

National Testing Agency

Question Paper Name :	B Tech 21st Jan 2026 Shift 2
Subject Name :	B. Tech
Duration :	180
Total Marks :	300
Display Marks:	Yes

B. Tech

Group Number :	1
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300

Mathematics Section A

Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 1 Question Id : 860654826 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $A = \{2, 3, 5, 7, 9\}$. Let R be the relation on A defined by xRy if and only if $2x \leq 3y$. Let l be the number of elements in R , and m be the minimum number of elements required to be added in R to make it a symmetric relation. Then $l + m$ is equal to :

Options :

8606542806. 21

8606542807. 23

8606542808. 25

8606542809. 27

Question Number : 2 Question Id : 860654827 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let z be the complex number satisfying $|z - 5| \leq 3$ and having maximum positive principal argument.

Then $34 \left| \frac{5z - 12}{5iz + 16} \right|^2$ is equal to :

Options :

8606542810. 12

8606542811. 16

8606542812. 20

8606542813. 26

Question Number : 3 Question Id : 860654829 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let α and β be the roots of the equation $x^2 + 2ax + (3a + 10) = 0$ such that $\alpha < 1 < \beta$. Then the set of all possible values of a is :

Options :

8606542818. $(-\infty, -2) \cup (5, \infty)$

8606542819. $(-\infty, -3)$

8606542820. $(-\infty, \frac{-11}{5})$

8606542821. $(-\infty, \frac{-11}{5}) \cup (5, \infty)$

Question Number : 4 Question Id : 860654838 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the line $\alpha x + 4y = \sqrt{7}$, where $\alpha \in \mathbf{R}$, touches the ellipse $3x^2 + 4y^2 = 1$ at the point P in the first quadrant, then one of the focal distances of P is :

Options :

8606542854. $\frac{1}{\sqrt{3}} + \frac{1}{2\sqrt{5}}$

8606542855. $\frac{1}{\sqrt{3}} - \frac{1}{2\sqrt{5}}$

8606542856. $\frac{1}{\sqrt{3}} + \frac{1}{2\sqrt{7}}$

8606542857. $\frac{1}{\sqrt{3}} - \frac{1}{2\sqrt{11}}$

Question Number : 5 Question Id : 860654833 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $A = \{x : |x^2 - 10| \leq 6\}$ and $B = \{x : |x - 2| > 1\}$. Then

Options :

8606542834. $A - B = [2, 3)$

8606542835. $A \cap B = [-4, -2] \cup [3, 4]$

8606542836. $A \cup B = (-\infty, 1] \cup (2, \infty)$

8606542837. $B - A = (-\infty, -4) \cup (-2, 1) \cup (4, \infty)$

Question Number : 6 Question Id : 860654842 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $f(x) = x^3 + x^2 f'(1) + 2x f''(2) + f'''(3)$, $x \in \mathbf{R}$. Then the value of $f'(5)$ is :

Options :

8606542870. $\frac{2}{5}$

8606542871. $\frac{62}{5}$

8606542872. $\frac{657}{5}$

8606542873. $\frac{117}{5}$

Question Number : 7 Question Id : 860654840 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let the line L_1 be parallel to the vector $-3\hat{i} + 2\hat{j} + 4\hat{k}$ and pass through the point $(2, 6, 7)$, and the line L_2 be parallel to the vector $2\hat{i} + \hat{j} + 3\hat{k}$ and pass through the point $(4, 3, 5)$. If the line L_3 is parallel to the vector $-3\hat{i} + 5\hat{j} + 16\hat{k}$ and intersects the lines L_1 and L_2 at the points C and D, respectively, then $\left|\vec{CD}\right|^2$ is equal to :

Options :

8606542862. 89
8606542863. 171
8606542864. 290
8606542865. 312

Question Number : 8 Question Id : 860654844 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $y=y(x)$ be the solution of the differential equation $\sec x \frac{dy}{dx} - 2y = 2 + 3\sin x$, $x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$, $y(0) = -\frac{7}{4}$. Then $y\left(\frac{\pi}{6}\right)$ is equal to :

Options :

8606542878. $-3\sqrt{3} - 7$
8606542879. $-3\sqrt{2} - 7$
8606542880. $-\frac{5}{4}$
8606542881. $-\frac{5}{2}$

Question Number : 9 Question Id : 860654845 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the area of the region $\{(x, y) : 1 - 2x \leq y \leq 4 - x^2, x \geq 0, y \geq 0\}$ is $\frac{\alpha}{\beta}$, $\alpha, \beta \in \mathbf{N}$, $\gcd(\alpha, \beta) = 1$, then the value of $(\alpha + \beta)$ is :

Options :

8606542882. 67

8606542883. 73

8606542884. 85

8606542885. 91

Question Number : 10 Question Id : 860654832 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $a_1, \frac{a_2}{2}, \frac{a_3}{2^2}, \dots, \frac{a_{10}}{2^9}$ be a G.P. of common ratio $\frac{1}{\sqrt{2}}$. If $a_1 + a_2 + \dots + a_{10} = 62$, then a_1 is equal to :

Options :

8606542830. $2(\sqrt{2} - 1)$

8606542831. $\sqrt{2} - 1$

8606542832. $2(2 - \sqrt{2})$

8606542833. $2 - \sqrt{2}$

Question Number : 11 Question Id : 860654843 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $f: \mathbf{R} \rightarrow \mathbf{R}$ be a twice differentiable function such that $f''(x) > 0$ for all $x \in \mathbf{R}$ and $f'(a-1) = 0$, where a is a real number. Let $g(x) = f(\tan^2 x - 2\tan x + a)$, $0 < x < \frac{\pi}{2}$.

