

National Testing Agency

Question Paper Name :	B Tech 1st Feb 2024 Shift 1
Subject Name :	B. Tech
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B. Tech

Group Number :	1
Group Id :	95617721
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No
Examiner permission :	Cant View
Show Progress Bar? :	No

Mathematics Section A

Section Id :	95617762
Section Number :	1

Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	95617765
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 9561771036 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $S = \{z \in \mathbb{C} : |z-1|=1 \text{ and } (\sqrt{2}-1)(z+\bar{z}) - i(z-\bar{z}) = 2\sqrt{2}\}$. Let $z_1, z_2 \in S$ be such that

$|z_1| = \max_{z \in S} |z|$ and $|z_2| = \min_{z \in S} |z|$. Then $|\sqrt{2} z_1 - z_2|^2$ equals :

Options :

9561772011. **1**

9561772012. **2**

9561772013. **3**

9561772014. **4**

Question Number : 1 Question Id : 9561771036 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $S = \{z \in \mathbb{C} : |z-1|=1 \text{ तथा } (\sqrt{2}-1)(z+\bar{z}) - i(z-\bar{z}) = 2\sqrt{2}\}$ है। माना $z_1, z_2 \in S$ के लिए
 $|z_1| = \max_{z \in S} |z|$ तथा $|z_2| = \min_{z \in S} |z|$ हैं। तो $|\sqrt{2} z_1 - z_2|^2$ बराबर है :

Options :

9561772011. 1

9561772012. 2

9561772013. 3

9561772014. 4

Question Number : 2 Question Id : 9561771037 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $S = \{x \in \mathbb{R} : (\sqrt{3} + \sqrt{2})^x + (\sqrt{3} - \sqrt{2})^x = 10\}$. Then the number of elements in S is :

Options :

9561772015. 0

9561772016. 1

9561772017. 2

9561772018. 4

Question Number : 2 Question Id : 9561771037 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $S = \{x \in \mathbb{R} : (\sqrt{3} + \sqrt{2})^x + (\sqrt{3} - \sqrt{2})^x = 10\}$ है। तो S में अवयवों की संख्या है :

Options :

9561772015. 0

9561772016. 1

9561772017. 2

9561772018. 4

Question Number : 3 Question Id : 9561771038 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $A = \begin{bmatrix} \sqrt{2} & 1 \\ -1 & \sqrt{2} \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$, $C = ABA^T$ and $X = A^T C^2 A$, then $\det X$ is equal to :

Options :

9561772019. 27

9561772020. 729

9561772021. 891

9561772022. 243

Question Number : 3 Question Id : 9561771038 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $A = \begin{bmatrix} \sqrt{2} & 1 \\ -1 & \sqrt{2} \end{bmatrix}$, $B = \begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$, $C = ABA^T$ तथा $X = A^T C^2 A$ हैं, तो $\det X$ बराबर है :

Options :

9561772019. 27

9561772020. 729

9561772021. 891

9561772022. 243

Question Number : 4 Question Id : 9561771039 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If n is the number of ways five different employees can sit into four indistinguishable offices where any office may have any number of persons including zero, then n is equal to :

Options :

9561772023. 51

9561772024. 47

9561772025. 53

9561772026. 43

Question Number : 4 Question Id : 9561771039 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

पाँच भिन्न कर्मचारियों को, चार अभिन्न कार्यालयों में बैठाने के तरीकों, जबकि किसी भी कार्यालय में शून्य सहित कितने भी कर्मचारी बैठ सकते हैं, की संख्या है :

Options :

9561772023. 51

9561772024. 47

9561772025. 53

9561772026. 43

Question Number : 5 Question Id : 9561771040 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the system of equations

$$2x + 3y - z = 5$$

$$x + \alpha y + 3z = -4$$

$$3x - y + \beta z = 7$$

has infinitely many solutions, then $13\alpha\beta$ is equal to _____.

Options :

9561772027. 1210

9561772028. 1120

9561772029. 1220

9561772030. 1110

Question Number : 5 Question Id : 9561771040 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि समीकरण निकाय

$$2x + 3y - z = 5$$

$$x + \alpha y + 3z = -4$$

$$3x - y + \beta z = 7$$

के अनंत हल हैं, तो $13\alpha\beta$ बराबर है :

Options :

9561772027. 1210

9561772028. 1120

9561772029. 1220

9561772030. 1110

Question Number : 6 Question Id : 9561771041 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let 3, a, b, c be in A.P. and 3, a - 1, b + 1, c + 9 be in G.P.

Then, the arithmetic mean of a, b and c is :

Options :

9561772031. 11

9561772032. -1

9561772033. 13

9561772034. - 4

Question Number : 6 Question Id : 9561771041 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना 3, a, b, c एक A.P. में हैं तथा 3, a-1, b+1, c+9 एक G.P. में हैं। तो a, b तथा c का समांतर माध्य है :

Options :

9561772031. 11

9561772032. - 1

9561772033. 13

9561772034. - 4

Question Number : 7 Question Id : 9561771042 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $5f(x) + 4f\left(\frac{1}{x}\right) = x^2 - 2, \forall x \neq 0$ and $y = 9x^2f(x)$, then y is strictly increasing in :

Options :

9561772035.

$$\left(-\frac{1}{\sqrt{5}}, 0\right) \cup \left(0, \frac{1}{\sqrt{5}}\right)$$

9561772036.

$$\left(-\infty, \frac{1}{\sqrt{5}}\right) \cup \left(0, \frac{1}{\sqrt{5}}\right)$$

9561772037.

$$\left(-\frac{1}{\sqrt{5}}, 0\right) \cup \left(\frac{1}{\sqrt{5}}, \infty\right)$$

9561772038.

$$\left(0, \frac{1}{\sqrt{5}}\right) \cup \left(\frac{1}{\sqrt{5}}, \infty\right)$$

Question Number : 7 Question Id : 9561771042 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $5f(x) + 4f\left(\frac{1}{x}\right) = x^2 - 2, \forall x \neq 0$ है तथा $y = 9x^2 f(x)$ है, तो किस अंतराल में y निरंतर वर्धमान है?

Options :

$$\left(-\frac{1}{\sqrt{5}}, 0\right) \cup \left(0, \frac{1}{\sqrt{5}}\right)$$

9561772035.

$$\left(-\infty, \frac{1}{\sqrt{5}}\right) \cup \left(0, \frac{1}{\sqrt{5}}\right)$$

9561772036.

9561772037. $\left(-\frac{1}{\sqrt{5}}, 0\right) \cup \left(\frac{1}{\sqrt{5}}, \infty\right)$

9561772038. $\left(0, \frac{1}{\sqrt{5}}\right) \cup \left(\frac{1}{\sqrt{5}}, \infty\right)$

Question Number : 8 Question Id : 9561771043 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be defined as :

$$f(x) = \begin{cases} \frac{a - b \cos 2x}{x^2} ; & x < 0 \\ x^2 + cx + 2 ; & 0 \leq x \leq 1 \\ 2x + 1 & ; x > 1 \end{cases}$$

If f is continuous everywhere in $\mathbb{R}$ and m is the number of points where f is NOT differential then $m + a + b + c$ equals :

Options :

9561772039. 1

9561772040. 2

9561772041. 3

9561772042. 4

Question Number : 8 Question Id : 9561771043 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $f: \mathbb{R} \rightarrow \mathbb{R}$,

$$f(x) = \begin{cases} \frac{a - b \cos 2x}{x^2} ; & x < 0 \\ x^2 + cx + 2 ; & 0 \leq x \leq 1 \\ 2x + 1 & ; x > 1 \end{cases}$$

द्वारा परिभाषित है। यदि $\mathbb{R}$ के प्रत्येक बिंदु पर f संतत है तथा उन बिंदुओं की संख्या, जहाँ पर f अवकलनीय नहीं है, m है, तो $m+a+b+c$ बराबर है :

Options :

9561772039. 1

9561772040. 2

9561772041. 3

9561772042. 4

Question Number : 9 Question Id : 9561771044 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The area enclosed by the curves $xy + 4y = 16$ and $x + y = 6$ is equal to :

Options :

9561772043. $28 - 30 \log_e 2$

9561772044. $30 - 32 \log_e 2$

9561772045. $32 - 30 \log_e 2$

9561772046. $30 - 28 \log_e 2$

Question Number : 9 Question Id : 9561771044 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

वक्रों $xy + 4y = 16$ तथा $x + y = 6$ से घिरे क्षेत्र का क्षेत्रफल है :

Options :

9561772043. $28 - 30 \log_e 2$

9561772044. $30 - 32 \log_e 2$

9561772045. $32 - 30 \log_e 2$

9561772046. $30 - 28 \log_e 2$

Question Number : 10 Question Id : 9561771045 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The value of the intergral $\int_0^{\pi/4} \frac{x \, dx}{\sin^4(2x) + \cos^4(2x)}$ equals :

Options :

9561772047. $\frac{\sqrt{2} \pi^2}{16}$

9561772048. $\frac{\sqrt{2} \pi^2}{32}$

9561772049. $\frac{\sqrt{2} \pi^2}{8}$

9561772050. $\frac{\sqrt{2} \pi^2}{64}$

Question Number : 10 Question Id : 9561771045 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समाकलन $\int_0^{\pi/4} \frac{x \, dx}{\sin^4(2x) + \cos^4(2x)}$ का मान बराबर है :

Options :

9561772047. $\frac{\sqrt{2} \pi^2}{16}$

9561772048. $\frac{\sqrt{2} \pi^2}{32}$

9561772049. $\frac{\sqrt{2} \pi^2}{8}$

9561772050. $\frac{\sqrt{2} \pi^2}{64}$

Question Number : 11 Question Id : 9561771046 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $y=y(x)$ be the solution of the differential equation $\frac{dy}{dx} = 2x(x+y)^3 - x(x+y) - 1$, $y(0) = 1$.

Then, $\left(\frac{1}{\sqrt{2}} + y\left(\frac{1}{\sqrt{2}}\right) \right)^2$ equals :

Options :

9561772051. $\frac{1}{2 - \sqrt{e}}$

9561772052. $\frac{2}{1 + \sqrt{e}}$

9561772053. $\frac{3}{3 - \sqrt{e}}$

9561772054. $\frac{4}{4 + \sqrt{e}}$

Question Number : 11 Question Id : 9561771046 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना अवकलन समीकरण $\frac{dy}{dx} = 2x(x + y)^3 - x(x + y) - 1$, $y(0) = 1$ का हल $y = y(x)$ है। तो

$\left(\frac{1}{\sqrt{2}} + y \left(\frac{1}{\sqrt{2}} \right) \right)^2$ बराबर है :

Options :

9561772051. $\frac{1}{2 - \sqrt{e}}$

9561772052. $\frac{2}{1 + \sqrt{e}}$

9561772053. $\frac{3}{3 - \sqrt{e}}$

9561772054. $\frac{4}{4 + \sqrt{e}}$

Question Number : 12 Question Id : 9561771047 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

For $0 < \theta < \pi/2$, if the eccentricity of the hyperbola $x^2 - y^2 \operatorname{cosec}^2 \theta = 5$ is $\sqrt{7}$ times eccentricity of the ellipse $x^2 \operatorname{cosec}^2 \theta + y^2 = 5$, then the value of θ is :

Options :

9561772055. $\frac{\pi}{4}$

9561772056. $\frac{\pi}{3}$

9561772057. $\frac{\pi}{6}$

9561772058. $\frac{5\pi}{12}$

Question Number : 12 Question Id : 9561771047 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$0 < \theta < \pi/2$ के लिए, यदि अतिपरवलय $x^2 - y^2 \operatorname{cosec}^2 \theta = 5$ की उत्केन्द्रता, दीर्घवृत्त $x^2 \operatorname{cosec}^2 \theta + y^2 = 5$ की उत्केन्द्रता की $\sqrt{7}$ गुना है, तो θ का मान है :

Options :

9561772055.

$$\frac{\pi}{4}$$

9561772056. $\frac{\pi}{3}$

9561772057. $\frac{\pi}{6}$

9561772058. $\frac{5\pi}{12}$

Question Number : 13 Question Id : 9561771048 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$, $a > b$ be an ellipse, whose eccentricity is $\frac{1}{\sqrt{2}}$ and the length of the latusrectum is

$\sqrt{14}$. Then the square of the eccentricity of $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ is :

Options :

9561772059. $3/2$

9561772060. 3

9561772061. $5/2$

9561772062. ^{7/2}

Question Number : 13 Question Id : 9561771048 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना दीर्घवृत्त $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1, a > b$ की उत्केन्द्रता $\frac{1}{\sqrt{2}}$ है तथा नाभिलंब जीवा की लंबाई $\sqrt{14}$ है। तो $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ की उत्केन्द्रता का वर्ग है :

