4. ✖ clarifier

Question Number : 200 Question Id : 89040114212 Question Type : MCQ Option Shuffling : No Display Question Number : Yes

Correct Marks : 1 Wrong Marks : 0

The process of converting biomass into biogas is called:

Options :

1. ✖ Combustion

2. ✖ Gasification

3. ✔ Anaerobic digestion

4. ✖ Pyrolysis