Consider the following two statements :

(I) g is increasing in $\left(0, \frac{\pi}{4}\right)$

(II) g is decreasing in $\left(\frac{\pi}{4}, \frac{\pi}{2}\right)$

Then,

Options :

8606542874. Only (I) is True

8606542875. Only (II) is True

8606542876. Both (I) and (II) are True

8606542877. Neither (I) nor (II) is True

Question Number : 12 Question Id : 860654830 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For the matrices $A = \begin{bmatrix} 3 & -4 \\ 1 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} -29 & 49 \\ -13 & 18 \end{bmatrix}$, if $(A^{15} + B) \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 0 \\ 0 \end{bmatrix}$, then among the following which one is true ?

Options :

8606542822. $x = 5, y = 7$

8606542823. $x = 16, y = 3$

8606542824. $x = 11, y = 2$

8606542825. $x = 18, y = 11$

Question Number : 13 Question Id : 860654836 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let one end of a focal chord of the parabola $y^2 = 16x$ be $(16, 16)$. If $P(\alpha, \beta)$ divides this focal chord internally in the ratio 5 : 2, then the minimum value of $\alpha + \beta$ is equal to :

Options :

8606542846. 5

8606542847. 7

8606542848. 16

8606542849. 22

Question Number : 14 Question Id : 860654837 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let $y^2 = 12x$ be the parabola with its vertex at O. Let P be a point on the parabola and A be a point on the x-axis such that $\angle OPA = 90^\circ$. Then the locus of the centroid of such triangles OPA is :

Options :

8606542850. $y^2 - 4x + 8 = 0$

8606542851. $y^2 - 6x + 4 = 0$

8606542852. $y^2 - 9x + 6 = 0$

8606542853. $y^2 - 2x + 8 = 0$

Question Number : 15 Question Id : 860654828 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The positive integer n , for which the solutions of the equation

$x(x+2) + (x+2)(x+4) + \cdots + (x+2n-2)(x+2n) = \frac{8n}{3}$ are two consecutive even integers, is :

Options :

8606542814. 3

8606542815. 6

8606542816. 9

8606542817. 12

Question Number : 16 Question Id : 860654835 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A random variable X takes values $0, 1, 2, 3$ with probabilities $\frac{2a+1}{30}, \frac{8a-1}{30}, \frac{4a+1}{30}, b$ respectively, where $a, b \in \mathbf{R}$. Let μ and σ respectively be the mean and standard deviation of X such that $\sigma^2 + \mu^2 = 2$. Then $\frac{a}{b}$ is equal to :

Options :

8606542842. 60

8606542843. 30

8606542844. 12

8606542845. 3

Question Number : 17 Question Id : 860654839 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let the line L pass through the point $(-3, 5, 2)$ and make equal angles with the positive coordinate axes. If the distance of L from the point $(-2, r, 1)$ is $\sqrt{\frac{14}{3}}$, then the sum of all possible values of r is :

Options :

8606542858. 6

8606542859. 10

8606542860. 12

8606542861. 16

Question Number : 18 Question Id : 860654834 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The largest $n \in \mathbb{N}$, for which 7^n divides $101!$, is :

Options :

8606542838. 19

8606542839. 18

8606542840. 16

8606542841. 15

Question Number : 19 Question Id : 860654841 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a triangle ABC, let $\vec{p} = \vec{BC}$, $\vec{q} = \vec{CA}$ and $\vec{r} = \vec{BA}$. If $|\vec{p}| = 2\sqrt{3}$, $|\vec{q}| = 2$ and $\cos\theta = \frac{1}{\sqrt{3}}$,

where θ is the angle between $\vec{p}$ and $\vec{q}$, then $|\vec{p} \times (\vec{q} - 3\vec{r})|^2 + 3|\vec{r}|^2$ is equal to :

Options :

8606542866. 200

8606542867. 220

8606542868. 340

8606542869. 410

Question Number : 20 Question Id : 860654831 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the system of equations

$$3x + y + 4z = 3$$

$$2x + \alpha y - z = -3$$

$$x + 2y + z = 4$$

has no solution, then the value of α is equal to :

Options :

8606542826. 4

8606542827. 13

Mathematics Section B

Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5
Section Marks :	20
Maximum Instruction Time :	0
Sub-Section Number :	1
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 21 Question Id : 860654848 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

Let the maximum value of $(\sin^{-1}x)^2 + (\cos^{-1}x)^2$ for $x \in \left[-\frac{\sqrt{3}}{2}, \frac{1}{\sqrt{2}}\right]$ be $\frac{m}{n}\pi^2$, where $\gcd(m, n) = 1$.

Then $m + n$ is equal to _____.

Response Type : Numeric
 Evaluation Required For SA : Yes
 Show Word Count : Yes
 Answers Type : Equal
 Text Areas : PlainText

Question Number : 22 Question Id : 860654846 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

If $\left(\frac{1}{{}^{15}C_0} + \frac{1}{{}^{15}C_1}\right)\left(\frac{1}{{}^{15}C_1} + \frac{1}{{}^{15}C_2}\right) \cdots \left(\frac{1}{{}^{15}C_{12}} + \frac{1}{{}^{15}C_{13}}\right) = \frac{\alpha^{13}}{{}^{14}C_0 {}^{14}C_1 \cdots {}^{14}C_{12}}$, then 30α is equal to _____.