Options :

9561772059. ^{3/2}

9561772060. ³

9561772061. ^{5/2}

9561772062. ^{7/2}

Question Number : 14 Question Id : 9561771049 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $f: \mathbb{R} \rightarrow \mathbb{R}$ and $g: \mathbb{R} \rightarrow \mathbb{R}$ be defined as $f(x) = \begin{cases} \log_e x, & x > 0 \\ e^{-x}, & x \leq 0 \end{cases}$ and $g(x) = \begin{cases} x, & x \geq 0 \\ e^x, & x < 0 \end{cases}$. Then,

$g \circ f: \mathbb{R} \rightarrow \mathbb{R}$ is :

Options :

9561772063. one-one but not onto

9561772064. onto but not one-one

9561772065. both one-one and onto

9561772066. neither one-one nor onto

Question Number : 14 Question Id : 9561771049 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $f: \mathbb{R} \rightarrow \mathbb{R}$ तथा $g: \mathbb{R} \rightarrow \mathbb{R}$, $f(x) = \begin{cases} \log_e x, & x > 0 \\ e^{-x}, & x \leq 0 \end{cases}$ तथा $g(x) = \begin{cases} x, & x \geq 0 \\ e^x, & x < 0 \end{cases}$ द्वारा परिभाषित हैं। तो

$g \circ f: \mathbb{R} \rightarrow \mathbb{R}$

Options :

9561772063. एकैकी है परन्तु आच्छादक नहीं है

9561772064. आच्छादक है परन्तु एकैकी नहीं है

9561772065. एकैकी एवं आच्छादक दोनों है

9561772066. न तो एकैकी है, न ही आच्छादक है

Question Number : 15 Question Id : 9561771050 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $C : x^2 + y^2 = 4$ and $C' : x^2 + y^2 - 4\lambda x + 9 = 0$ be two circles. If the set of all values of λ so that the circles C and C' intersect at two distinct points, is $\mathbb{R} - [a, b]$, then the point $(8a + 12, 16b - 20)$ lies on the curve :

Options :

9561772067. $5x^2 - y = -11$

9561772068. $6x^2 + y^2 = 42$

9561772069. $x^2 - 4y^2 = 7$

9561772070. $x^2 + 2y^2 - 5x + 6y = 3$

Question Number : 15 Question Id : 9561771050 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना दो वृत्त $C : x^2 + y^2 = 4$ तथा $C' : x^2 + y^2 - 4\lambda x + 9 = 0$ हैं। यदि λ के सभी मानों, जिनके लिए वृत्त C तथा C' एक दूसरे को दो भिन्न बिंदुओं पर काटते हैं, का समुच्चय $\mathbb{R} - [a, b]$ है, तो बिंदु $(8a + 12, 16b - 20)$ किस वक्र पर है?

Options :

9561772067. $5x^2 - y = -11$

9561772068. $6x^2 + y^2 = 42$

9561772069. $x^2 - 4y^2 = 7$

9561772070. $x^2 + 2y^2 - 5x + 6y = 3$

Question Number : 16 Question Id : 9561771051 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the shortest distance between the lines $\frac{x - \lambda}{-2} = \frac{y - 2}{1} = \frac{z - 1}{1}$ and $\frac{x - \sqrt{3}}{1} = \frac{y - 1}{-2} = \frac{z - 2}{1}$ is 1, then the sum of all possible values of λ is :

Options :

9561772071. $3\sqrt{3}$

9561772072. 0

9561772073. $-2\sqrt{3}$

9561772074. $2\sqrt{3}$

Question Number : 16 Question Id : 9561771051 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि रेखाओं $\frac{x-\lambda}{-2} = \frac{y-2}{1} = \frac{z-1}{1}$ तथा $\frac{x-\sqrt{3}}{1} = \frac{y-1}{-2} = \frac{z-2}{1}$ के बीच न्यूनतम दूरी 1 है, तो λ के सभी संभव मानों का योग है :

Options :

9561772071. $3\sqrt{3}$

9561772072. 0

9561772073. $-2\sqrt{3}$

9561772074. $2\sqrt{3}$

Question Number : 17 Question Id : 9561771052 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A bag contains 8 balls, whose colours are either white or black. 4 balls are drawn at random without replacement and it was found that 2 balls are white and other 2 balls are black. The probability that the bag contains equal number of white and black balls is :

Options :

9561772075. $\frac{1}{7}$

9561772076. $\frac{1}{5}$

9561772077. $\frac{2}{5}$

9561772078. $\frac{2}{7}$

Question Number : 17 Question Id : 9561771052 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक थैले में 8 गेंद हैं, जिनके रंग सफेद या काले हैं। बिना प्रतिस्थापना के 4 गेंद यादृच्छया निकाली जाती हैं तथा यह पाया गया कि 2 गेंद सफेद हैं और अन्य 2 गेंद काली हैं। थैले में सफेद तथा काली गेंदों की संख्या बराबर होने की प्रायिकता है :

Options :

9561772075. $\frac{1}{7}$

9561772076. $\frac{1}{5}$

9561772077. $\frac{2}{5}$

9561772078. $\frac{2}{7}$

Question Number : 18 Question Id : 9561771053 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let the median and the mean deviation about the median of 7 observation 170, 125, 230, 190, 210, a, b be 170 and $\frac{205}{7}$ respectively. Then the mean deviation about the mean of these 7 observations is :

Options :

9561772079. 28

9561772080. 30

9561772081. 31

9561772082. 32

Question Number : 18 Question Id : 9561771053 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना 7 प्रेक्षकों 170, 125, 230, 190, 210, a, b के माध्यिका तथा माध्यिका के सापेक्ष माध्य विचलन क्रमशः 170 तथा $\frac{205}{7}$ हैं। तो इन 7 प्रेक्षकों का माध्य के सापेक्ष माध्य विचलन है :

Options :

9561772079. 28

9561772080. 30

9561772081. 31

9561772082. 32

Question Number : 19 Question Id : 9561771054 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a} = -5\hat{i} + \hat{j} - 3\hat{k}$, $\vec{b} = \hat{i} + 2\hat{j} - 4\hat{k}$ and $\vec{c} = \left(\left(\left(\vec{a} \times \vec{b} \right) \times \hat{i} \right) \times \hat{i} \right) \times \hat{i}$. Then

$\vec{c} \cdot (-\hat{i} + \hat{j} + \hat{k})$ is equal to :

Options :

9561772083. -10

9561772084. -12

9561772085. -13

9561772086. -15

Question Number : 19 Question Id : 9561771054 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a} = -5\hat{i} + \hat{j} - 3\hat{k}$, $\vec{b} = \hat{i} + 2\hat{j} - 4\hat{k}$ तथा $\vec{c} = \left(\left(\left(\vec{a} \times \vec{b} \right) \times \hat{i} \right) \times \hat{i} \right) \times \hat{i}$ हैं। तो

$\vec{c} \cdot (-\hat{i} + \hat{j} + \hat{k})$ बराबर है :

Options :

9561772083. -10

9561772084. -12

9561772085. -13

9561772086. -15

Question Number : 20 Question Id : 9561771055 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $\tan A = \frac{1}{\sqrt{x(x^2 + x + 1)}}$, $\tan B = \frac{\sqrt{x}}{\sqrt{x^2 + x + 1}}$ and

$\tan C = (x^{-3} + x^{-2} + x^{-1})^{1/2}$, $0 < A, B, C < \frac{\pi}{2}$, then $A + B$ is equal to :

Options :

9561772087. C

9561772088. $\pi - C$

9561772089. $2\pi - C$

9561772090. $\frac{\pi}{2} - C$

Question Number : 20 Question Id : 9561771055 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $\tan A = \frac{1}{\sqrt{x(x^2 + x + 1)}}$, $\tan B = \frac{\sqrt{x}}{\sqrt{x^2 + x + 1}}$ तथा

$\tan C = (x^{-3} + x^{-2} + x^{-1})^{1/2}$, $0 < A, B, C < \frac{\pi}{2}$ हैं, तो $A + B$ बराबर है :

Options :

9561772087. C

9561772088. $\pi - C$

9561772089. $2\pi - C$

9561772090. $\frac{\pi}{2} - C$

Mathematics Section B

Section Id :	95617763
Section Number :	2
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	95617766
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 9561771056 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $A = \{1, 2, 3, \dots, 20\}$. Let R_1 and R_2 two relation on A such that

$R_1 = \{(a, b) : b \text{ is divisible by } a\}$

$R_2 = \{(a, b) : a \text{ is an integral multiple of } b\}$.

Then, number of elements in $R_1 - R_2$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 21 Question Id : 9561771056 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $A = \{1, 2, 3, \dots, 20\}$ है। माना A पर दो संबंध R_1 तथा R_2 ,

$R_1 = \{(a, b) : b, a \text{ से विभाज्य है} \}$

$R_2 = \{(a, b) : a, b \text{ का एक पूर्णांकीय गुणज है} \}$.

तो $R_1 - R_2$ में अवयवों की संख्या बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 22 Question Id : 9561771057 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $P = \{z \in \mathbb{C} : |z + 2 - 3i| \leq 1\}$ and $Q = \{z \in \mathbb{C} : z(1 + i) + \bar{z}(1 - i) \leq -8\}$. Let in $P \cap Q$,

$|z - 3 + 2i|$ be maximum and minimum at z_1 and z_2 respectively. If $|z_1|^2 + 2|z_2|^2 = \alpha + \beta\sqrt{2}$, where α, β are integers, then $\alpha + \beta$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 22 Question Id : 9561771057 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $P = \{z \in \mathbb{C} : |z + 2 - 3i| \leq 1\}$ तथा $Q = \{z \in \mathbb{C} : z(1 + i) + \bar{z}(1 - i) \leq -8\}$ हैं। माना $P \cap Q$ में $|z - 3 + 2i|$, z_1 तथा z_2 पर क्रमशः अधिकतम तथा निम्नतम है। यदि $|z_1|^2 + 2|z_2|^2 = \alpha + \beta\sqrt{2}$ है, जहाँ α, β पूर्णांक हैं, तो $\alpha + \beta$ बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 23 Question Id : 9561771058 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If the Coefficient of x^{30} in the expansion of $\left(1 + \frac{1}{x}\right)^6 (1 + x^2)^7 (1 - x^3)^8$; $x \neq 0$ is α , then $|\alpha|$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 23 Question Id : 9561771058 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $\left(1 + \frac{1}{x}\right)^6 (1 + x^2)^7 (1 - x^3)^8$; $x \neq 0$, के प्रसार में x^{30} का गुणांक α है, तो $|\alpha|$ बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 24 Question Id : 9561771059 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The number of elements in the set
 $S = \{(x, y, z) : x, y, z \in \mathbb{Z}, x + 2y + 3z = 42, x, y, z \geq 0\}$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 24 Question Id : 9561771059 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समुच्चय

$S = \{(x, y, z) : x, y, z \in \mathbb{Z}, x + 2y + 3z = 42, x, y, z \geq 0\}$ में अवयवों की संख्या है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 25 **Question Id :** 9561771060 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

Let 3, 7, 11, 15, . . . , 403 and 2, 5, 8, 11, . . . , 404 be two arithmetic progressions. Then the sum, of the common terms in them, is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 25 **Question Id :** 9561771060 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

माना 3, 7, 11, 15, . . . , 403 तथा 2, 5, 8, 11, . . . , 404 दो समांतर श्रेढ़ियाँ हैं। तो इनमें उभयनिष्ठ पदों का योग है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 Question Id : 9561771061 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $\{x\}$ denote the fractional part of x and $f(x) = \frac{\cos^{-1}(1 - \{x\}^2) \sin^{-1}(1 - \{x\})}{\{x\} - \{x\}^3}, x \neq 0$. If L and

R respectively denotes the left hand limit and the right hand limit of $f(x)$ at $x=0$, then $\frac{32}{\pi^2} (L^2 + R^2)$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 26 Question Id : 9561771061 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $\{x\}$, x के भिन्नात्मक भाग को दर्शाता है तथा $f(x) = \frac{\cos^{-1}(1 - \{x\}^2) \sin^{-1}(1 - \{x\})}{\{x\} - \{x\}^3}, x \neq 0$ है। यदि $x=0$

पर $f(x)$ की बाएँ पक्ष की सीमा तथा दाएँ पक्ष की सीमा क्रमशः L तथा R हैं, तो $\frac{32}{\pi^2} (L^2 + R^2)$ बराबर है _____ ।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 27 Question Id : 9561771062 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $\int_{-\pi/2}^{\pi/2} \frac{8\sqrt{2} \cos x \, dx}{(1 + e^{\sin x})(1 + \sin^4 x)} = \alpha\pi + \beta \log_e (3 + 2\sqrt{2})$, where α, β are integers, then $\alpha^2 + \beta^2$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 27 Question Id : 9561771062 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि $\int_{-\pi/2}^{\pi/2} \frac{8\sqrt{2} \cos x \, dx}{(1 + e^{\sin x})(1 + \sin^4 x)} = \alpha\pi + \beta \log_e (3 + 2\sqrt{2})$ है, जहाँ α, β पूर्णांक हैं, तो $\alpha^2 + \beta^2$ बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 28 Question Id : 9561771063 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If $x=x(t)$ is the solution of the differential equation $(t+1)dx=(2x+(t+1)^4) dt$, $x(0)=2$, then, $x(1)$ equals _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 28 Question Id : 9561771063 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि अवकल समीकरण $(t+1)dx=(2x+(t+1)^4) dt$, $x(0)=2$ का हल $x=x(t)$ है, तो $x(1)$ बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 29 Question Id : 9561771064 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let the line $L: \sqrt{2}x + y = \alpha$ pass through the point of the intersection P (in the first quadrant) of the circle $x^2 + y^2 = 3$ and the parabola $x^2 = 2y$. Let the line L touch two circles C_1 and C_2 of equal radius $2\sqrt{3}$. If the centres Q_1 and Q_2 of the circles C_1 and C_2 lie on the y -axis, then the square of the area of the triangle PQ_1Q_2 is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 29 Question Id : 9561771064 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना रेखा $L: \sqrt{2}x + y = \alpha$, वृत्त $x^2 + y^2 = 3$ तथा परवलय $x^2 = 2y$ के प्रतिच्छेदन बिंदु P (प्रथम चतुर्थांश में) से होकर जाती है। माना रेखा L बराबर त्रिज्या $2\sqrt{3}$ के दो वृत्तों C_1 तथा C_2 को स्पर्श करती है। यदि वृत्तों C_1 तथा C_2 के केन्द्र Q_1 तथा Q_2 , y -अक्ष पर हैं, तो त्रिभुज PQ_1Q_2 के क्षेत्रफल का वर्ग है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 30 Question Id : 9561771065 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let the line of the shortest distance between the lines

$$L_1 : \vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda (\hat{i} - \hat{j} + \hat{k}) \text{ and}$$

$$L_2 : \vec{r} = (4\hat{i} + 5\hat{j} + 6\hat{k}) + \mu (\hat{i} + \hat{j} - \hat{k})$$

intersect L_1 and L_2 at P and Q respectively. If (α, β, γ) is the mid point of the line segment PQ, then $2(\alpha + \beta + \gamma)$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 30 Question Id : 9561771065 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना रेखाओं

$$L_1 : \vec{r} = (\hat{i} + 2\hat{j} + 3\hat{k}) + \lambda (\hat{i} - \hat{j} + \hat{k}) \text{ तथा}$$

$$L_2 : \vec{r} = (4\hat{i} + 5\hat{j} + 6\hat{k}) + \mu (\hat{i} + \hat{j} - \hat{k})$$

की न्यूनतम दूरी की रेखा, L_1 तथा L_2 को क्रमशः P तथा Q पर काटती है। यदि रेखाखंड PQ का मध्यबिंदु (α, β, γ) है, तो $2(\alpha + \beta + \gamma)$ बराबर है _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Physics Section A

Section Id :	95617764
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	95617767
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 31 Question Id : 9561771066 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The dimensional formula of angular impulse is :

Options :

9561772101. $[M L^2 T^{-2}]$

9561772102. $[M L T^{-1}]$

9561772103. $[M L^{-2} T^{-1}]$

9561772104. $[M L^2 T^{-1}]$

Question Number : 31 Question Id : 9561771066 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कोणीय आवेग का विमीय सूत्र है :

Options :

9561772101. $[M L^2 T^{-2}]$

9561772102. $[M L T^{-1}]$

9561772103. $[M L^{-2} T^{-1}]$

9561772104. $[M L^2 T^{-1}]$

Question Number : 32 Question Id : 9561771067 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A particle moving in a circle of radius R with uniform speed takes time T to complete one revolution. If this particle is projected with the same speed at an angle θ to the horizontal, the maximum height attained by it is equal to $4R$. The angle of projection θ is then given by :

Options :

$$\cos^{-1} \left[\frac{2gT^2}{\pi^2 R} \right]^{\frac{1}{2}}$$

9561772105.

$$\sin^{-1} \left[\frac{2gT^2}{\pi^2 R} \right]^{\frac{1}{2}}$$

9561772106.

$$\sin^{-1} \left[\frac{\pi^2 R}{2gT^2} \right]^{\frac{1}{2}}$$

9561772107.

$$\cos^{-1} \left[\frac{\pi R}{2gT^2} \right]^{\frac{1}{2}}$$

9561772108.

Question Number : 32 Question Id : 9561771067 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक कण R त्रिज्या के एक वृत्त पर एक समान चाल से गति कर रहा है तथा एक चक्कर पूर्ण करने में T समय लेता है। यदि इसको एक समान चाल से क्षैतिज से θ कोण पर प्रक्षेपित किया जाता तो इसके द्वारा तय की गई अधिकतम ऊँचाई $4R$ है। तब प्रक्षेपण कोण θ होगा :

Options :

9561772105.

$$\cos^{-1} \left[\frac{2gT^2}{\pi^2 R} \right]^{\frac{1}{2}}$$

9561772106.

$$\sin^{-1} \left[\frac{2gT^2}{\pi^2 R} \right]^{\frac{1}{2}}$$

9561772107.

$$\sin^{-1} \left[\frac{\pi^2 R}{2gT^2} \right]^{\frac{1}{2}}$$

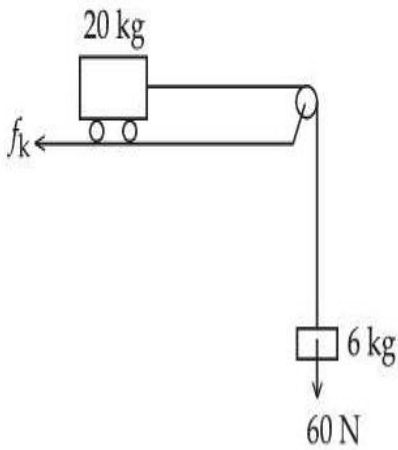
9561772108.

$$\cos^{-1} \left[\frac{\pi R}{2gT^2} \right]^{\frac{1}{2}}$$

Question Number : 33 Question Id : 9561771068 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0 Correct Marks : 4 Wrong Marks : 1

Consider a block and trolley system as shown in figure. If the coefficient of kinetic friction between the trolley and the surface is 0.04, the acceleration of the system in ms^{-2} is :

(Consider that the string is massless and unstretchable and the pulley is also massless and frictionless) :



Options :

9561772109. 3

9561772110. 1.2

9561772111. 4

9561772112. 2

Question Number : 33 Question Id : 9561771068 Question Type : MCQ Option Shuffling : Yes Is

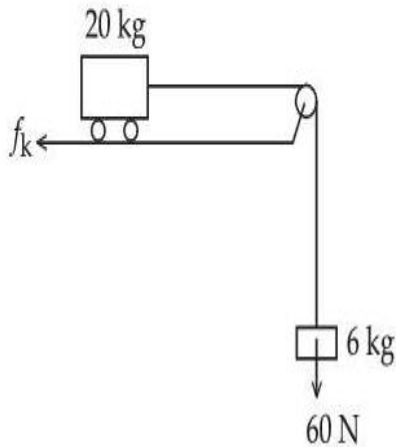
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

चित्र के अनुसार एक गुटका व ट्रॉली का निकाय लिया गया। यदि ट्रॉली तथा सतह के बीच गतिक घर्षण गुणांक 0.04 है तो निकाय का त्वरण (मी/से² में) है :

(मान लीजिये कि रस्सी द्रव्यमान विहीन तथा न खिंचने वाली है और घिरनी भी द्रव्यमान विहीन तथा चिकनी है।)



Options :

9561772109. 3

9561772110. 1.2

9561772111. 4

9561772112. 2

Question Number : 34 Question Id : 9561771069 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A ball of mass 0.5 kg is attached to a string of length 50 cm. The ball is rotated on a horizontal circular path about its vertical axis. The maximum tension that the string can bear is 400 N. The maximum possible value of angular velocity of the ball in rad/s is, :

Options :

9561772113.

1600

9561772114. 40

9561772115. 20

9561772116. 1000

Question Number : 34 Question Id : 9561771069 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

0.5 किग्रा द्रव्यमान की एक गेंद 50 सेमी लम्बी एक डोरी से बाँधी गई है। गेंद को इसकी उर्ध्वाधर अक्ष के परितः एक क्षैतिज वृत्ताकार पथ पर घुमाया जाता है। डोरी द्वारा सहन करने वाला अधिकतम तनाव 400 N है। गेंद के कोणीय वेग का अधिकतम संभव मान (रेडियन/से में) है :

Options :

9561772113. 1600

9561772114. 40

9561772115. 20

9561772116. 10

Question Number : 35 Question Id : 9561771070 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A simple pendulum of length 1 m has a wooden bob of mass 1 kg. It is struck by a bullet of mass 10^{-2} kg moving with a speed of $2 \times 10^2 \text{ ms}^{-1}$. The bullet gets embedded into the bob. The height to which the bob rises before swinging back is. (use $g = 10 \text{ m/s}^2$)

Options :

9561772117. 0.20 m

9561772118. 0.30 m

9561772119. 0.35 m

9561772120. 0.40 m

Question Number : 35 Question Id : 9561771070 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

1 मी लंबाई के सरल लोलक में 1 किग्रा द्रव्यमान का लकड़ी का एक गोलक है। यह 2×10^2 मी से⁻¹ की चाल से गतिमान 10^{-2} किग्रा द्रव्यमान की एक गोली द्वारा टकराता है। गोली गोलक में धँस जाती है। गोलक वापस झूलने से पूर्व किस ऊँचाई तक ऊपर पहुँचता है : (दिया है : $g = 10 \text{ मी/से}^2$)

Options :

9561772117. 0.20 m

9561772118. 0.30 m

9561772119. 0.35 m

9561772120. 0.4 m

Question Number : 36 Question Id : 9561771071 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If R is the radius of the earth and the acceleration due to gravity on the surface of earth is $g = \pi^2 \text{ m/s}^2$, then the length of the second's pendulum at a height $h = 2R$ from the surface of earth will be, :

Options :

9561772121. $\frac{2}{9} \text{ m}$

9561772122. $\frac{4}{9} \text{ m}$

9561772123. $\frac{8}{9} \text{ m}$

9561772124. $\frac{1}{9} \text{ m}$

Question Number : 36 Question Id : 9561771071 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि पृथ्वी की त्रिज्या R तथा पृथ्वी तल पर गुरुत्वी त्वरण $g = \pi^2 \text{मी/से}^2$ हो तब पृथ्वी तल से $h = 2R$ ऊँचाई पर सेकंड लोलक की लम्बाई होगी :

Options :

9561772121. $\frac{2}{9}m$

9561772122. $\frac{4}{9}m$

9561772123. $\frac{8}{9}m$

9561772124. $\frac{1}{9}m$

Question Number : 37 Question Id : 9561771072 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

With rise in temperature, the Young's modulus of elasticity :

Options :

9561772125. decreases

9561772126.

increases

9561772127. remains unchanged

9561772128. changes erratically

Question Number : 37 Question Id : 9561771072 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

तापमान में वृद्धि के साथ यंग प्रत्यास्थता गुणांक :

Options :

9561772125. बढ़ता है

9561772126. घटता है

9561772127. अपरिवर्तित रहता है

9561772128. समान रूप से बदलता है

Question Number : 38 Question Id : 9561771073 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The pressure and volume of an ideal gas are related as $PV^{\frac{3}{2}} = K$ (Constant). The work done when the gas is taken from state A (P_1, V_1, T_1) to state B (P_2, V_2, T_2) is :

Options :

9561772129. $2 (P_2 V_2 - P_1 V_1)$

9561772130. $2 (P_2 \sqrt{V_2} - P_1 \sqrt{V_1})$

9561772131. $2 (P_1 V_1 - P_2 V_2)$

9561772132. $2 (\sqrt{P_1} V_1 - \sqrt{P_2} V_2)$

Question Number : 38 Question Id : 9561771073 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक आदर्श गैस का दाब व आयतन $PV^{\frac{3}{2}} = K$ (नियतांक) द्वारा सम्बन्धित हैं। गैस को अवस्था A (P_1, V_1, T_1) से अवस्था B (P_2, V_2, T_2) तक ले जाने में कुल कार्य है :

Options :