Response Type : Numeric
 Evaluation Required For SA : Yes
 Show Word Count : Yes
 Answers Type : Equal
 Text Areas : PlainText

Question Number : 23 Question Id : 860654849 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

Let $[\cdot]$ denote the greatest integer function and $f(x) = \lim_{n \rightarrow \infty} \frac{1}{n^3} \sum_{k=1}^n \left\lfloor \frac{k^2}{3^x} \right\rfloor$. Then $12 \sum_{j=1}^{\infty} f(j)$ is equal to _____.

Response Type : Numeric
 Evaluation Required For SA : Yes
 Show Word Count : Yes
 Answers Type : Equal
 Text Areas : PlainText

Question Number : 24 Question Id : 860654847 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

If P is a point on the circle $x^2 + y^2 = 4$, Q is a point on the straight line $5x + y + 2 = 0$ and $x - y + 1 = 0$ is the perpendicular bisector of PQ, then 13 times the sum of abscissa of all such points P is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Question Number : 25 Question Id : 860654850 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

If $\int_0^1 4 \cot^{-1}(1 - 2x + 4x^2) dx = a \tan^{-1}(2) - b \log_e(5)$, where $a, b \in \mathbb{N}$, then $(2a + b)$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Physics Section A

Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 26 Question Id : 860654865 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider two identical metallic spheres of radius R each having charge Q and mass m . Their centers have an initial separation of $4R$. Both the spheres are given an initial speed of u towards each other. The minimum value of u , so that they can just touch each other is :

(Take $k = \frac{1}{4\pi\epsilon_0}$ and assume $kQ^2 > Gm^2$ where G is the Gravitational constant)

Options :

8606542947. $\sqrt{\frac{kQ^2}{4mR} \left(1 + \frac{Gm^2}{kQ^2}\right)}$

8606542948. $\sqrt{\frac{kQ^2}{4mR} \left(1 - \frac{Gm^2}{kQ^2}\right)}$

8606542949. $\sqrt{\frac{kQ^2}{2mR} \left(1 - \frac{Gm^2}{kQ^2}\right)}$

8606542950. $\sqrt{\frac{kQ^2}{2mR} \left(1 - \frac{Gm^2}{2kQ^2}\right)}$

Question Number : 27 Question Id : 860654858 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Surface tension of two liquids (having same densities), T_1 and T_2 , are measured using capillary rise method utilizing two tubes with inner radii of r_1 and r_2 where $r_1 > r_2$. The measured liquid heights in these tubes are h_1 and h_2 respectively. [Ignore the weight of the liquid about the lowest point of meniscus]. The heights h_1 and h_2 and surfaces tensions T_1 and T_2 satisfy the relation :

Options :

8606542919. $h_1 = h_2$ and $T_1 = T_2$

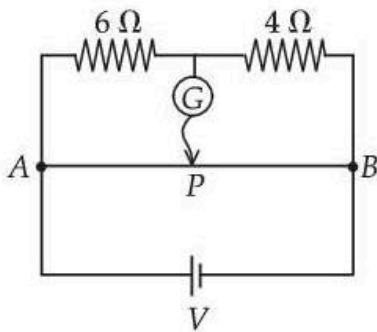
8606542920. $h_1 > h_2$ and $T_1 < T_2$

8606542921. $h_1 > h_2$ and $T_1 = T_2$

8606542922. $h_1 < h_2$ and $T_1 = T_2$

Question Number : 28 Question Id : 860654863 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The total length of potentiometer wire AB is 50 cm in the arrangement as shown in figure. If P is the point where the galvanometer shows zero reading then the length AP is _____ cm.



Options :

8606542939. 30

8606542940. 20

8606542941. 15

8606542942. 25

Question Number : 29 Question Id : 860654851 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Keeping the significant figures in view, the sum of the physical quantities 52.01 m, 153.2 m and 0.123 m is :

Options :

8606542891. 205 m

8606542892. 205.3 m

8606542893. 205.33 m

8606542894. 205.333 m

Question Number : 30 Question Id : 860654855 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two cars A and B each of mass 10^3 kg are moving on parallel tracks separated by a distance of 10 m, in same direction with speeds 72 km/h and 36 km/h. The magnitude of angular momentum of car A with respect to car B is _____ J.s.

Options :

8606542907. 10^5

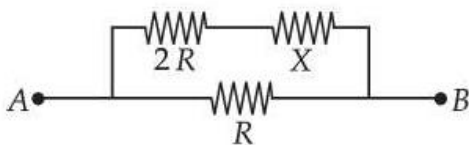
8606542908. 3×10^5

8606542909. 3.6×10^5

8606542910. 2×10^5

Question Number : 31 Question Id : 860654862 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two known resistances of $R \Omega$ and $2R \Omega$ and one unknown resistance $X \Omega$ are connected in a circuit as shown in the figure. If the equivalent resistance between points A and B in the circuit is $X \Omega$, then the value of X is _____ Ω .



Options :

8606542935. R

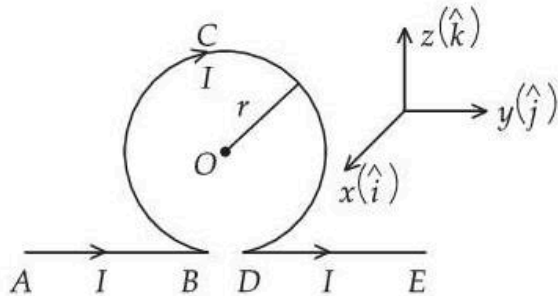
8606542936. $(\sqrt{3} + 1)R$

8606542937. $(\sqrt{3} - 1)R$

8606542938. $2(\sqrt{3} - 1)R$

Question Number : 32 Question Id : 860654864 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

An infinitely long straight wire carrying current I is bent in a planer shape as shown in the diagram. The radius of the circular part is r . The magnetic field at the centre O of the circular loop is :



Options :

8606542943. $-\frac{\mu_0}{2\pi} \frac{I}{r} (\pi + 1) \hat{i}$

8606542944. $-\frac{\mu_0}{2\pi} \frac{I}{r} (\pi - 1) \hat{i}$

8606542945. $\frac{\mu_0}{2\pi} \frac{I}{r} (\pi - 1) \hat{i}$

8606542946. $\frac{\mu_0}{2\pi} \frac{I}{r} (\pi + 1) \hat{i}$

Question Number : 33 Question Id : 860654869 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The energy of an electron in an orbit of the Bohr's atom is $-0.04E_0$ eV where E_0 is the ground state energy. If L is the angular momentum of the electron in this orbit and h is the Planck's constant, then

$\frac{2\pi L}{h}$ is _____ :

Options :

8606542963. 5

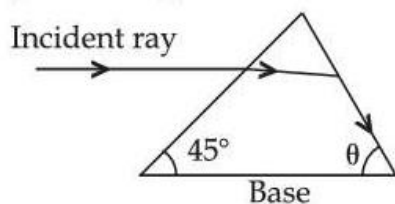
8606542964. 4

8606542965. 2

8606542966. 6

Question Number : 34 Question Id : 860654868 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

As shown in the diagram, when the incident ray is parallel to base of the prism, the emergent ray grazes along the second surface.



If refractive index of the material of prism is $\sqrt{2}$, the angle θ of prism is.

Options :

8606542959. 45°

8606542960. 60°

8606542961. 75°

8606542962. 90°

Question Number : 35 Question Id : 860654867 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements :

Statement I : In a Young's double slit experiment, the angular separation of fringes will increase as the screen is moved away from the plane of the slits

Statement II : In a Young's double slit experiment, the angular separation of fringes will increase when monochromatic source is replaced by another monochromatic source of higher wavelength

In the light of the above statements, choose the **correct answer** from the options given below :

Options :

8606542955. Both **Statement I** and **Statement II** are true

8606542956. Both **Statement I** and **Statement II** are false

8606542957. **Statement I** is true but **Statement II** is false

8606542958. **Statement I** is false but **Statement II** is true

Question Number : 36 Question Id : 860654860 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The kinetic energy of a simple harmonic oscillator is oscillating with angular frequency of

176 rad/s. The frequency of this simple harmonic oscillator is _____ Hz. $\left[\text{take } \pi = \frac{22}{7} \right]$

Options :

8606542927. 176

8606542928. 28

8606542929. 14

8606542930. 88

Question Number : 37 Question Id : 860654856 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A body of mass 2 kg is moving along x -direction such that its displacement as function of time is given by $x(t) = \alpha t^2 + \beta t + \gamma$ m, where $\alpha = 1 \text{ m/s}^2$, $\beta = 1 \text{ m/s}$ and $\gamma = 1 \text{ m}$. The work done on the body during the time interval $t = 2 \text{ s}$ to $t = 3 \text{ s}$, is _____ J.

Options :

8606542911. 24

8606542912. 49

8606542913. 12

8606542914. 42

Question Number : 38 Question Id : 860654857 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A large drum having radius R is spinning around its axis with angular velocity ω , as shown in figure. The minimum value of ω so that a body of mass M remains stuck to the inner wall of the drum, taking the coefficient of friction between the drum surface and mass M as μ , is :



Options :

8606542915. $\sqrt{\frac{g}{2\mu R}}$

8606542916. $\sqrt{\frac{g}{\mu R}}$

8606542917. $\sqrt{\frac{2g}{\mu R}}$

8606542918. $\sqrt{\frac{\mu g}{R}}$

Question Number : 39 Question Id : 860654861 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A capacitor C is first charged fully with potential difference of V_0 and disconnected from the battery. The charged capacitor is connected across an inductor having inductance L . In t s 25% of the initial energy in the capacitor is transferred to the inductor. The value of t is _____s.