9561772129. $2 (P_2 V_2 - P_1 V_1)$

9561772130. $2 (P_2 \sqrt{V_2} - P_1 \sqrt{V_1})$

9561772131. $2 (P_1 V_1 - P_2 V_2)$

9561772132. $2 (\sqrt{P_1} V_1 - \sqrt{P_2} V_2)$

Question Number : 39 Question Id : 9561771074 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Two moles a monoatomic gas is mixed with six moles of a diatomic gas. The molar specific heat of the mixture at constant volume is :

Options :

9561772133. $\frac{5}{2}R$

9561772134. $\frac{9}{4}R$

9561772135. $\frac{3}{2}R$

9561772136. $\frac{7}{4}R$

Question Number : 39 Question Id : 9561771074 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक परमाणुक गैस के 2 मोल को एक द्विपरमाणुक गैस के छः मोल के साथ मिश्रित किया जाता है। नियत आयतन पर मिश्रण की मोलर विशिष्ट ऊष्मा है :

Options :

9561772133. $\frac{5}{2}R$

9561772134. $\frac{9}{4}R$

9561772135. $\frac{3}{2}R$

9561772136. $\frac{7}{4}R$

Question Number : 40 Question Id : 9561771075 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Two identical capacitors have same capacitance C . One of them is charged to the potential V and other to the potential $2V$. The negative ends of both are connected together. When the positive ends are also joined together, the decrease in energy of the combined system is :

Options :

9561772137. $\frac{1}{2}CV^2$

9561772138.

$$\frac{1}{4} CV^2$$

9561772139. $2 CV^2$

9561772140. $\frac{3}{4} CV^2$

Question Number : 40 Question Id : 9561771075 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समान आकार के दो संधारित्रों की धारिता एक समान C है। उनमें से एक को V विभव तक तथा दूसरे को $2V$ विभव तक आवेशित किया जाता है। दोनों के ऋणात्मक सिरे को एक साथ जोड़ दिया जाता है। जब दोनों धनात्मक सिरे जोड़े जायें तो संयोजित निकाय की ऊर्जा में हानि है :

Options :

9561772137. $\frac{1}{2} CV^2$

9561772138. $\frac{1}{4} CV^2$

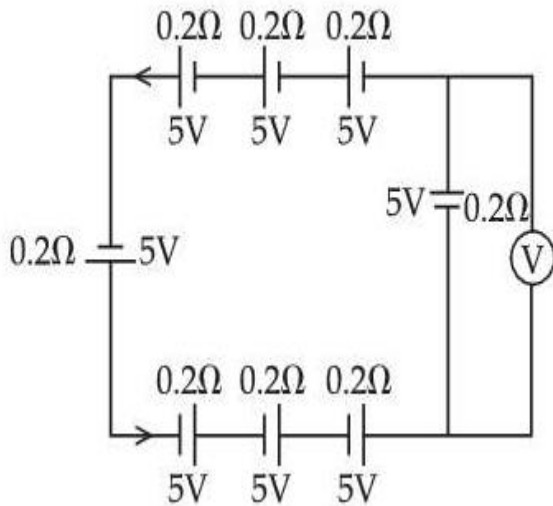
9561772139. $2 CV^2$

9561772140. $\frac{3}{4} CV^2$

Question Number : 41 Question Id : 9561771076 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The reading in the ideal voltmeter (V) shown in the given circuit diagram is :



Options :

9561772141. 5V

9561772142. 3V

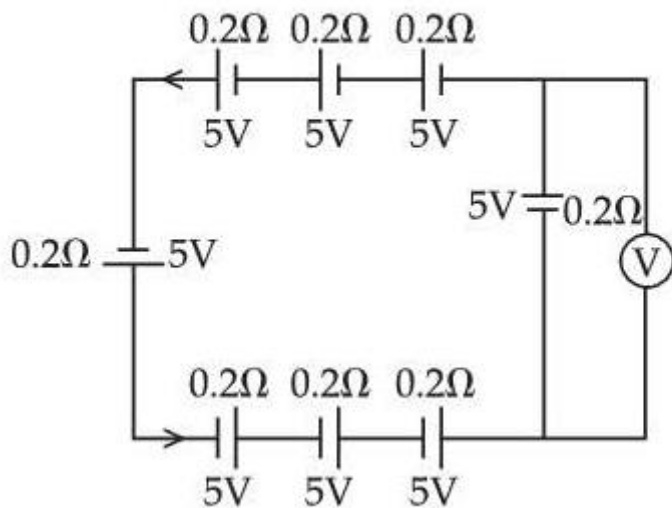
9561772143. 0V

9561772144. 10V

Question Number : 41 Question Id : 9561771076 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दिये गये परिपथ में, आदर्श वोल्टमीटर (V) में पाठ्यांक है :



Options :

9561772141. 5V

9561772142. 3V

9561772143. 0V

9561772144. 10V

Question Number : 42 Question Id : 9561771077 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A galvanometer has a resistance of $50\ \Omega$ and it allows maximum current of $5\ \text{mA}$. It can be converted into voltmeter to measure upto $100\ \text{V}$ by connecting in series a resistor of resistance :

Options :

9561772145. $19950\ \Omega$

9561772146. 19500 Ω

9561772147. 5975 Ω

9561772148. 20050 Ω

Question Number : 42 Question Id : 9561771077 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक धारामापी का प्रतिरोध $50\ \Omega$ है जो 5 mA की अधिकतम धारा का अनुमोदन करता है। इसे किस प्रतिरोध को श्रेणीक्रम में जोड़कर 100 V तक के माप हेतु वोल्टमीटर में बदला जा सकता है?

Options :

9561772145. 19,950 Ω

9561772146. 19,500 Ω

9561772147. 5975 Ω

9561772148. 20050 Ω

Question Number : 43 Question Id : 9561771078 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In series LCR circuit, the capacitance is changed from C to 4C. To keep the resonance frequency unchanged, the new inductance should be :

Options :

9561772149. increased to 4L

9561772150. increased by 2L

9561772151. reduced by $\frac{1}{4}L$

9561772152. reduced by $\frac{3}{4}L$

Question Number : 43 Question Id : 9561771078 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक श्रेणीबद्ध LCR परिपथ में धारिता को C से 4C तक बदल दिया जाता है। अनुनादित आवृत्ति समान रखने के लिए नया प्रेरकत्व होना चाहिए :

Options :

9561772149. 4L द्वारा वृद्धि

9561772150. 2L द्वारा वृद्धि

9561772151. $\frac{1}{4}L$ द्वारा कमी

9561772152. $\frac{3}{4}L$ द्वारा कमी

Question Number : 44 Question Id : 9561771079 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A parallel plate capacitor has a capacitance $C = 200 \text{ pF}$. It is connected to 230 V ac supply with an angular frequency 300 rad/s . The rms value of conduction current in the circuit and displacement current in the capacitor respectively are :

Options :

9561772153. $13.8 \mu\text{A}$ and $13.8 \mu\text{A}$

9561772154. $1.38 \mu\text{A}$ and $1.38 \mu\text{A}$

9561772155. $14.3 \mu\text{A}$ and $143 \mu\text{A}$

9561772156. $13.8 \mu\text{A}$ and $138 \mu\text{A}$

Question Number : 44 Question Id : 9561771079 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक समांतर प्लेट संधारित्र की धारिता $C = 200 \text{ pF}$ है। यह 300 रेडियन/से कोणीय आवृत्ति के साथ 230 V के प्रत्यावर्ती स्रोत से जुड़ा है। परिपथ में संचालित धारा का वर्गमाध्य मूल मान एवं संधारित्र में विस्थापन धारा क्रमशः हैं :

Options :

9561772153. $13.8 \mu\text{A}$ और $13.8 \mu\text{A}$

9561772154. $1.38 \mu\text{A}$ और $1.38 \mu\text{A}$

9561772155. $14.3 \mu\text{A}$ और $143 \mu\text{A}$

9561772156. $13.8 \mu\text{A}$ और $138 \mu\text{A}$

Question Number : 45 Question Id : 9561771080 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A monochromatic light of wavelength $6000 \text{ \AA}$ is incident on the single slit of width 0.01 mm . If the diffraction pattern is formed at the focus of the convex lens of focal length 20 cm , the linear width of the central maximum is :

Options :

9561772157. 12 mm

9561772158. 24 mm

9561772159. 120 mm

9561772160. 60 mm

Question Number : 45 Question Id : 9561771080 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

6000Å तरंगदैर्घ्य का एक एकवर्णी प्रकाश 0.01 मिमी चौड़ाई एक झिरी पर आपतित होता है। यदि विवर्तन पैटर्न 20 सेमी फोकस दूरी के उत्तल लेंस के फोकस पर बनता है, तो केन्द्रीय उच्चिष्ठ की रेखीय चौड़ाई हैं :

Options :

9561772157. 12 मिमी.

9561772158. 24 मिमी.

9561772159. 120 मिमी.

9561772160. 60 मिमी.

Question Number : 46 Question Id : 9561771081 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The de Broglie wavelengths of a proton and an α particle are λ and 2λ respectively. The ratio of the velocities of proton and α particle will be :

Options :

9561772161.

1 : 8

9561772162. 4 : 1

9561772163. 8 : 1

9561772164. 1 : 2

Question Number : 46 Question Id : 9561771081 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक प्रोटॉन व एक α -कण की डी-ब्रागली तरंगदैर्घ्य क्रमशः λ व 2λ हैं। प्रोटॉन व α -कण के वेगों का अनुपात होगा :

Options :

9561772161. 1 : 8

9561772162. 4 : 1

9561772163. 8 : 1

9561772164. 1 : 2

Question Number : 47 Question Id : 9561771082 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The minimum energy required by a hydrogen atom in ground state to emit radiation in Balmer series is nearly :

Options :

9561772165. 13.6 eV

9561772166. 1.5 eV

9561772167. 12.1 eV

9561772168. 1.9 eV

Question Number : 47 Question Id : 9561771082 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

मूल अवस्था में मौजूद एक हाइड्रोजन परमाणु द्वारा बॉमर श्रेणी में विकिरण उत्पन्न करने के लिए आवश्यक न्यूनतम ऊर्जा लगभग है :

Options :

9561772165. 13.6 eV

9561772166. 1.5 eV

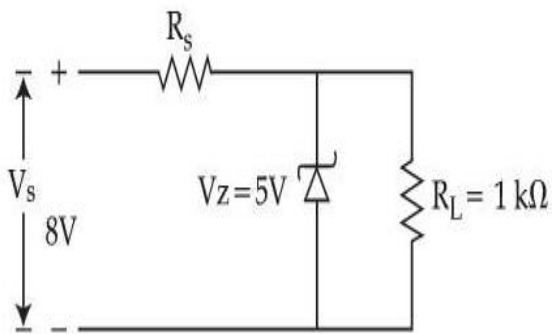
9561772167. 12.1 eV

9561772168. 1.9 eV

Question Number : 48 Question Id : 9561771083 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In the given circuit if the power rating of Zener diode is 10 mW, the value of series resistance R_s to regulate the input unregulated supply is :



Options :

9561772169. 10 k Ω

9561772170. 1 k Ω

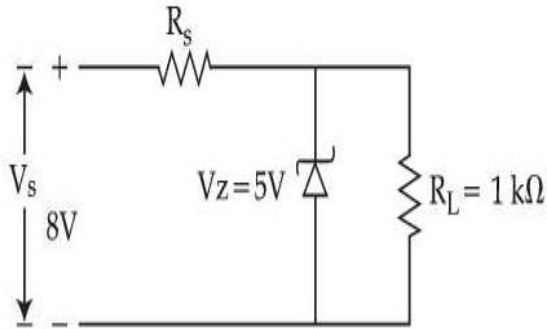
9561772171. 10 Ω

9561772172. 5 k Ω

Question Number : 48 Question Id : 9561771083 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

दिये गये परिपथ में जीनर डायोड की शक्ति दर 10 mW है। निवेशी अनरेगुलेटिड स्रोत को रेगुलेट करने के लिए श्रेणीबद्ध प्रतिरोध R_s का मान है :



Options :

9561772169. $10 \text{ k } \Omega$

9561772170. $1 \text{ k } \Omega$

9561772171. $10 \text{ } \Omega$

9561772172. $5 \text{ k } \Omega$

Question Number : 49 Question Id : 9561771084 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

10 divisions on the main scale of a Vernier calliper coincide with 11 divisions on the Vernier scale.
If each division on the main scale is of 5 units, the least count of the instrument is :

Options :

9561772173. $\frac{1}{2}$

9561772174.