Options :

8606542931. $\pi\sqrt{\frac{LC}{2}}$

8606542932. $\frac{\pi\sqrt{LC}}{2}$

8606542933. $\frac{\pi\sqrt{LC}}{3}$

8606542934. $\frac{\pi\sqrt{LC}}{6}$

Question Number : 40 Question Id : 860654852 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A spherical body of radius r and density σ falls freely through a viscous liquid having density ρ and viscosity η and attains a terminal velocity v_0 . Estimated maximum error in the quantity η is : (Ignore errors associated with σ , ρ and g , gravitational acceleration)

Options :

8606542895. $2\left[\frac{\Delta r}{r} + \frac{\Delta v_0}{v_0}\right]$

8606542896. $2\left[\frac{\Delta r}{r} - \frac{\Delta v_0}{v_0}\right]$

8606542897. $2\frac{\Delta r}{r} - \frac{\Delta v_0}{v_0}$

8606542898. $\frac{2\Delta r}{r} + \frac{\Delta v_0}{v_0}$

Question Number : 41 Question Id : 860654853 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A river of width 200 m is flowing from west to east with a speed of 18 km/h. A boat, moving with speed of 36 km/h in still water, is made to travel one-round trip (bank to bank of the river). Minimum time taken by the boat for this journey and also the displacement along the river bank are _____ and _____ respectively.

Options :

8606542899. 20 s and 100 m

8606542900. 40 s and 200 m

8606542901. 40 s and 0 m

8606542902. 40 s and 100 m

Question Number : 42 Question Id : 860654859 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The r.m.s. speed of oxygen molecules at 47 °C is equal to that of the hydrogen molecules kept at _____ °C. (Mass of oxygen molecule/mass of hydrogen molecule = 32/2)

Options :

8606542923. - 20

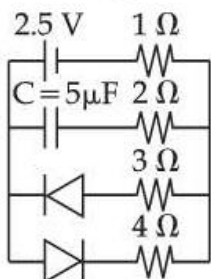
8606542924. - 253

8606542925. - 100

8606542926. - 235

Question Number : 43 Question Id : 860654870 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The charge stored by the capacitor C in the given circuit in the steady state is _____ μC .



Options :

8606542967. 5

8606542968. 10

8606542969. 7.5

Question Number : 44 Question Id : 860654866 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A battery with EMF E and internal resistance r is connected across a resistance R . The power consumption in R will be maximum when :

Options :

8606542951. $R = r/2$

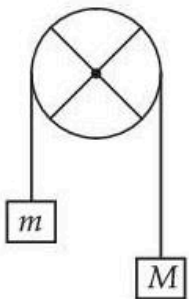
8606542952. $R = r$

8606542953. $R = 2r$

8606542954. $R = \sqrt{2} r$

Question Number : 45 Question Id : 860654854 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The pulley shown in figure is made using a thin rim and two rods of length equal to diameter of the rim. The rim and each rod have a mass of M . Two blocks of mass of M and m are attached to two ends of a light string passing over the pulley, which is hinged to rotate freely in vertical plane about its center. The magnitudes of the acceleration experienced by the blocks is _____ (assume no slipping of string on pulley).



Options :

8606542903. $\frac{(M-m)g}{\left[\left(\frac{13}{6}\right)M+m\right]}$

8606542904. $\frac{(M-m)g}{\left[\left(\frac{8}{3}\right)M+m\right]}$

8606542905. $\frac{(M-m)g}{M+m}$

8606542906. $\frac{(M-m)g}{2M+m}$

Physics Section B

Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5
Section Marks :	20
Maximum Instruction Time :	0
Sub-Section Number :	1
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 46 Question Id : 860654873 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

An electromagnetic wave of frequency 100 MHz propagates through a medium of conductivity, $\sigma = 10 \text{ mho/m}$. The ratio of maximum conduction current density to maximum displacement current density is _____.

$$\left[\text{Take } \frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ Nm}^2/\text{C}^2 \right]$$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Question Number : 47 Question Id : 860654872 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

A diatomic gas ($\gamma = 1.4$) does 100 J of work when it is expanded isobarically. Then the heat given to the gas _____ J.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Question Number : 48 Question Id : 860654874 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

In a Young's double slit experiment set up, the two slits are kept 0.4 mm apart and screen is placed at 1 m from slits. If a thin transparent sheet of thickness $20 \mu\text{m}$ is introduced in front of one of the slits then center bright fringe shifts by 20 mm on the screen. The refractive index of transparent sheet

is given by $\frac{\alpha}{10}$, where α is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Question Number : 49 Question Id : 860654875 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

A particle having electric charge $3 \times 10^{-19} \text{ C}$ and mass $6 \times 10^{-27} \text{ kg}$ is accelerated by applying an electric potential of 1.21 V. Wavelength of the matter wave associated with the particle is $\alpha \times 10^{-12} \text{ m}$. The value of α is _____. (Take Planck's constant $= 6.6 \times 10^{-34} \text{ J.s}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal
Text Areas : PlainText

Question Number : 50 Question Id : 860654871 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

The terminal velocity of a metallic ball of radius 6 mm in a viscous fluid is 20 cm/s. The terminal velocity of another ball of same material and having radius 3 mm in the same fluid will be _____ cm/s.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

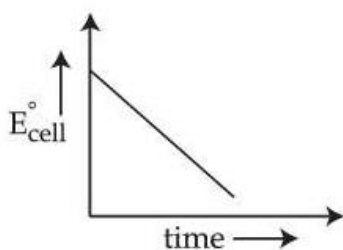
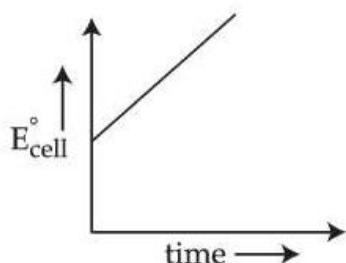
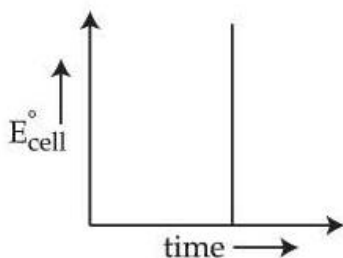
Chemistry Section A

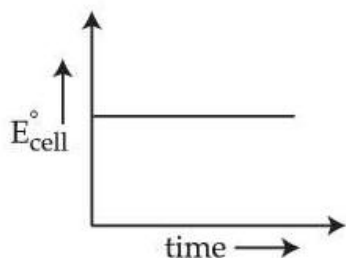
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Question Shuffling Allowed :	Yes
Is Section Default? :	No

Question Number : 51 Question Id : 860654880 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a closed circuit Daniell cell, which of the following plots is the accurate one at a given temperature ?

Options :





8606542995.

Question Number : 52 Question Id : 860654890 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are four compounds :

- | | |
|------------------------|-------------------------|
| (a) n-propyl chloride | (b) iso-propyl chloride |
| (c) sec-butyl chloride | (d) neo-pentyl chloride |

Percentage of carbon in the one which exhibits optical isomerism is :

Options :

8606543032. 52

8606543033. 56

8606543034. 46

8606543035. 40

Question Number : 53 Question Id : 860654885 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements :

Statement I : Crystal Field Stabilization Energy (CFSE) of $[\text{Cr}(\text{H}_2\text{O})_6]^{2+}$ is greater than that of $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$.

Statement II : Potassium ferricyanide has a greater spin-only magnetic moment than sodium ferrocyanide.

In the light of the above statements, choose the **correct** answer from the options given below :

Options :

8606543012. Both **Statement I** and **Statement II** are true

8606543013. Both **Statement I** and **Statement II** are false

8606543014. **Statement I** is true but **Statement II** is false

8606543015. **Statement I** is false but **Statement II** is true

The **correct** statements are :

- A. Activation energy for enzyme catalysed hydrolysis of sucrose is lower than that of acid catalysed hydrolysis.
- B. During denaturation, secondary and tertiary structures of a protein are destroyed but primary structure remains intact.
- C. Nucleotides are joined together by glycosidic linkage between C_1 and C_4 carbons of the pentose sugar.
- D. Quaternary structure of proteins represents overall folding of the polypeptide chain.

Choose the **correct** answer from the options given below :

Options :

8606543048. A and B Only

8606543049. A, B and D Only

8606543050. B and C Only

8606543051. A, C and D Only

By usual analysis, 1.00 g of compound (X) gave 1.79 g of magnesium pyrophosphate. The percentage of phosphorus in compound (X) is : (nearest integer)

(Given, molar mass in g mol^{-1} : O = 16, Mg = 24, P = 31)

Options :

8606543016. 20

8606543017. 30

8606543018. 40

8606543019. 50

Aqueous HCl reacts with $\text{MnO}_2(\text{s})$ to form $\text{MnCl}_2(\text{aq})$, $\text{Cl}_2(\text{g})$ and $\text{H}_2\text{O}(\text{l})$. What is the weight (in g) of Cl_2 liberated when 8.7 g of $\text{MnO}_2(\text{s})$ is reacted with excess aqueous HCl solution ? (Given Molar mass in g mol^{-1} Mn = 55, Cl = 35.5, O = 16, H = 1)

Options :

8606542976. 14.2

8606542977. 21.3

8606542978. 7.1

8606542979. 71

Question Number : 57 Question Id : 860654892 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match List - I with List - II.

List - I	List - II
Reagents	Reaction Name (Involving aldehydes)
A. H_2 , Pd-BaSO ₄	I. Etard Reaction
B. SnCl_2 , HCl	II. Rosenmund Reduction
C. CrO_2Cl_2 , CS ₂	III. Gatterman - Koch Reaction
D. CO, HCl, Anhyd. AlCl ₃	IV. Stephen Reaction

Choose the **correct** answer from the options given below :

Options :

8606543040. A-IV, B-I, C-II, D-III

8606543041. A-IV, B-III, C-I, D-II

8606543042. A-II, B-IV, C-I, D-III

8606543043. A-II, B-III, C-IV, D-I

Question Number : 58 Question Id : 860654883 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements :

Statement I : The correct order in terms of bond dissociation enthalpy is $\text{Cl}_2 > \text{Br}_2 > \text{F}_2 > \text{I}_2$.

Statement II : The correct trend in the covalent character of the metal halides is $[\text{SnCl}_4 > \text{SnCl}_2]$, $[\text{PbCl}_4 > \text{PbCl}_2]$ and $[\text{UF}_4 > \text{UF}_6]$.

In the light of the above statements, choose the **correct** answer from the options given below :

Options :

8606543004. Both **Statement I** and **Statement II** are true

8606543005. Both **Statement I** and **Statement II** are false

8606543006. **Statement I** is true but **Statement II** is false

8606543007. **Statement I** is false but **Statement II** is true

Question Number : 59 Question Id : 860654877 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following spectral lines for atomic hydrogen :

- A. First line of Paschen series
- B. Second line of Balmer series
- C. Third line of Paschen series
- D. Fourth line of Bracket series

The correct arrangement of the above lines in ascending order of energy is :

Options :

8606542980. $A < B < C < D$

8606542981. $D < A < C < B$

8606542982. $D < C < A < B$

8606542983. $C < D < B < A$

Question Number : 60 Question Id : 860654881 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Decomposition of A is a first order reaction at T(K) and is given by $A(g) \longrightarrow B(g) + C(g)$.