$$\frac{5}{11}$$

$$9561772175. \quad \frac{10}{11}$$

$$9561772176. \quad \frac{50}{11}$$

Question Number : 49 Question Id : 9561771084 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक वर्नीयर कैलिपर्स के मुख्यपैमाने के 10 खानों का मान वर्नीयर पैमाने के 11 खानों के बराबर है। यदि मुख्य पैमाने का प्रत्येक खाना 5 इकाई के समान हो तो यंत्र की अल्पतमांक है :

Options :

$$9561772173. \quad \frac{1}{2}$$

$$9561772174. \quad \frac{5}{11}$$

$$9561772175. \quad \frac{10}{11}$$

$$9561772176. \quad \frac{50}{11}$$

Question Number : 50 Question Id : 9561771085 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The radius (r), length (l) and resistance (R) of a metal wire was measured in the laboratory as

$$r = (0.35 \pm 0.05) \text{ cm}$$

$$R = (100 \pm 10) \text{ ohm}$$

$$l = (15 \pm 0.2) \text{ cm}$$

The percentage error in resistivity of the material of the wire is :

Options :

9561772177. 39.9%

9561772178. 25.6%

9561772179. 37.3%

9561772180. 35.6%

Question Number : 50 Question Id : 9561771085 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

प्रयोगशाला में एक धातु के तार की त्रिज्या (r), लम्बाई (l) तथा प्रतिरोध (R) का मापन निम्न प्रकार किया गया है,

$$r = (0.35 \pm 0.05) \text{ cm}$$

$$R = (100 \pm 10) \text{ ohm}$$

$$l = (15 \pm 0.2) \text{ cm}$$

तार के पदार्थ की प्रतिरोधकता में प्रतिशत त्रुटि है :

Options :

9561772177. 39.9%

9561772178. 25.6%

9561772179. 37.3%

9561772180. 35.6%

Physics Section B

Section Id :	95617765
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	95617768
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A particle is moving in one dimension (along x axis) under the action of a variable force. It's initial position was 16 m right of origin. The variation of its position (x) with time (t) is given as $x = -3t^3 + 18t^2 + 16t$, where x is in m and t is in s. The velocity of the particle when its acceleration becomes zero is _____ m/s.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 51 Question Id : 9561771086 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक कण एक परिवर्ती बल के अन्तर्गत एकदिशिय (x अक्ष के अनुदिश) गति कर रहा है। प्रारम्भ में इसकी स्थिति मूल बिन्दु से दाहिनी ओर 16 मी थी। समय के साथ इसकी स्थिति परिवर्तन निम्न प्रकार दिया गया है; $x = -3t^3 + 18t^2 + 16t$, जहाँ (x) मीटर में तथा (t) सेकंड में हैं। कण का वेग _____ मी/से.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 52 Question Id : 9561771087 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The identical spheres each of mass $2M$ are placed at the corners of a right angled triangle with mutually perpendicular sides equal to 4 m each. Taking point of intersection of these two sides as origin, the magnitude of position vector of the centre of mass of the system is $\frac{4\sqrt{2}}{x}$, where the value of x is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 52 **Question Id :** 9561771087 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

$2M$ द्रव्यमान के एक जैसे गोले समान लंबाई 4 मी. की पारस्परिक लम्बवत भुजाओं वाले एक समकोणीय त्रिभुज के शीर्ष पर स्थित हैं। इन दोनों भुजाओं का प्रतिच्छेदन बिन्दु मूल बिन्दु हो तब निकाय के द्रव्यमान केन्द्र के स्थिति सदिश का परिमाण $\frac{4\sqrt{2}}{x}$ है, जहाँ x का मान _____ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 **Question Id :** 9561771088 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 Wrong Marks : 1

A plane is in level flight at constant speed and each of its two wings has an area of 40 m^2 . If the speed of the air is 180 km/h over the lower wing surface and 252 km/h over the upper wing surface, the mass of the plane is _____ kg. (Take air density to be 1 kg m^{-3} and $g = 10 \text{ ms}^{-2}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 53 Question Id : 9561771088 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक वायुयान नियत चाल पर स्तरीय उड़डयन में है एवं इसके दो पंखों का क्षेत्रफल 40 मी^2 है। यदि निचले पंखों पर वायु की चाल 180 किमी/घं , तथा ऊपरी पंख सतह पर वायु की चाल 252 किमी/घं हो तो यान का द्रव्यमान _____ किग्रा है।
(यदि वायु का घनत्व 1 किग्रा/मी^{-3} तथा $g = 10 \text{ मी/से}^{-2}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 54 Question Id : 9561771089 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A tuning fork resonates with a sonometer wire of length 1 m stretched with a tension of 6 N. When the tension in the wire is changed to 54 N, the same tuning fork produces 12 beats per second with it. The frequency of the tuning fork is _____ Hz.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 54 **Question Id :** 9561771089 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

एक स्वरित्र 1 मी लम्बाई के एक सोनोमीटर तार के साथ अनुनाद करता है जो 6 N के तनाव के साथ खिंचा है। जब तार में तनाव को 54 N कर दिया जाता है तो समान स्वरित्र उसके साथ 12 विस्पन्द प्रति सेकंड उत्पन्न करता है। स्वरित्र की आवृत्ति _____ Hz है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 55 **Question Id :** 9561771090 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

Two identical charged spheres are suspended by strings of equal lengths. The strings make an angle θ with each other. When suspended in water the angle remains the same. If density of the material of the sphere is 1.5 g/cc , the dielectric constant of water will be _____ (Take density of water = 1 g/cc)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 55 **Question Id :** 9561771090 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

दो एक समान आवेशित गोले बराबर लम्बाई की डोरी द्वारा लटके हैं। डोरियाँ एक दूसरे के साथ θ कोण बनाती हैं। जब पानी में लटकाया जाता है, तो कोण समान रहता है। यदि गोले के पदार्थ का घनत्व 1.5 g/cc हो तो पानी का परावैद्युतांक _____ होगा। (पानी का घनत्व = 1 g/cc)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 56 **Question Id :** 9561771091 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The current in a conductor is expressed as $I = 3t^2 + 4t^3$, where I is in Ampere and t is in second. The amount of electric charge that flows through a section of the conductor during $t = 1\text{s}$ to $t = 2\text{s}$ is _____ C.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 56 **Question Id :** 9561771091 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

एक चालक में प्रवाहित धारा $I = 3t^2 + 4t^3$ है, जहाँ I ऐम्पियर में तथा t सेकंड में है। $t = 1$ से $t = 2$ से के दौरान चालक के परिच्छेद से गुजरने वाले वैद्युत आवेश की मात्रा _____ C है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 57 **Question Id :** 9561771092 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

A regular polygon of 6 sides is formed by bending a wire of length 4π meter. If an electric current of $4\pi\sqrt{3}$ A is flowing through the sides of the polygon, the magnetic field at the centre of the polygon would be $x \times 10^{-7}$ T. The value of x is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 57 Question Id : 9561771092 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

4π मीटर लम्बाई के एक तार को मोड़कर एक 6 भुजाओं का समबहुभुज बनाया गया है। बहुभुज में की भुजाओं से होकर बहने वाली धारा $4\pi\sqrt{3}$ ऐम्पियर हो तो बहुभुज के केन्द्र पर चुम्बकीय क्षेत्र $10^{-7}x$ टेस्ला होगा। x का मान _____ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 58 Question Id : 9561771093 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A rectangular loop of sides 12 cm and 5 cm, with its sides parallel to the x -axis and y -axis respectively, moves with a velocity of 5 cm/s in the positive x axis direction, in a space containing a variable magnetic field in the positive z direction. The field has a gradient of 10^{-3} T/cm along the negative x direction and it is decreasing with time at the rate of 10^{-3} T/s. If the resistance of the loop is $6\text{ m}\Omega$, the power dissipated by the loop as heat is _____ $\times 10^{-9}$ W.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 58 Question Id : 9561771093 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

12 सेमी तथा 5 सेमी भुजाओं का एक आयताकार लूप, जिसकी भुजाएँ क्रमशः x अक्ष व y अक्ष के समान्तर हैं, z अक्ष की धनात्मक दिशा के एक परिवर्ती चुम्बकीय क्षेत्र वाले आकाश में x अक्ष के अनुदिश 5 सेमी/से के वेग से गति करता है। x अक्ष की ऋणात्मक दिशा के अनुदिश 10^{-3}T/सेमी की प्रवणता का चुम्बकीय क्षेत्र है तथा यह 10^{-3}T/से की दर से समय के साथ घट रहा है। यदि इसका प्रतिरोध $6\text{ m}\Omega$ हो तो ऊष्मा के रूप में लूप द्वारा शक्ति क्षय _____ $\times 10^{-9}\text{ W}$ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 59 Question Id : 9561771094 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The distance between object and its 3 times magnified virtual image as produced by a convex lens is 20 cm. The focal length of the lens used is _____ cm.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 59 **Question Id :** 9561771094 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

वस्तु तथा एक उत्तल लैस द्वारा 3 गुनी आवर्धित काल्पनिक प्रतिबिम्ब के बीच की दूरी 20 सेमी है। लैस की फोकस दूरी _____ सेमी है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 60 **Question Id :** 9561771095 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The radius of a nucleus of mass number 64 is 4.8 fermi. Then the mass number of another nucleus having radius of 4 fermi is $\frac{1000}{x}$, where x is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 60 Question Id : 9561771095 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

64 द्रव्यमान संख्या के एक परमाणवीय नाभिक की त्रिज्या 4.8 फर्मी है। तब 4 फर्मी त्रिज्या के दूसरे नाभिक की द्रव्यमान

संख्या $\frac{1000}{x}$ है जहाँ x _____ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Chemistry Section A

Section Id :	95617766
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1

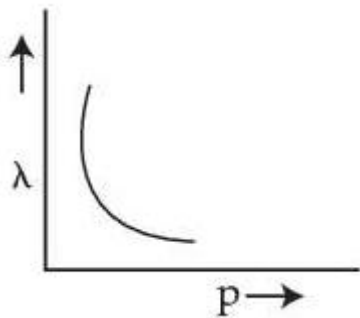
Sub-Section Id : 95617769
Question Shuffling Allowed : Yes
Is Section Default? : null

Question Number : 61 Question Id : 9561771096 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

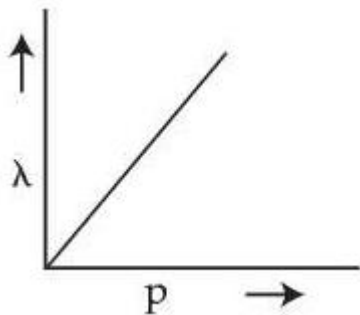
Correct Marks : 4 Wrong Marks : 1

According to the wave-particle duality of matter by de-Broglie, which of the following graph plot presents most appropriate relationship between wavelength of electron(λ) and momentum of electron (p) ?

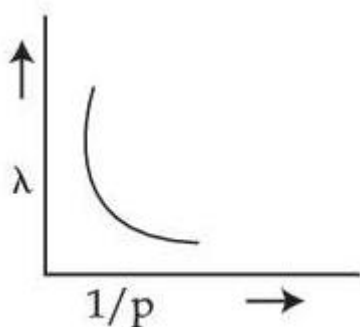
Options :



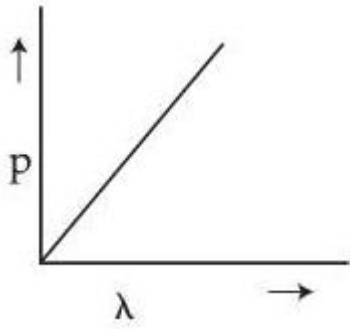
9561772191.



9561772192.



9561772193.



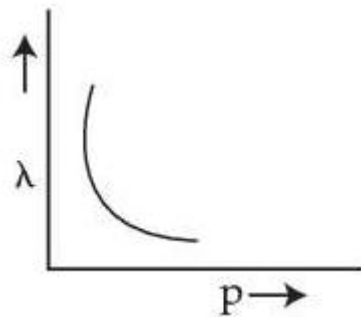
9561772194.

Question Number : 61 Question Id : 9561771096 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

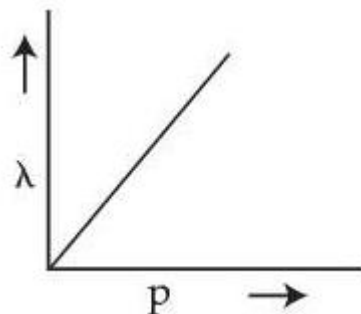
Correct Marks : 4 Wrong Marks : 1

डि-ब्राग्ली के पदार्थ के तरंग-कण द्वैतवाद के अनुसार, निम्न में से कौन-सा ग्राफ, इलेक्ट्रॉन के तरंगदैर्घ्य (λ) और इलेक्ट्रॉन का संवेग (p) के मध्य सम्बन्ध को, सबसे उपयुक्त ढंग से व्यक्त करता है?