In a closed 1 L vessel, 1 bar A(g) is allowed to decompose at T(K). After 100 minutes, the total pressure was 1.5 bar. What is the rate constant (in min^{-1}) of the reaction ? ($\log 2 = 0.3$)

Options :

8606542996. 6.9×10^{-2}

8606542997. 6.9×10^{-1}

8606542998. 6.9×10^{-3}

8606542999. 6.9×10^{-4}

Question Number : 61 Question Id : 860654887 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The correct order of the rate of the reaction for the following reaction with respect to nucleophiles is :



Options :

8606543020. $^-\text{OH} > \text{PhO}^- > \text{CH}_3\text{COO}^- > \text{ClO}_4^-$

8606543021. $\text{CH}_3\text{COO}^- > \text{PhO}^- > ^-\text{OH} > \text{ClO}_4^-$

8606543022. $\text{PhO}^- > ^-\text{OH} > \text{CH}_3\text{COO}^- > \text{ClO}_4^-$

8606543023. $\text{ClO}_4^- > \text{CH}_3\text{COO}^- > ^-\text{OH} > \text{PhO}^-$

Question Number : 62 Question Id : 860654879 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Consider the following data :

$$\Delta_f H^\ominus (\text{methane, g}) = -X \text{ kJ mol}^{-1}$$

$$\text{Enthalpy of sublimation of graphite} = Y \text{ kJ mol}^{-1}$$

$$\text{Dissociation enthalpy of } \text{H}_2 = Z \text{ kJ mol}^{-1}$$

The bond enthalpy of C – H bond is given by :

Options :

8606542988. $X + Y + Z$

8606542989. $\frac{X + Y + 2Z}{4}$

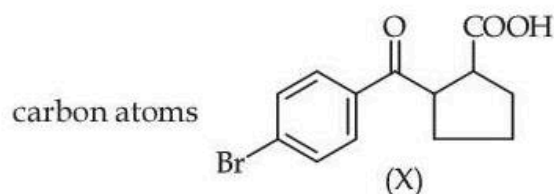
8606542990. $\frac{X + Y + 4Z}{2}$

8606542991. $\frac{-X + Y + Z}{4}$

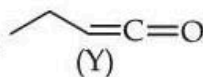
Question Number : 63 Question Id : 860654888 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements :

Statement I : Compound (X), shown below, dissolves in NaHCO_3 solution and has two chiral



Statement II : Compound (Y), shown below, has two carbons with sp^3 hybridization, one carbon with sp^2 and one carbon with sp hybridization



In the light of the above statements, choose the **correct** answer from the options given below :

Options :

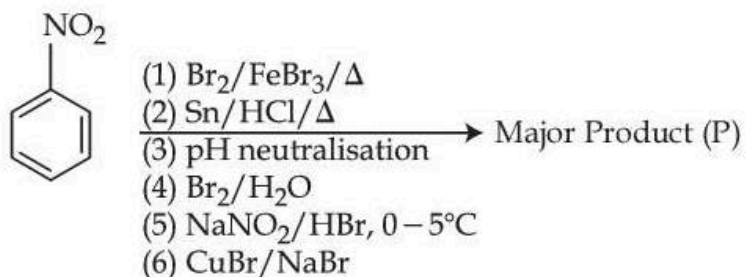
8606543024. Both **Statement I** and **Statement II** are true

8606543025. Both **Statement I** and **Statement II** are false

8606543026. **Statement I** is true but **Statement II** is false

8606543027. **Statement I** is false but **Statement II** is true

Question Number : 64 Question Id : 860654893 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical



Consider the above sequence of reactions. The number of bromine atom(s) in the final product (P) will be :

Options :

8606543044. 1

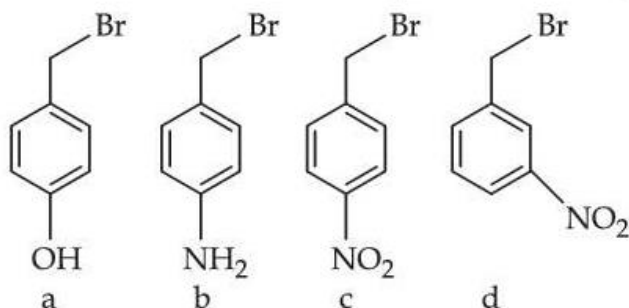
8606543045. 5

8606543046. 3

8606543047. 6

Question Number : 65 Question Id : 860654891 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The correct order of reactivity of the following benzyl halides towards reaction with KCN is :



Options :

8606543036. $b > a > d > c$

8606543037. $a > b > d > c$

8606543038. $b > a > c > d$

8606543039. $a > b > c > d$

Question Number : 66 Question Id : 860654884 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are some of the statements about Mn and Mn_2O_7 . Identify the correct statements.

- A. Mn forms the oxide Mn_2O_7 , in which Mn is in its highest oxidation state.
- B. Oxygen stabilizes the Mn in higher oxidation states by forming multiple bonds with Mn.
- C. Mn_2O_7 is an ionic oxide.
- D. The structure of Mn_2O_7 consists of one bridged oxygen.