Options :

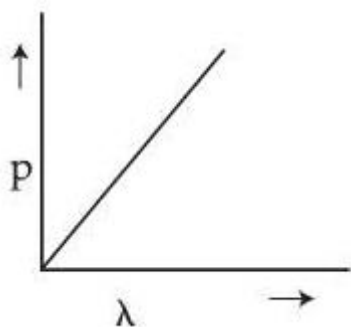
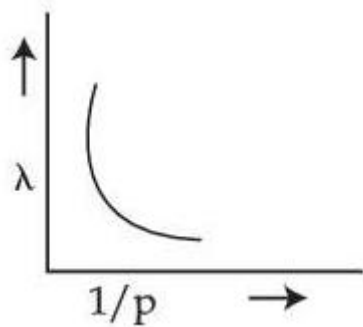


9561772191.



9561772192.

9561772193.



9561772194.

Question Number : 62 Question Id : 9561771097 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Arrange the bonds in order of increasing ionic character in the molecules, LiF , K_2O , N_2 , SO_2 and ClF_3 :

Options :

9561772195. $\text{N}_2 < \text{SO}_2 < \text{ClF}_3 < \text{K}_2\text{O} < \text{LiF}$

9561772196. $\text{N}_2 < \text{ClF}_3 < \text{SO}_2 < \text{K}_2\text{O} < \text{LiF}$

9561772197. $\text{ClF}_3 < \text{N}_2 < \text{SO}_2 < \text{K}_2\text{O} < \text{LiF}$

9561772198. $\text{LiF} < \text{K}_2\text{O} < \text{ClF}_3 < \text{SO}_2 < \text{N}_2$

Question Number : 62 Question Id : 9561771097 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

LiF , K_2O , N_2 , SO_2 एवं ClF_3 अणुओं में आबन्धों को उनके बढ़ते आयनिक लक्षण के अनुसार व्यवस्थित करें :

Options :

9561772195. $\text{N}_2 < \text{SO}_2 < \text{ClF}_3 < \text{K}_2\text{O} < \text{LiF}$

9561772196. $\text{N}_2 < \text{ClF}_3 < \text{SO}_2 < \text{K}_2\text{O} < \text{LiF}$

9561772197. $\text{ClF}_3 < \text{N}_2 < \text{SO}_2 < \text{K}_2\text{O} < \text{LiF}$

9561772198. $\text{LiF} < \text{K}_2\text{O} < \text{ClF}_3 < \text{SO}_2 < \text{N}_2$

Question Number : 63 Question Id : 9561771098 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Choose the correct option for free expansion of an ideal gas under adiabatic condition from the following :

Options :

9561772199. $q = 0, \Delta T \neq 0, w = 0$

9561772200. $q \neq 0, \Delta T = 0, w = 0$

9561772201. $q = 0, \Delta T = 0, w = 0$

9561772202. $q = 0, \Delta T < 0, w \neq 0$

Question Number : 63 Question Id : 9561771098 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

रूद्धोष्म अवस्था में किसी आदर्श गैस के मुक्त फैलाव (प्रसरण) सम्बन्धित सही विकल्प को चुनें :

Options :

9561772199. $q = 0, \Delta T \neq 0, w = 0$

9561772200. $q \neq 0, \Delta T = 0, w = 0$

9561772201. $q = 0, \Delta T = 0, w = 0$

9561772202. $q = 0, \Delta T < 0, w \neq 0$

Question Number : 64 Question Id : 9561771099 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

We have three aqueous solutions of NaCl labelled as 'A', 'B' and 'C' with concentration 0.1 M, 0.01 M and 0.001 M, respectively. The value of van 't Hoff factor(i) for these solutions will be in the order :

Options :

9561772203. $i_A < i_B < i_C$

9561772204. $i_A > i_B > i_C$

9561772205. $i_A = i_B = i_C$

9561772206. $i_A < i_C < i_B$

Question Number : 64 Question Id : 9561771099 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

हमारे पास NaCl के तीन जलीय विलयन हैं जिन्हें 'A', 'B' एवं 'C' द्वारा लेबल किया गया है, जिनकी सान्द्रताएँ क्रमशः 0.1 M, 0.01 M तथा 0.001 M हैं। इन विलयनों के लिए वान्ट हॉफ गुणक (i) का क्रम होगा :

Options :

9561772203. $i_A < i_B < i_C$

9561772204. $i_A > i_B > i_C$

9561772205. $i_A = i_B = i_C$

9561772206. $i_A < i_C < i_B$

Question Number : 65 Question Id : 9561771100 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In case of isoelectronic species the size of F^- , Ne and Na^+ is affected by :

Options :

9561772207. Principal quantum number (n)

9561772208. Nuclear charge (z)

9561772209. Electron-electron interaction in the outer orbitals

9561772210. None of the factors because their size is the same

Question Number : 65 Question Id : 9561771100 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सम इलेक्ट्रॉनिक स्पीशीजो F^- , Ne एवं Na^+ के आकर प्रभावित होते हैं :

Options :

9561772207. बाह्यतम मुख्य क्वंटम संख्या (n) द्वारा

9561772208. नाभिकीय आवेश (z) द्वारा

9561772209. बाह्य कक्षकों में इलेक्ट्रॉन-इलेक्ट्रॉन अन्योन्य क्रिया द्वारा

9561772210. उपर्युक्त में से कोई नहीं क्योंकि इन सबसे आकार समान हैं।

Question Number : 66 Question Id : 9561771101 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : PH_3 has lower boiling point than NH_3 .

Reason (R) : In liquid state NH_3 molecules are associated through vander Waal's forces, but PH_3 molecules are associated through hydrogen bonding.

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

Options :

9561772211. Both (A) and (R) are correct and (R) is the correct explanation of (A)

9561772212. Both (A) and (R) are correct but (R) is **not** the correct explanation of (A)

9561772213. (A) is correct but (R) is not correct

9561772214. (A) is not correct but (R) is correct

Question Number : 66 Question Id : 9561771101 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं: एक को अभिकथन (A) तथा दूसरे को कारण (R) दर्शाया गया है :

अभिकथन (A) : PH_3 का क्वथनांक NH_3 से कम है।

कारण (R) : द्रव अवस्था में NH_3 के अणु वॉन्डर वॉल्स बलों द्वारा जुड़े होते हैं जबकि PH_3 के अणु हाइड्रोजन आबन्धों द्वारा जुड़े होते हैं।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सही उत्तर चुने :

Options :

9561772211. (1) (A) एवं (R) दोनों सही हैं तथा (A) की सही व्याख्या (R) है।

9561772212. (2) (A) एवं (R) दोनों सही हैं लेकिन (A) की सही व्याख्या (R) नहीं है।

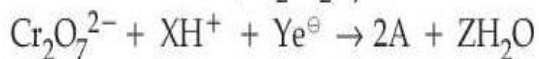
9561772213. (3) (A) सही है लेकिन (R) गलत है।

9561772214. (4) (A) गलत है लेकिन (R) सही है।

Question Number : 67 Question Id : 9561771102 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In acidic medium, $K_2Cr_2O_7$ shows oxidising action as represented in the half reaction :



X, Y, Z and A are respectively are :

Options :

9561772215. 8, 6, 4 and Cr_2O_3

9561772216. 14, 7, 6 and Cr^{3+}

9561772217. 14, 6, 7 and Cr^{3+}

9561772218. 8, 4, 6 and Cr_2O_3

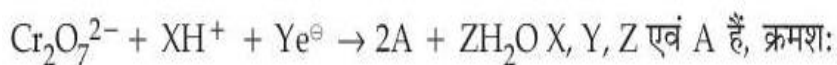
Question Number : 67 Question Id : 9561771102 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अम्लीय माध्यम में $K_2Cr_2O_7$ आक्सीकरण की क्रिया प्रदर्शित करता है जैसा अर्ध अभिक्रिया में निरूपित है :



Options :

9561772215. 8, 6, 4 एवं Cr_2O_3

9561772216. 14, 7, 6 एवं Cr^{3+}

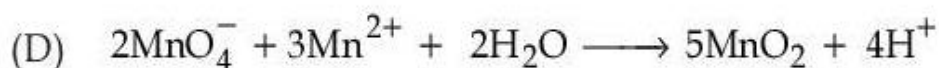
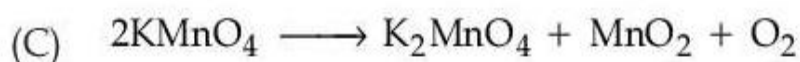
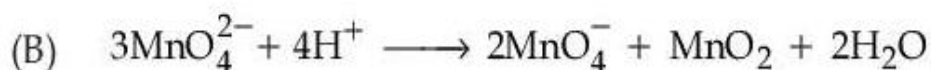
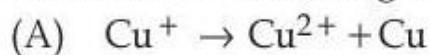
9561772217. 14, 6, 7 एवं Cr^{3+}

9561772218. 8, 4, 6 एवं Cr_2O_3

Question Number : 68 Question Id : 9561771103 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following reactions are disproportionation reactions ?



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

Options :

9561772219. (A), (B)

9561772220. (A), (B), (C)

9561772221. (B), (C), (D)

9561772222. (A), (D)

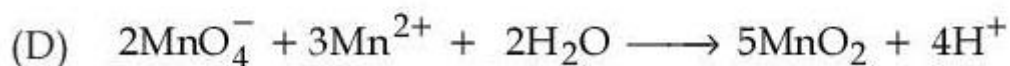
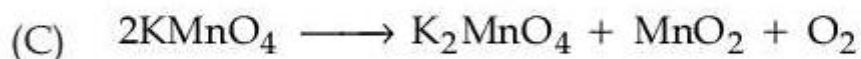
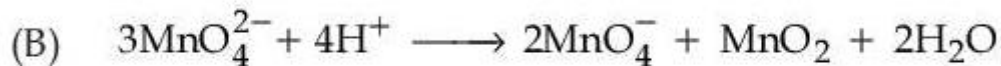
Question Number : 68 Question Id : 9561771103 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन-सी अभिक्रियाएँ असमानुपातन अभिक्रियाएँ हैं ?



नीचे दिए गए विकल्पों में से सही उत्तर चुने :

Options :

9561772219. (A), (B)

9561772220. (A), (B), (C)

9561772221. (B), (C), (D)

9561772222. (A), (D)

Question Number : 69 Question Id : 9561771104 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement (I) : A solution of $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ is green in colour.

Statement (II) : A solution of $[\text{Ni}(\text{CN})_4]^{2-}$ is colourless.

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

Options :

9561772223. Both **Statement I** and **Statement II** are correct

9561772224. Both **Statement I** and **Statement II** are incorrect

9561772225. **Statement I** is correct but **Statement II** is incorrect

9561772226. **Statement I** is incorrect but **Statement II** is correct

Question Number : 69 Question Id : 9561771104 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन (I) : $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$ का विलयन हरे रंग का होता है।

कथन (II) : $[\text{Ni}(\text{CN})_4]^{2-}$ का विलयन रंगहीन होता है।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुने :

Options :

9561772223. (1) दोनों कथन I एवं कथन II सही हैं।

9561772224. (2) दोनों कथन I एवं कथन II गलत हैं।

9561772225. (3) कथन I सही है परंतु कथन II गलत है।

9561772226. (4) कथन I गलत है परंतु कथन II सही है।

Question Number : 70 Question Id : 9561771105 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following complex is homoleptic ?

Options :

9561772227. $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$

9561772228. $[\text{Ni}(\text{NH}_3)_2\text{Cl}_2]$

9561772229. $[\text{Fe}(\text{NH}_3)_4\text{Cl}_2]^+$

9561772230. $[\text{Ni}(\text{CN})_4]^{2-}$

Question Number : 70 Question Id : 9561771105 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन सा संकुल होमोलेप्टिक है?

Options :

9561772227. $[\text{Co}(\text{NH}_3)_4\text{Cl}_2]^+$

9561772228. $[\text{Ni}(\text{NH}_3)_4\text{Cl}_2]$

9561772229. $[\text{Fe}(\text{NH}_3)_4\text{Cl}_2]^+$

9561772230. $[\text{Ni}(\text{CN})_4]^{2-}$

Question Number : 71 Question Id : 9561771106 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In Kjeldahl's method for estimation of nitrogen, CuSO_4 acts as :

Options :

9561772231. oxidising agent

9561772232. reducing agent

9561772233. catalytic agent

9561772234. hydrolysis agent

Question Number : 71 Question Id : 9561771106 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नाइट्रोजन के मात्रात्मक विश्लेषण में, CuSO_4 कार्य करता है :

Options :

9561772231. ऑक्सीकारक का

9561772232. अपचायक का

9561772233. उत्प्रेरक का

9561772234. जल अपघटन कारक का

Question Number : 72 Question Id : 9561771107 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement (I) : Aminobenzene and aniline are same organic compounds.

Statement (II) : Aminobenzene and aniline are different organic compounds.

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

Options :

9561772235. Both Statement I and Statement II are correct

9561772236. Both Statement I and Statement II are incorrect

9561772237. Statement I is correct but Statement II is incorrect

9561772238. Statement I is incorrect but Statement II is correct

Question Number : 72 Question Id : 9561771107 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन (I) : ऐमीनोबेन्जीन एवं ऐनिलीन समान कार्बनिक यौगिक हैं।

कथन (II) : ऐमीनोबेन्जीन एवं ऐनिलीन भिन्न कार्बनिक यौगिक हैं।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुने :

Options :

9561772235. (1) दोनों कथन I एवं कथन II सही हैं।

9561772236. (2) दोनों कथन I एवं कथन II गलत हैं।

9561772237. (3) कथन I सही है परंतु कथन II गलत है।

9561772238. (4) कथन I गलत है परंतु कथन II सही है।

Question Number : 73 Question Id : 9561771108 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Ionic reactions with organic compounds proceed through :

- (A) homolytic bond cleavage
- (B) heterolytic bond cleavage
- (C) free radical formation
- (D) primary free radical
- (E) secondary free radical

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

Options :

9561772239. (A) only

9561772240. (B) only

9561772241. (C) only

9561772242. (D) and (E) only

Question Number : 73 Question Id : 9561771108 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कार्बनिक यौगिक के साथ आयनिक अभिक्रियाएँ आगे चलती हैं :

- (A) समांश विदलन द्वारा
- (B) विषमांश विदलन द्वारा
- (C) मुक्त मूलक निर्माण द्वारा
- (D) प्राथमिक मुक्त मूलक द्वारा
- (E) द्वितीयक मुक्त मूलक द्वारा

नीचे दिए गए विकल्पों में से सही उत्तर चुने :

Options :

9561772239. केवल (A)

9561772240. केवल (B)

9561772241. केवल (C)

9561772242. केवल (D) एवं (E)

Question Number : 74 Question Id : 9561771109 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements : one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A) : Haloalkanes react with KCN to form alkyl cyanides as a main product while with AgCN form isocyanide as the main product.

Reason (R) : KCN and AgCN both are highly ionic compounds.

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

Options :

9561772243. Both (A) and (R) are correct and (R) is the correct explanation of (A)

9561772244. Both (A) and (R) are correct but (R) is not the correct explanation of (A)

9561772245. (A) is correct but (R) is not correct

9561772246. (A) is not correct but (R) is correct

Question Number : 74 Question Id : 9561771109 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं। एक को अभिकथन (A) तथा दूसरे को कारण (R) दर्शाया गया है :

अभिकथन (A) : हैलोएल्केन KCN के साथ अभिक्रिया करके मुख्य उत्पाद के रूप में ऐल्किल साइनाइड बनाते हैं जबकि AgCN के साथ मुख्य उत्पाद के रूप में आइसोसाइनाइड बनाते हैं।

कारण (R) : KCN एवं AgCN दोनों ही अत्यधिक आयनिक यौगिक हैं।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सही उत्तर चुने :

Options :

9561772243. (1) (A) एवं (R) दोनों सही हैं तथा (A) की सही व्याख्या (R) है।

9561772244. (2) (A) एवं (R) दोनों सही हैं लेकिन (A) की सही व्याख्या (R) नहीं है।

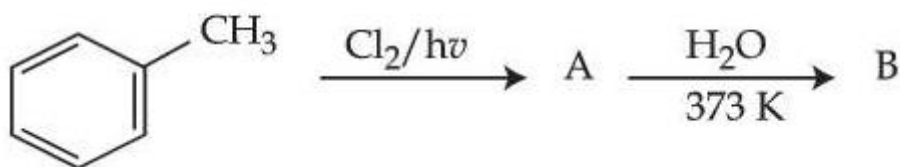
9561772245. (3) (A) सही है लेकिन (R) गलत है।

9561772246. (4) (A) गलत है लेकिन (R) सही है।

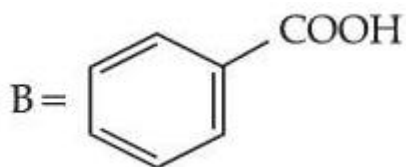
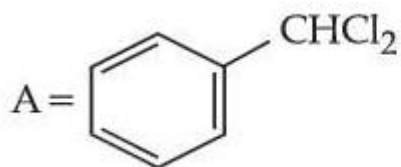
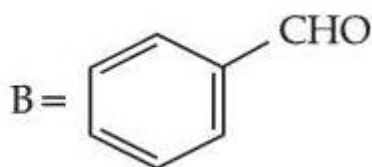
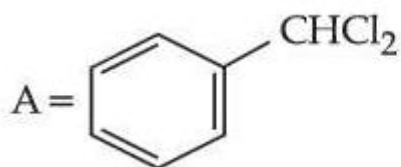
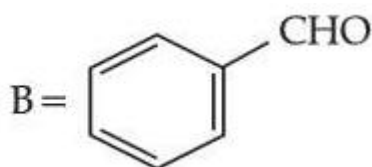
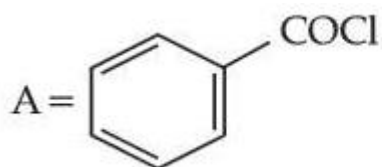
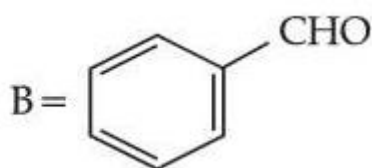
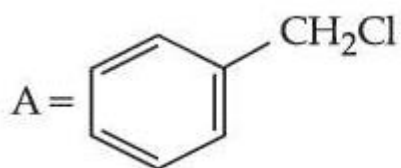
Question Number : 75 Question Id : 9561771110 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Identify A and B in the following sequence of reaction



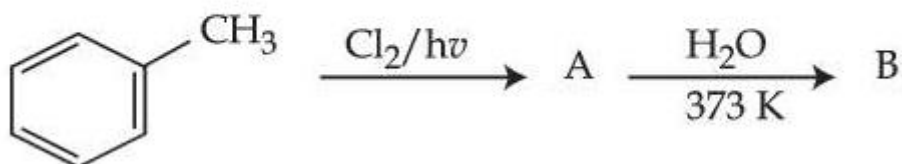
Options :



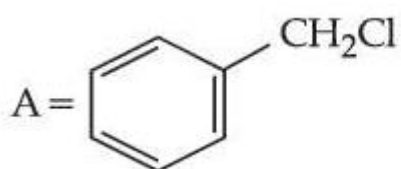
Question Number : 75 Question Id : 9561771110 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

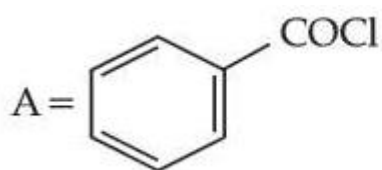
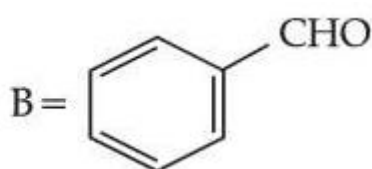
अभिक्रियाओं के निम्न क्रम में A एवं B को पहचानें :



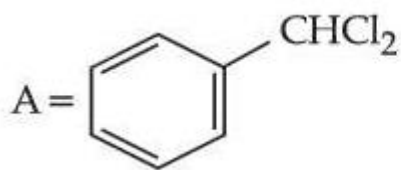
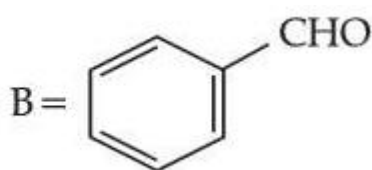
Options :



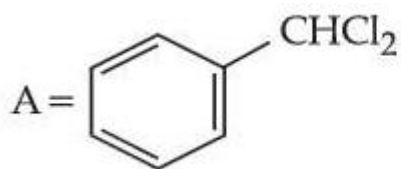
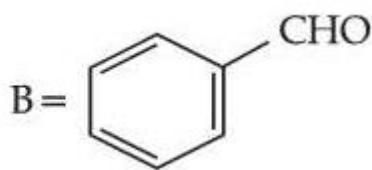
9561772247.



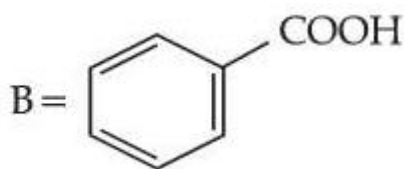
9561772248.



9561772249.



9561772250.



Question Number : 76 Question Id : 9561771111 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List - I with List - II.

List - I (Reactions)	List - II (Reagents)
(A) $\text{CH}_3(\text{CH}_2)_5 - \underset{\text{O}}{\underset{\parallel}{\text{C}}} - \text{OC}_2\text{H}_5 \longrightarrow \text{CH}_3(\text{CH}_2)_5\text{CHO}$	(I) $\text{CH}_3\text{MgBr}, \text{H}_2\text{O}$
(B) $\text{C}_6\text{H}_5\text{COC}_6\text{H}_5 \rightarrow \text{C}_6\text{H}_5\text{CH}_2\text{C}_6\text{H}_5$	(II) Zn(Hg) and conc. HCl
(C) $\text{C}_6\text{H}_5\text{CHO} \rightarrow \text{C}_6\text{H}_5\text{CH(OH)CH}_3$	(III) $\text{NaBH}_4, \text{H}^+$
(D) $\text{CH}_3\text{COCH}_2\text{COOC}_2\text{H}_5 \rightarrow \underset{\text{H}}{\underset{ }{\text{CH}_3\text{C(OH)CH}_2\text{COOC}_2\text{H}_5}}$	(IV) $\text{DIBAL-H}, \text{H}_2\text{O}$

Choose the correct answer from the options given below :

Options :

9561772251. (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

9561772252. (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

9561772253. (A)-(IV), (B)-(II), (C)-(III), (D)-(I)

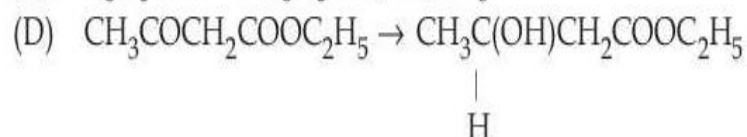
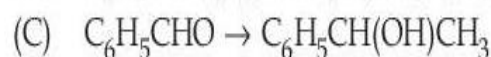
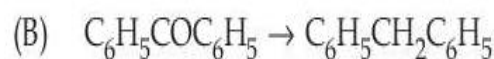
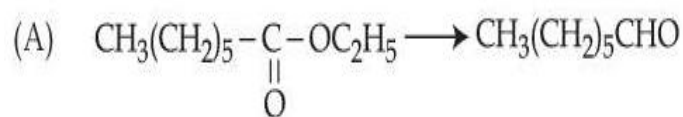
9561772254. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Question Number : 76 Question Id : 9561771111 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

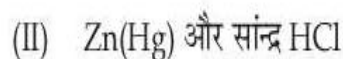
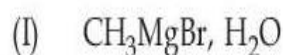
सूची - I का मिलान सूची - II से करें :

सूची - I
(अभिक्रियाएँ)



सूची - II

(अभिकर्मक)



नीचे दिए गए विकल्पों में से सही उत्तर चुने :

Options :

9561772251. (A)-(III), (B)-(IV), (C)-(II), (D)-(I)

9561772252. (A)-(IV), (B)-(II), (C)-(I), (D)-(III)

9561772253. (A)-(IV), (B)-(II), (C)-(III), (D)-(I)

9561772254. (A)-(III), (B)-(IV), (C)-(I), (D)-(II)

Question Number : 77 Question Id : 9561771112 Question Type : MCQ Option Shuffling : Yes Is
Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement (I) : The NH_2 group in Aniline is ortho and para directing and a powerful activating group.

Statement (II) : Aniline does not undergo Friedel-Craft's reaction (alkylation and acylation).

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

Options :

9561772255. Both **Statement I** and **Statement II** are correct

9561772256. Both **Statement I** and **Statement II** are incorrect

9561772257. **Statement I** is correct but **Statement II** is incorrect

9561772258. **Statement I** is incorrect but **Statement II** is correct

Question Number : 77 Question Id : 9561771112 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन (I) : ऐनिलीन में NH_2 समूह आर्थो एवं पैरा निर्देशी हैं तथा एक प्रभावशाली निर्देशी समूह है।

कथन (II) : ऐनिलीन फ्रीडल-क्राफ्ट्स अभिक्रिया (ऐल्किलीकरण एवं ऐसिलीकरण) नहीं देता है।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुने :

Options :

9561772255. (1) दोनों **कथन I** एवं **कथन II** सही हैं।

9561772256. (2) दोनों कथन I एवं कथन II गलत हैं।

9561772257. (3) कथन I सही है परंतु कथन II गलत है।

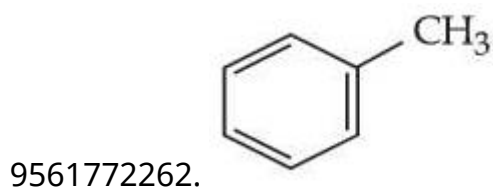
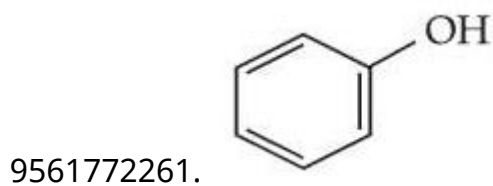
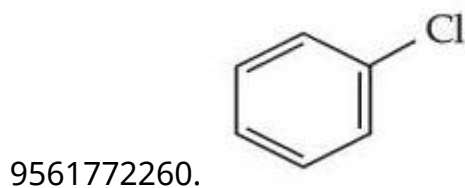
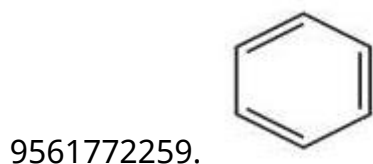
9561772258. (4) कथन I गलत है परंतु कथन II सही है।

Question Number : 78 Question Id : 9561771113 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following compound will most easily be attacked by an electrophile ?

Options :

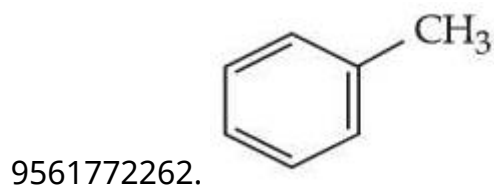
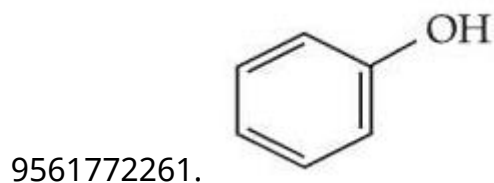
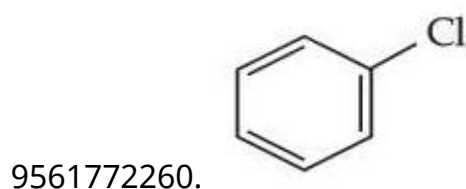
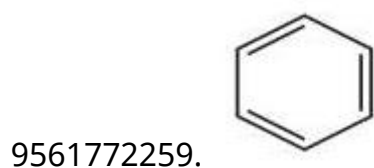


Question Number : 78 Question Id : 9561771113 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से किस यौगिक पर सबसे आसानी से किसी इलेक्ट्रॉन स्नेही द्वारा आक्रमण किया जाएगा ?

Options :



Question Number : 79 Question Id : 9561771114 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

If one strand of a DNA has the sequence ATGCTTCA, sequence of the bases in complementary strand is :

Options :

9561772263. TACGAAGT

9561772264. ATGCGACT

9561772265. GTACTTAC

9561772266. CATTAGCT

Question Number : 79 Question Id : 9561771114 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि DNA के एक रज्जुक (स्ट्रैंड) पर क्रम ATGCTTCA है तो इसके पूरक रज्जुक पर क्षारकों का क्रम होगा ?

Options :

9561772263. TACGAAGT

9561772264. ATGCGACT

9561772265. GTACTTAC

9561772266. CATTAGCT

Question Number : 80 Question Id : 9561771115 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements :

Statement (I) : Potassium hydrogen phthalate is a primary standard for standardisation of sodium hydroxide solution.

Statement (II) : In this titration phenolphthalein can be used as indicator.

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

Options :

9561772267. **Both Statement I and Statement II are correct**

9561772268. **Both Statement I and Statement II are incorrect**

9561772269. **Statement I is correct but Statement II is incorrect**

9561772270. **Statement I is incorrect but Statement II is correct**

Question Number : 80 Question Id : 9561771115 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं :

कथन (I) : सोडियम हाइड्रॉक्साइड विलयन के मानकीकरण के लिए पोटैशियम हाइड्रोजन थैलेट को एक प्राथमिक मानक के रूप में उपयोग किया जाता है।

कथन (II) : इस अनुमापन में फिनालफ्थैलीन का उपयोग किया जा सकता है।

उपर्युक्त कथनों के संदर्भ में, नीचे दिए गए विकल्पों में से सर्वाधिक उपयुक्त उत्तर चुने :

Options :

9561772267. (1) दोनों कथन I एवं कथन II सही हैं।
9561772268. (2) दोनों कथन I एवं कथन II गलत हैं।
9561772269. (3) कथन I सही है परंतु कथन II गलत है।
9561772270. (4) कथन I गलत है परंतु कथन II सही है।

Chemistry Section B

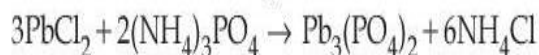
Section Id :	95617767
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	95617770
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 9561771116 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Consider the following reaction :



If 72 mmol of PbCl_2 is mixed with 50 mmol of $(\text{NH}_4)_3\text{PO}_4$, then the amount of $\text{Pb}_3(\text{PO}_4)_2$ formed is _____ mmol (nearest integer).

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

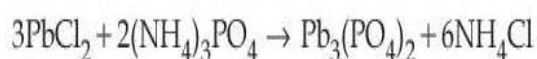
1

Question Number : 81 Question Id : 9561771116 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न अभिक्रिया पर विचार करें :



यदि PbCl_2 के 72 m mol को $(\text{NH}_4)_3\text{PO}_4$ के 50 m mol के साथ मिश्रित किया जाता है तो निर्मित $\text{Pb}_3(\text{PO}_4)_2$ की मात्रा होगी _____ m mol (निकटतम पूर्णांक में)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 82 Question Id : 9561771117 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The number of molecules/ion/s having trigonal bipyramidal shape is _____.

PF_5 , BrF_5 , PCl_5 , $[\text{Pt Cl}_4]^{2-}$, BF_3 , $\text{Fe}(\text{CO})_5$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 82 Question Id : 9561771117 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

त्रिकोणीय बाइपिरामिडी संरचना वाले अणुओं/आयनों की संख्या है : _____।

PF_5 , BrF_5 , PCl_5 , $[\text{Pt Cl}_4]^{2-}$, BF_3 , $\text{Fe}(\text{CO})_5$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 83 Question Id : 9561771118 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

K_a for CH_3COOH is 1.8×10^{-5} and K_b for NH_4OH is 1.8×10^{-5} . The pH of ammonium acetate solution will be _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 83 **Question Id :** 9561771118 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

CH_3COOH के लिए K_a 1.8×10^{-5} तथा NH_4OH के लिए K_b 1.8×10^{-5} है। अमोनियम ऐसीटेट विलयन का pH होगा _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 84 **Question Id :** 9561771119 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The lowest oxidation number of an atom in a compound A_2B is -2 . The number of electrons in its valence shell is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 84 **Question Id :** 9561771119 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

एक यौगिक A_2B में किसी परमाणु का निम्नतम ऑक्सीकरण संख्या -2 है। इसके बाह्यतम कोश में इलेक्ट्रॉनों की संख्या है : _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

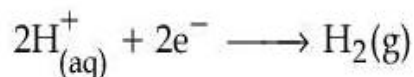
1

Question Number : 85 **Question Id :** 9561771120 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The potential for the given half cell at 298 K is $(-)$ _____ $\times 10^{-2}V$.



$[H^+] = 1M$, $P_{H_2} = 2 \text{ atm}$

(Given : $2.303RT/F = 0.06 \text{ V}$, $\log 2 = 0.3$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

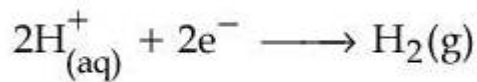
1

Question Number : 85 **Question Id :** 9561771120 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

दिए गए अर्ध सेल का 298 K पर विभव है $(-)\text{_____} \times 10^{-2}\text{V}$.



$$[\text{H}^+] = 1\text{M} \quad P_{\text{H}_2} = 2 \text{ atm}$$

(दिया गया है : $2.303RT/F = 0.06 \text{ V}$), $\log 2 = 0.3$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 86 **Question Id :** 9561771121 **Question Type :** SA **Calculator :** None

Response Time : N.A **Think Time :** N.A **Minimum Instruction Time :** 0

Correct Marks : 4 **Wrong Marks :** 1

The ratio of $\frac{^{14}\text{C}}{^{12}\text{C}}$ in a piece of wood is $\frac{1}{8}$ part that of atmosphere. If half life of ^{14}C is 5730 years, the age of wood sample is _____ years.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 86 Question Id : 9561771121 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

लकड़ी के एक टुकड़े में $\frac{^{14}\text{C}}{^{12}\text{C}}$ का अनुपात, वातावरण की तुलना में $\frac{1}{8}$ वां भाग है। यदि ^{14}C की अर्धआयु 5730 वर्ष है तो लकड़ी के नमूने की आयु है : _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 87 Question Id : 9561771122 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Among the following oxides of p-block elements, number of oxides having amphoteric nature is _____.

Cl_2O_7 , CO , PbO_2 , N_2O , NO , Al_2O_3 , SiO_2 , N_2O_5 , SnO_2

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 87 Question Id : 9561771122 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

p-ब्लॉक तत्वों के निम्न ऑक्साइडों में उभयधर्मी प्रकृति के ऑक्साइडों की संख्या है _____।

Cl_2O_7 , CO , PbO_2 , N_2O , NO , Al_2O_3 , SiO_2 , N_2O_5 , SnO_2

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

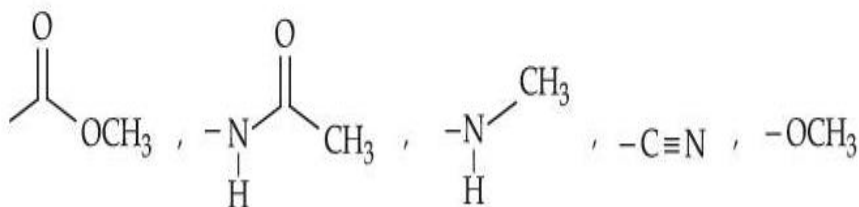
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Question Number : 88 Question Id : 9561771123 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Total number of deactivating groups in aromatic electrophilic substitution reaction among the following is _____.



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

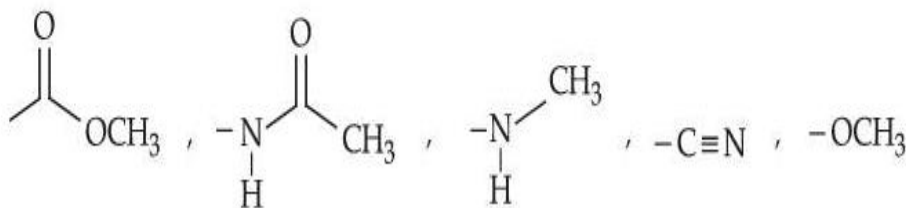
1

Question Number : 88 Question Id : 9561771123 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से ऐरोमैटिक इलेक्ट्रान प्रतिस्थापन अभिक्रियाओं में निष्क्रियकारी समूहों की कुल संख्या है _____।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 89 Question Id : 9561771124 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Number of optical isomers possible for 2-chlorobutane _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 89 Question Id : 9561771124 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

2-क्लोरोब्यूटेन के लिए कितने प्रकाशिक रूप से सक्रिय समावयव संभव हैं _____।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 90 Question Id : 9561771125 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The number of white coloured salts, among the following is _____.

- (a) SrSO_4 (b) $\text{Mg}(\text{NH}_4)\text{PO}_4$ (c) BaCrO_4 (d) $\text{Mn}(\text{OH})_2$
(e) PbSO_4 (f) PbCrO_4 (g) AgBr (h) PbI_2
(i) CaC_2O_4 (j) $[\text{Fe}(\text{OH})_2(\text{CH}_3\text{COO})]$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 90 Question Id : 9561771125 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से सफेद रंग के लवणों की संख्या है _____।

- (a) SrSO_4 (b) $\text{Mg}(\text{NH}_4)\text{PO}_4$ (c) BaCrO_4 (d) $\text{Mn}(\text{OH})_2$
(e) PbSO_4 (f) PbCrO_4 (g) AgBr (h) PbI_2
(i) CaC_2O_4 (j) $[\text{Fe}(\text{OH})_2(\text{CH}_3\text{COO})]$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1