Choose the **correct** answer from the options given below :

Options :

8606543008. A, B, C and D

8606543009. A, B and D Only

8606543010. A, C and D Only

8606543011. A, B and C Only

Question Number : 67 Question Id : 860654895 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

On heating a mixture of common salt and $\text{K}_2\text{Cr}_2\text{O}_7$ in equal amount along with concentrated H_2SO_4 in a test tube, a gas is evolved. Formula of the gas evolved and oxidation state of the central metal atom in the gas respectively are :

Options :

8606543052. CrO_2Cl_2 and +5

8606543053. CrO_2Cl_2 and +6

8606543054. $\text{Cr}_2\text{O}_2\text{Cl}_2$ and +3

8606543055. $\text{Cr}_2\text{O}_2\text{Cl}_2$ and +6

Question Number : 68 Question Id : 860654882 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements :

Statement I : The correct order in terms of atomic/ionic radii is $\text{Al} > \text{Mg} > \text{Mg}^{2+} > \text{Al}^{3+}$.

Statement II : The correct order in terms of the magnitude of electron gain enthalpy is $\text{Cl} > \text{Br} > \text{S} > \text{O}$.

In the light of the above statements, choose the **correct** answer from the options given below :

Options :

8606543000. Both **Statement I** and **Statement II** are true

8606543001. Both **Statement I** and **Statement II** are false

8606543002. **Statement I** is true but **Statement II** is false

8606543003. **Statement I** is false but **Statement II** is true

Question Number : 69 Question Id : 860654889 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match List - I with List - II.

List - I	List - II
Pair of Compounds	Type of Isomers
A. 2-Methylpropene and but-1-ene	I. Stereoisomers
B. Cis-but-2-ene and trans-but-2-ene	II. Position isomers
C. 2-Butanol and diethyl ether	III. Chain isomers
D. But-1-ene and but-2-ene	IV. Functional group isomers

Choose the **correct** answer from the options given below :

Options :

8606543028. A-III, B-I, C-II, D-IV

8606543029. A-I, B-IV, C-III, D-II

8606543030. A-II, B-I, C-IV, D-III

8606543031. A-III, B-I, C-IV, D-II

Question Number : 70 Question Id : 860654878 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The correct increasing order of C – H(A), C – O(B), C = O(C) and C ≡ N(D) bonds in terms of covalent bond length is :

Options :

8606542984. $A < B < C < D$

8606542985. $A < D < C < B$

8606542986. $D < C < B < A$

8606542987. $D < C < A < B$

Chemistry Section B

Section Number :

6

Section type :

Online

Mandatory or Optional :

Mandatory

Number of Questions :

5

Number of Questions to be attempted :

5

Section Marks : 20
Maximum Instruction Time : 0
Sub-Section Number : 1
Question Shuffling Allowed : Yes
Is Section Default? : No

Question Number : 71 Question Id : 860654898 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

The first and second ionization constants of H_2X are 2.5×10^{-8} and 1.0×10^{-13} respectively. The concentration of X^{2-} in 0.1 M H_2X solution is _____ $\times 10^{-15}$ M. (Nearest Integer)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

Question Number : 72 Question Id : 860654897 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

The osmotic pressure of a living cell is 12 atm at 300 K. The strength of sodium chloride solution that is isotonic with the living cell at this temperature is _____ g L^{-1} . (Nearest integer)

Given : $R = 0.08 \text{ L atm K}^{-1} \text{ mol}^{-1}$

Assume complete dissociation of NaCl

(Given : Molar mass of Na and Cl are 23 and 35.5 g mol^{-1} respectively.)

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

Question Number : 73 Question Id : 860654900 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

Identify the metal ions among Co^{2+} , Ni^{2+} , Fe^{2+} , V^{3+} and Ti^{2+} having a spin-only magnetic moment value more than 3.0 BM. The sum of unpaired electrons present in the high spin octahedral complexes formed by those metal ions is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

Question Number : 74 Question Id : 860654896 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

A substance 'X' (1.5 g) dissolved in 150 g of a solvent 'Y' (molar mass = 300 g mol^{-1}) led to an elevation of the boiling point by 0.5 K. The relative lowering in the vapour pressure of the solvent 'Y' is _____ $\times 10^{-2}$. (nearest integer)

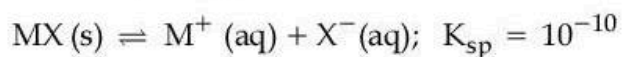
[Given : K_b of the solvent = $5.0 \text{ K kg mol}^{-1}$]

Assume the solution to be dilute and no association or dissociation of X takes place in solution.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

Question Number : 75 Question Id : 860654899 Question Type : SA Display Question Number : Yes Keyboard Layout : Inscript

MX is a sparingly soluble salt that follows the given solubility equilibrium at 298 K.



If the standard reduction potential for $\text{M}^+ (\text{aq}) \xrightarrow{+e^-} \text{M (s)}$ is $\left(E_{\text{M}^+/\text{M}}^\ominus \right) = 0.79\text{V}$, then the value of

the standard reduction potential for the metal/metal insoluble salt electrode $E_{\text{X}^-/\text{MX (s)}/\text{M}}^\ominus$ is _____ mV. (nearest integer)

$$\left[\text{Given : } \frac{2.303 RT}{F} = 0.059 \text{ V} \right]$$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText