National Testing Agency

Question Paper Name :	SET 142
Subject Name :	B TECH
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B E and B Tech

Group Number :	1
Group Id :	71550546
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 :	715505253
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 :	715505253
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 7155054132 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 A = {2, 3, 4} and B = {8, 9, 12}. Then the number of elements in the relation

$R = \{((a_1, b_1), (a_2, b_2)) \in (A \times B, A \times B) : a_1 \text{ divides } b_2 \text{ and } a_2 \text{ divides } b_1\}$is

Options :

71550513071. 12

71550513072. 18

71550513073. 24

71550513074. 36

Question Number : 1 Question Id : 7155054132 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 $A = \{2, 3, 4\}$ तथा $B = \{8, 9, 12\}$ हैं। तो संबंध
$R = \{((a_1, b_1), (a_2, b_2)) \in (A \times B, A \times B) : a_1, b_2$ को विभाजित करता है तथा
a_2, b_1 को विभाजित करता है} में अवयवों की संख्या है:

Options :

71550513071. 12

71550513072. 18

71550513073. 24

71550513074. 36

Question Number : 2 Question Id : 7155054133 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 $S = \left\{x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right) : 9^{1-\tan^2 x} + 9^{\tan^2 x} = 10\right\}$ and
$\beta = \sum_{x \in s} \tan^2\left(\frac{x}{3}\right)$, then $\frac{1}{6}(\beta - 14)^2$ is equal to

Options :

71550513075. 8

71550513076. 16

71550513077. 32

71550513078. 64

Question Number : 2 Question Id : 7155054133 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 $S=\left\{x\in\left(-\frac{\pi}{2},\frac{\pi}{2}\right):9^{1-\tan^2 x}+9^{\tan^2 x}=10\right\}$ तथा $\beta=\sum_{x\in s}\tan^2\left(\frac{x}{3}\right)$ हैं, तो $\frac{1}{6}(\beta-14)^2$ बराबर है

Options :

71550513075. 8

71550513076. 16

71550513077. 32

71550513078. 64

Question Number : 3 Question Id : 7155054134 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 $S=\left\{z=x+iy:\frac{2z-3i}{4z+2i}\text{ is a real number}\right\}$. Then which of the following is NOT correct?

Options :

71550513079. $x=0$

71550513080. $y\in\left(-\infty,-\frac{1}{2}\right)\cup\left(-\frac{1}{2},\infty\right)$

71550513081.

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

71550513082. $(x, y) = \left(0, -\frac{1}{2}\right)$

Question Number : 3 Question Id : 7155054134 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 $S = \left\{ z = x + iy : \frac{2z - 3i}{4z + 2i} \text{ एक वास्तविक संख्या है} \right\}$। तो निम्न में कौन सा सही नहीं है?

Options :

71550513079. $x = 0$

71550513080. $y \in \left(-\infty, -\frac{1}{2}\right) \cup \left(-\frac{1}{2}, \infty\right)$

71550513081. $y + x^2 + y^2 \neq -\frac{1}{4}$

71550513082. $(x, y) = \left(0, -\frac{1}{2}\right)$

Question Number : 4 Question Id : 7155054135 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 $A=\frac{1}{5!\ 6!\ 7!}\begin{bmatrix}5! & 6! & 7!\\ 6! & 7! & 8!\\ 7! & 8! & 9!\end{bmatrix}$, then $\left|\text{adj}(\text{adj}(2A))\right|$ is equal to

Options :

71550513083. 2^{20}

71550513084. 2^{16}

71550513085. 2^{12}

71550513086. 2^{8}

Question Number : 4 Question Id : 7155054135 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 $A=\frac{1}{5!\ 6!\ 7!}\begin{bmatrix}5! & 6! & 7!\\ 6! & 7! & 8!\\ 7! & 8! & 9!\end{bmatrix}$ है, तो $\left|\text{adj}(\text{adj}(2A))\right|$ बराबर है

Options :

71550513083. 2^{20}

71550513084. 2^{16}

71550513085. 2^{12}

71550513086. 2^{8}

Question Number : 5 Question Id : 7155054136 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

Eight persons are to be transported from city A to city B in three cars of different makes. If each car can accommodate at most three persons, then the number of ways, in which they can be transported, is

Options :

71550513087. 560

71550513088. 1120

71550513089. 1680

71550513090. 3360

Question Number : 5 Question Id : 7155054136 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

भिन्न कंपनियों की तीन कारों में आठ व्यक्तियों को शहर A से शहर B ले जाना है। यदि प्रत्येक कार में अधिकतम तीन व्यक्ति बैठ सकते हैं, तो इन व्यक्तियों को ले जाने के तरीकों की संख्या है

Options :

71550513087. 560

71550513088. 1120

71550513089. 1680

71550513090. 3360

Question Number : 6 Question Id : 7155054137 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 coefficients of x and x^2 in $(1 + x)^p (1 - x)^q$ are 4 and –5 respectively, then $2p + 3q$ is equal to

Options :

71550513091. 60

71550513092. 63

71550513093. 66

71550513094. 69

Question Number : 6 Question Id : 7155054137 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

$(1 + x)^p (1 - x)^q$ में x तथा x^2 के गुणांक क्रमशः 4 तथा –5 हैं, तो $2p + 3q$ बराबर है

Options :

71550513091. 60

71550513092. 63

71550513093. 66

71550513094. 69

Question Number : 7 Question Id : 7155054138 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 number $(22)^{2022} + (2022)^{22}$ leave the remainder α when divided by 3 and β when divided by 7. Then $(\alpha^2 + \beta^2)$ is equal to

Options :

71550513095. 5

71550513096. 10

71550513097. 13

71550513098. 20

Question Number : 7 Question Id : 7155054138 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 $(22)^{2022} + (2022)^{22}$ को 3 से विभाजित करने पर शेषफल α है तथा 7 से विभाजित करने पर शेषफल β है। तो $(\alpha^2 + \beta^2)$ बराबर है

Options :

71550513095. 5

71550513096. 10

71550513097. 13

71550513098. 20

Question Number : 8 Question Id : 7155054139 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 $S_n = 4 + 11 + 21 + 34 + 50 + \ldots$ to n terms, then $\frac{1}{60}\left(S_{29} - S_9\right)$ is equal to

Options :

71550513099. 220

71550513100. 223

71550513101. 226

71550513102. 227

Question Number : 8 Question Id : 7155054139 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 $S_n = 4 + 11 + 21 + 34 + 50 + \ldots$ n पदों तक है, तो $\frac{1}{60}\left(S_{29} - S_9\right)$ बराबर है

Options :

71550513099. 220

71550513100. 223

71550513101. 226

71550513102. 227

Question Number : 9 Question Id : 7155054140 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 $g(x) = f(x) + f(1-x)$ and $f''(x) > 0, x \in (0,1)$. If g is decreasing in the interval $(0, \alpha)$ and increasing in the interval $(\alpha, 1)$, then $\tan^{-1}(2\alpha) + \tan^{-1}\left(\frac{1}{\alpha}\right) + \tan^{-1}\left(\frac{\alpha+1}{\alpha}\right)$ is equal to

Options :

71550513103. $\frac{5\pi}{4}$

71550513104. $\frac{3\pi}{2}$

71550513105. $\frac{3\pi}{4}$

71550513106. π

Question Number : 9 Question Id : 7155054140 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 $g(x) = f(x) + f(1-x)$ तथा $f''(x) > 0, x \in (0,1)$ है। यदि g अंतराल $(0, \alpha)$ में ह्रासमान है तथा अंतराल $(\alpha, 1)$ में वर्धम है, तो

$\tan^{-1}(2\alpha) + \tan^{-1}\left(\frac{1}{\alpha}\right) + \tan^{-1}\left(\frac{\alpha+1}{\alpha}\right)$ बराबर है।

Options :

71550513103. $\frac{5\pi}{4}$

71550513104. $\frac{3\pi}{2}$

71550513105. $\frac{3\pi}{4}$

71550513106. π

Question Number : 10 Question Id : 7155054141 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 $\alpha, \beta, \gamma, \delta \in \mathbb{N}$, if $\int\left(\left(\frac{x}{e}\right)^{2x}+\left(\frac{e}{x}\right)^{2x}\right)\log_e x\, dx=\frac{1}{\alpha}\left(\frac{x}{e}\right)^{\beta x}-\frac{1}{\gamma}\left(\frac{e}{x}\right)^{\delta x}+C$, where $e=\sum_{n=0}^{\infty}\frac{1}{n!}$ and C is constant of integration, then $\alpha + 2\beta + 3\gamma - 4\delta$ is equal to

Options :

71550513107. -8

71550513108. -4

71550513109. 1

71550513110. 4

Question Number : 10 Question Id : 7155054141 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

$\alpha, \beta, \gamma, \delta \in \mathbb{N}$ के लिए, यदि $\int\left(\left(\frac{x}{e}\right)^{2x}+\left(\frac{e}{x}\right)^{2x}\right)\log_e x\, dx=\frac{1}{\alpha}\left(\frac{x}{e}\right)^{\beta x}-\frac{1}{\gamma}\left(\frac{e}{x}\right)^{\delta x}+C$ है,

जहाँ $e=\sum_{n=0}^{\infty}\frac{1}{n!}$ तथा C समाकलन अचर है, तो $\alpha + 2\beta + 3\gamma - 4\delta$ बराबर है

Options :

71550513107. -8

71550513108. -4

71550513109. 1

71550513110. 4

Question Number : 11 Question Id : 7155054142 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 be a continuous function satisfying $\int_0^{t^2}\left(f\left(x\right)+x^2\right)dx=\frac{4}{3}t^3,\forall t>0$. Then $f\left(\frac{\pi^2}{4}\right)$ is equal to

Options :

71550513111. $-\pi^2\left(1+\frac{\pi^2}{16}\right)$

71550513112. $\pi^2\left(1-\frac{\pi^2}{16}\right)$

71550513113. $-\pi\left(1+\frac{\pi^3}{16}\right)$

71550513114. $\pi\left(1-\frac{\pi^3}{16}\right)$

Question Number : 11 Question Id : 7155054142 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 एक संतत फलन है तथा $\int_0^{t^2}\left(f(x)+x^2\right)dx=\frac{4}{3}t^3, \forall t>0$ है। तो $f\left(\frac{\pi^2}{4}\right)$ बराबर है

Options :

71550513111. $-\pi^2\left(1+\frac{\pi^2}{16}\right)$

71550513112. $\pi^2\left(1-\frac{\pi^2}{16}\right)$

71550513113. $-\pi\left(1+\frac{\pi^3}{16}\right)$

71550513114. $\pi\left(1-\frac{\pi^3}{16}\right)$

Question Number : 12 Question Id : 7155054143 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 A be the point (1, 2) and B be any point on the curve $x^2 + y^2 = 16$. If the centre of the locus of the point P, which divides the line segment AB in the ratio 3:2 is the point C (α, β), then the length of the line segment AC is

Options :

71550513115. $\frac{3\sqrt{5}}{5}$

71550513116. $\frac{2\sqrt{5}}{5}$

71550513117. $\frac{4\sqrt{5}}{5}$

71550513118. $\frac{6\sqrt{5}}{5}$

Question Number : 12 Question Id : 7155054143 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 A बिंदु $(1, 2)$ है तथा वक्र $x^2 + y^2 = 16$ पर कोई बिंदु B है। यदि रेखा खंड AB को 3:2 के अनुपात में विभाजित करने वाले बिंदु P के बिंदुपथ का केन्द्र C (α, β) है, तो रेखाखंड AC की लंबाई है

Options :

71550513115. $\frac{3\sqrt{5}}{5}$

71550513116. $\frac{2\sqrt{5}}{5}$

71550513117. $\frac{4\sqrt{5}}{5}$

71550513118.

$\frac{6\sqrt{5}}{5}$

Question Number : 13 Question Id : 7155054144 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 a circle of radius 4 be concentric to the ellipse $15x^2 + 19y^2 = 285$. Then the common tangents are inclined to the minor axis of the ellipse at the angle

Options :

71550513119. $\frac{\pi}{3}$

71550513120. $\frac{\pi}{4}$

71550513121. $\frac{\pi}{6}$

71550513122. $\frac{\pi}{12}$

Question Number : 13 Question Id : 7155054144 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 त्रिज्या 4 का एक वृत्त तथा दीर्घवृत्त $15x^2 + 19y^2 = 285$ संकेन्द्री हैं। तो उभ्यनिष्ठ स्पर्श रेखाएँ दीर्घवृत्त के लघु अक्ष से कौन सा कोण बनाती हैं?

Options :

71550513119. $\frac{\pi}{3}$

71550513120. $\frac{\pi}{4}$

71550513121. $\frac{\pi}{6}$

71550513122. $\frac{\pi}{12}$

Question Number : 14 Question Id : 7155054145 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 image of the point P(1, 2, 6) in the plane passing through the points A (1, 2, 0), B (1, 4, 1) and C (0, 5, 1) be Q (α, β, γ). Then ($\alpha^2 + \beta^2 + \gamma^2$) is equal to

Options :

71550513123. 62

71550513124. 65

71550513125. 70

71550513126. 76

Question Number : 14 Question Id : 7155054145 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 बिंदुओं A (1, 2, 0), B (1, 4, 1) तथा C (0, 5, 1) से होकर जाने वाले समतल में बिंदु P(1, 2, 6) का प्रतिबिंब Q (α, β, γ) है। तो ($\alpha^2 + \beta^2 + \gamma^2$) बराबर है:

Options :

71550513123. 62

71550513124. 65

71550513125. 70

71550513126. 76

Question Number : 15 Question Id : 7155054146 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 line $\frac{x}{1}=\frac{6-y}{2}=\frac{z+8}{5}$ intersect the lines $\frac{x-5}{4}=\frac{y-7}{3}=\frac{z+2}{1}$ and $\frac{x+3}{6}=\frac{3-y}{3}=\frac{z-6}{1}$ at the points A and B respectively. Then the distance of the mid-point of the line segment AB from the plane $2x-2y+z=14$ is

Options :

71550513127. $\frac{10}{3}$

71550513128. $\frac{11}{3}$

71550513129. 4

71550513130. 3

Question Number : 15 Question Id : 7155054146 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 रेखा $\frac{x}{1}=\frac{6-y}{2}=\frac{z+8}{5}$ रेखाओं $\frac{x-5}{4}=\frac{y-7}{3}=\frac{z+2}{1}$ तथा $\frac{x+3}{6}=\frac{3-y}{3}=\frac{z-6}{1}$ को क्रमशः बिंदुओं A तथा B पर काटती है। तो रेखाखंड AB के मध्य बिंदु की समतल $2x-2y+z=14$ से दूरी है

Options :

71550513127. $\frac{10}{3}$

71550513128. $\frac{11}{3}$

71550513129. 4

71550513130. 3

Question Number : 16 Question Id : 7155054147 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 $\vec{a}=2\hat{i}+7\hat{j}-\hat{k}, \vec{b}=3\hat{i}+5\hat{k}$ and $\vec{c}=\hat{i}-\hat{j}+2\hat{k}$. Let $\vec{d}$ be a vector which is perpendicular to both $\vec{a}$ and $\vec{b}$, and $\vec{c}\cdot\vec{d}=12$. Then $\left(-\hat{i}+\hat{j}-\hat{k}\right)\cdot\left(\vec{c}\times\vec{d}\right)$ is equal to

Options :

71550513131. 24

71550513132. 42

71550513133. 44

71550513134. 48

Question Number : 16 Question Id : 7155054147 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 $\vec{a} = 2\hat{i} + 7\hat{j} - \hat{k}, \vec{b} = 3\hat{i} + 5\hat{k}$ तथा $\vec{c} = \hat{i} - \hat{j} + 2\hat{k}$ हैं। माना सदिशों $\vec{a}$ तथा $\vec{b}$ के लंबवत एक सदिश $\vec{d}$ है तथा $\vec{c} \cdot \vec{d} = 12$ है। तो $\left(-\hat{i} + \hat{j} - \hat{k}\right) \cdot (\vec{c} \times \vec{d})$ बराबर है:

Options :

71550513131. 24

71550513132. 42

71550513133. 44

71550513134. 48

Question Number : 17 Question Id : 7155054148 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 points P and Q are respectively the circumcenter and the orthocentre of a ΔABC, then $\overrightarrow{PA} + \overrightarrow{PB} + \overrightarrow{PC}$ is equal to

Options :

71550513135. $2\overrightarrow{QP}$

71550513136. $\overrightarrow{QP}$

71550513137. $\overrightarrow{PQ}$

71550513138. $2\overrightarrow{PQ}$

Question Number : 17 Question Id : 7155054148 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 एक त्रिभुज ABC के परिकेन्द्र तथा लंबकेन्द्र क्रमशः P तथा Q हैं, तो $\overrightarrow{PA} + \overrightarrow{PB} + \overrightarrow{PC}$ बराबर हैं:

Options :

71550513135. $2\overrightarrow{QP}$

71550513136. $\overrightarrow{QP}$

71550513137. $\overrightarrow{PQ}$

71550513138. $2\overrightarrow{PQ}$

Question Number : 18 Question Id : 7155054149 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 a die be rolled n times. Let the probability of getting odd numbers seven times be equal to the probability of getting odd numbers nine times. If the probability of getting even numbers twice is $\frac{k}{2^{15}}$, then k is equal to.

Options :

71550513139. 15

71550513140. 30

71550513141. 60

71550513142. 90

Question Number : 18 Question Id : 7155054149 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 एक पासे को n बार फेंका जाता है। माना सात बार विषम संख्या प्राप्त करने की प्रायिकता, नो बार विषम संख्या प्राप्त करने की प्रायिकता के बराबर है। यदि दो बार सम संख्या प्राप्त करने की प्रायिकता $\frac{k}{2^{15}}$ है, तो k बराबर है:

Options :

71550513139. 15

71550513140. 30

71550513141. 60

71550513142. 90

Question Number : 19 Question Id : 7155054150 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 μ be the mean and σ be the standard deviation of the distribution

x_i	0	1	2	3	4	5
f_i	k + 2	2k	$k^2 - 1$	$k^2 - 1$	$k^2 + 1$	k − 3

where $\sum f_i = 62$. If $[x]$ denotes the greatest integer $\leq x$, then $\left[\mu^2 + \sigma^2\right]$ is equal to

Options :

71550513143. 6

71550513144. 7

71550513145. 8

71550513146. 9

Question Number : 19 Question Id : 7155054150 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 बंटन

x_i	0	1	2	3	4	5
f_i	k + 2	2k	$k^2 - 1$	$k^2 - 1$	$k^2 + 1$	k − 3

जहाँ $\sum f_i = 62$ है, का माध्य μ तथा मानक विचलन σ हैं। यदि $[x]$ महत्तम पूर्णांक $\leq x$ है, तो $\left[\mu^2 + \sigma^2\right]$ बराबर है:

Options :

71550513143. 6

71550513144. 7

71550513145. 8

71550513146. 9

Question Number : 20 Question Id : 7155054151 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 statement $\sim[p \vee (\sim(p \wedge q))]$ is equivalent to

Options :

71550513147. $(\sim(p \wedge q)) \wedge q$

71550513148. $\sim(p \vee q)$

71550513149. $(p \wedge q) \wedge (\sim p)$

71550513150. $\sim(p \wedge q)$

Question Number : 20 Question Id : 7155054151 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

कथन $\sim[p \vee (\sim(p \wedge q))]$ किस के तुल्य है?

Options :

71550513147. $(\sim(p \wedge q)) \wedge q$

71550513148. $\sim(p \vee q)$

71550513149. $(p \wedge q) \wedge (\sim p)$

71550513150. $\sim(p \wedge q)$

Mathematics Section B

Section Id :	715505254
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 :	715505254
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 7155054152 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 domain of the function $f(x)=\sec^{-1}\left(\frac{2x}{5x+3}\right)$ is $[\alpha, \beta) \cup (\gamma, \delta]$, then $|3\alpha+10(\beta+\gamma)+21\delta|$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 21 Question Id : 7155054152 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि फलन $f(x)=\sec^{-1}\left(\frac{2x}{5x+3}\right)$ का प्राँत $[\alpha,\beta)\cup(\gamma,\delta]$ है, तो $|3\alpha+10(\beta+\gamma)+21\delta|$ बराबर है _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 22 Question Id : 7155054153 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let S be the set of values of λ, for which the system of equations

$6\lambda x-3y+3z=4\lambda^2$,

$2x+6\lambda y+4z=1$,

$3x+2y+3\lambda z=\lambda$ has no solution. Then $12\sum_{\lambda\in S}|\lambda|$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 22 Question Id : 7155054153 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना λ के मानों, जिनके लिए समीकरण निकाय

$6\lambda x - 3y + 3z = 4\lambda^2$,

$2x + 6\lambda y + 4z = 1$,

$3x + 2y + 3\lambda z = \lambda$ का कोई हल नहीं है, का समुच्चय S है। तो $12\sum_{\lambda \in S} |\lambda|$ बराबर है

_____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 23 Question Id : 7155054154 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The sum of all the four-digit numbers that can be formed using all the digits 2, 1, 2, 3 is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 23 Question Id : 7155054154 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

सभी अंकों 2, 1, 2, 3 के प्रयोग से 4 अंकों की बनाई जा सकने वाली सभी संख्याओं का योग है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 24 Question Id : 7155054155 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Suppose $a_1, a_2, 2, a_3, a_4$ be in an arithmetico-geometric progression. If the common ratio of the corresponding geometric progression is 2 and the sum of all 5 terms of the arithmetico-geometric progression is $\frac{49}{2}$, then a_4 is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 24 Question Id : 7155054155 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $a_1, a_2, 2, a_3, a_4$ एक समांतर-गुणोत्तर श्रेणी है। यदि संगत गुणोत्तर श्रेणी का सर्व अनुपात 2 है तथा समांतर-गुणोत्तर श्रेणी के सभी 5 पदों का योग $\frac{49}{2}$ है, तो a_4 बराबर है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 25 Question Id : 7155054156 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 quadratic curve passing through the point $(-1, 0)$ and touching the line $y = x$ at $(1, 1)$ be $y = f(x)$. Then the x-intercept of the normal to the curve at the point $(\alpha, \alpha + 1)$ in the first quadrant is _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 25 Question Id : 7155054156 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना बिंदु $(-1, 0)$ से होकर जाने वाला तथा रेखा $y = x$ को $(1, 1)$ पर स्पर्श करने वाला द्विघातीय वक्र $y = f(x)$ है। तो प्रथम चतुर्थांश में बिंदु $(\alpha, \alpha + 1)$ पर वक्र के अभिलंब का x-अंतःखंड है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 26 Question Id : 7155054157 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 area of the region $\{(x, y) : |x^2 - 2| \leq y \leq x\}$ is A, then $6A + 16\sqrt{2}$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 26 Question Id : 7155054157 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि क्षेत्र $\{(x, y) : |x^2 - 2| \leq y \leq x\}$ का क्षेत्रफल A है, तो $6A + 16\sqrt{2}$ बराबर है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 27 Question Id : 7155054158 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 tangent at any point P on a curve passing through the points (1, 1) and $\left(\frac{1}{10},100\right)$, intersect positive x- axis and y-axis at the points A and B respectively. If PA : PB = 1: k and $y = y(x)$ is the solution of the differential equation $e^{\frac{dy}{dx}} = kx + \frac{k}{2}$, y(0) = k, then $4y(1) - 5\log_e 3$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 27 Question Id : 7155054158 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना बिंदुओं (1, 1) तथा $\left(\frac{1}{10},100\right)$ से होकर जाने वाले एक वक्र के किसी बिंदु P पर स्पर्श रेखा धनात्मक x - तथा y - अक्षों को क्रमशः बिंदुओं A तथा B पर काटती है।

यदि PA : PB = 1: k है तथा अवकल समीकरण $e^{\frac{dy}{dx}} = kx + \frac{k}{2}$, y(0) = k का हल y = y(x) है, तो $4y(1) - 5\log_e 3$ बराबर है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 28 Question Id : 7155054159 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 equations of two adjacent sides of a parallelogram ABCD be $2x - 3y = -23$ and $5x + 4y = 23$. If the equation of its one diagonal AC is $3x + 7y = 23$ and the distance of A from the other diagonal is d, then $50\ d^2$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 28 Question Id : 7155054159 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना एक समांतर चतुर्भुज की दो संलग्न भुजाओं के समीकरण $2x - 3y = -23$ तथा $5x + 4y = 23$ हैं। यदि इसके एक विकर्ण AC का समीकरण $3x + 7y = 23$ है तथा A की दूसरे विकर्ण से दूरी d है, तो $50\ d^2$ बराबर है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 29 Question Id : 7155054160 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 foot of perpendicular from the point A (4, 3, 1) on the plane P : $x - y + 2z + 3 = 0$ be N. If B(5, α, β), $\alpha, \beta \in \mathbb{Z}$ is a point on plane P such that the area of the triangle ABN is $3\sqrt{2}$, then $\alpha^2 + \beta^2 + \alpha\beta$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 29 Question Id : 7155054160 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना बिंदु A $(4, 3, 1)$ से समतल P : $x - y + 2z + 3 = 0$ पर डाले गए लंब का पाद N है। यदि समतल P पर एक बिंदु B$(5, \alpha, \beta)$, $\alpha, \beta \in \mathbb{Z}$ इस प्रकार है कि त्रिभुज ABN का क्षेत्रफल $3\sqrt{2}$ है, तो $\alpha^2 + \beta^2 + \alpha\beta$ बराबर है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

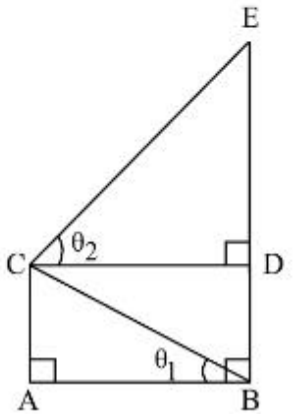
10

Question Number : 30 Question Id : 7155054161 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

In the figure, $\theta_1 + \theta_2 = \frac{\pi}{2}$ and $\sqrt{3}$ (BE) = 4(AB). If the area of ΔCAB is $2\sqrt{3} - 3$ unit^2, when $\frac{\theta_2}{\theta_1}$ is the largest, then the perimeter (in unit) of ΔCED is equal to _____.



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

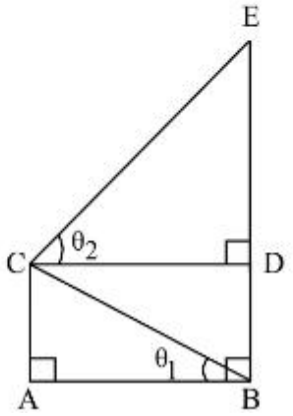
10

Question Number : 30 Question Id : 7155054161 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

दी गई आकृति में $\theta_1 + \theta_2 = \frac{\pi}{2}$ तथा $\sqrt{3}\,(BE) = 4(AB)$ है। यदि ΔCAB का क्षेत्रफल $2\sqrt{3} - 3$ वर्ग इकाई है, जब $\frac{\theta_2}{\theta_1}$ अधिकतम है, तो ΔCED का परिमाप (इकाई में) बराबर है:



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Physics Section A

Section Id :	715505255
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 : 715505255

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 31 Question Id : 7155054162 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 distance between two plates of a capacitor is d and its capacitance is C_1, when air is the medium between the plates. If a metal sheet of thickness $\frac{2d}{3}$ and of the same area as plate is introduced between the plates, the capacitance of the capacitor becomes C_2. The ratio $\frac{C_2}{C_1}$ is

Options :

71550513161. 1:1

71550513162. 2:1

71550513163. 3:1

71550513164. 4:1

Question Number : 31 Question Id : 7155054162 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 संधारित्र की प्लेटों के बीच की दूरी d है, एवं जब पट्टियों के बीच का माध्यम वायु है तो इसकी धारिता C_1 है। यदि प्लेटों के समान क्षेत्रफल एवं $\frac{2d}{3}$ मोटाई वाली एक धात्विक पट्टी संधारित्र की प्लेटों के बीच रखी जाती है, तो संधारित्र की धारिता C_2 हो जाती है। अनुपात $\frac{C_2}{C_1}$ है:

Options :

71550513161. $1:1$

71550513162. $2:1$

71550513163. $3:1$

71550513164. $4:1$

Question Number : 32 Question Id : 7155054163 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 a periodic motion represented by the equation

$y = \sin \omega t + \cos \omega t$

the amplitude of the motion is

Options :

71550513165. 0.5

71550513166. 1

71550513167. $\sqrt{2}$

71550513168. 2

Question Number : 32 Question Id : 7155054163 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 आवृत्ती गति, समीकरण $y = \sin \omega t + \cos \omega t$ द्वारा निरुपित है। गति का आयाम है:

Options :

71550513165. 0.5

71550513166. 1

71550513167. $\sqrt{2}$

71550513168. 2

Question Number : 33 Question Id : 7155054164 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 gas mixture consists of 2 moles of oxygen and 4 moles of neon at temperature T.
Neglecting all vibrational modes, the total internal energy of the system will be,

Options :

71550513169. $4RT$

71550513170. $8RT$

71550513171. $11RT$

71550513172. $16RT$

Question Number : 33 Question Id : 7155054164 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

T तापमान पर किसी गैसीय मिश्रण में 2 मोल ऑक्सीजन एवं 4 मोल निऑन हैं। सभी कम्पन मोडों को नगण्य मानने पर, निकाय की कुल आंतरिक ऊर्जा होगी:

Options :

71550513169. 4RT

71550513170. 8RT

71550513171. 11RT

71550513172. 16RT

Question Number : 34 Question Id : 7155054165 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 gas is compressed adiabatically, which one of the following statement is NOT true.

Options :

71550513173. The temperature of the gas increases.

71550513174. The change in the internal energy is equal to the work done on the gas.

71550513175. There is no change in the internal energy

71550513176. There is no heat supplied to the system

Question Number : 34 Question Id : 7155054165 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

किसी गैस को रुद्धोष्म प्रक्रम से संपीडित किया जाता है। निम्न कथनों में से कौनसा <u>असत्य</u> है?

Options :

71550513173. गैस का तापमान बढता है।

71550513174. आन्तरिक ऊर्जा में हुआ परिवर्तन, गैस पर हुए कार्य के बराबर है।

71550513175. आन्तरिक ऊर्जा में कोई परिवर्तन नहीं होता है।

71550513176. निकाय को कोई ऊष्मा नहीं दी जाती है।

Question Number : 35 Question Id : 7155054166 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

Young's moduli of the material of wires A and B are in the ratio of 1:4, while its area of cross sections are in the ratio of 1:3. If the same amount of load is applied to both the wires, the amount of elongation produced in the wires A and B will be in the ratio of

[Assume length of wires A and B are same]

Options :

71550513177. 1:12

71550513178. 1:36

71550513179. 12:1

71550513180. 36:1

Question Number : 35 Question Id : 7155054166 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

तार A एवं B के पदार्थों के यंग गुणांकों का अनुपात 1:4 है, जबकि इनके अनुप्रस्थ काट क्षेत्रफलों का अनुपात 1:3 है। यदि दोनों तारों पर समान भार लटकाया जाता है, तो तार A एवं B में हुए प्रसारों का अनुपात होगा [माना तार A एवं B की लम्बाईयाँ समान हैं]:

Options :

71550513177. 1:12

71550513178. 1:36

71550513179. 12:1

71550513180. 36:1

Question Number : 36 Question Id : 7155054167 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 : Rotation of the earth shows effect on the value of acceleration due to gravity (g)

Statement II : The effect of rotation of the earth on the value of 'g' at the equator is minimum and that at the pole is maximum.

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

Options :

71550513181. Both Statement I and Statement II are true

71550513182. Both Statement I and Statement II are false

71550513183. Statement I is true but statement II is false

71550513184. Statement I is false but statement II is true

Question Number : 36 Question Id : 7155054167 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 : पृथ्वी के घूर्णन का प्रभाव गुरुत्वीय त्वरण (g) के मान पर पडता है।

कथन II : 'g' के मान पर पृथ्वी के घूर्णन का प्रभाव, भूमध्य रेखा पर न्यूनतम एवं ध्रुव पर अधिकतम होता है।

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

Options :

71550513181. कथन I एवं कथन II दोनों सत्य हैं।

71550513182. कथन I एवं कथन II दोनों असत्य हैं।

71550513183. कथन I सत्य है परन्तु कथन II असत्य है।

71550513184. कथन I असत्य है परन्तु कथन II सत्य है।

Question Number : 37 Question Id : 7155054168 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 time period of a satellite, revolving above earth's surface at a height equal to R will be

(Given $g = \pi^2$ m/s^2, R = radius of earth)

Options :

71550513185. $\sqrt{2R}$

71550513186. $\sqrt{4R}$

71550513187. $\sqrt{8R}$

71550513188. $\sqrt{32R}$

Question Number : 37 Question Id : 7155054168 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

पृथ्वी के तल से R ऊँचाई पर, परिक्रमण कर रहे उपग्रह का आवर्त्तकाल होगा:

(यदि, $g = \pi^2$ m/s^2, R = पृथ्वी की त्रिज्या)

Options :

71550513185. $\sqrt{2R}$

71550513186. $\sqrt{4R}$

71550513187. $\sqrt{8R}$

71550513188. $\sqrt{32R}$

Question Number : 38 Question Id : 7155054169 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 projectiles are projected at 30° and 60° with the horizontal with the same speed. The ratio of the maximum height attained by the two projectiles respectively is:

Options :

71550513189. $1:3$

71550513190. $1:\sqrt{3}$

71550513191. $2:\sqrt{3}$

71550513192. $\sqrt{3}:1$

Question Number : 38 Question Id : 7155054169 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

क्षैतिज से 30° एवं 60° के कोणों पर दो प्रक्षेप्य समान चालों से प्रक्षेपित किए जाते हैं। क्रमशः प्रक्षेप्यों द्वारा प्राप्त अधिकतम ऊँचाइयों का अनुपात है:

Options :

71550513189. $1:3$

71550513190. $1:\sqrt{3}$

71550513191. $2:\sqrt{3}$

71550513192. $\sqrt{3}:1$

Question Number : 39 Question Id : 7155054170 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 an experiment with vernier calipers of least count 0.1 mm, when two jaws are joined together the zero of vernier scale lies right to the zero of the main scale and 6th division of vernier scale coincides with the main scale division. While measuring the diameter of a spherical bob, the zero of vernier scale lies in between 3.2 cm and 3.3 cm marks, and 4th division of vernier scale coincides with the main scale division. The diameter of bob is measured as

Options :

71550513193. 3.26 cm

71550513194. 3.25 cm

71550513195. 3.22 cm

71550513196. 3.18 cm

Question Number : 39 Question Id : 7155054170 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

0.1 mm अल्पतमांक वाले वर्नियर कैलिपर्स के प्रयोग में, जब दोनों जबडे जुडे हैं तो वर्नियर पैमाने का शून्य. मुख्य पैमाने के शून्य के दाहिनी ओर रहता है तथा वर्नियर पैमाने का छटा विभाजन, मुख्य पैमाने के साथ सम्पाती होता है। एक गोलक का व्यास मापते समय, वर्नियर पैमाने का शून्य 3.2 cm एवं 3.3 cm के बीच रहता है, एवं वर्नियर पैमाने का चौथा विभाजन, मुख्य पैमाने के सम्पाती होता है। गोलक का मापा गया व्यास है:

Options :

71550513193. 3.26 cm

71550513194. 3.25 cm

71550513195. 3.22 cm

71550513196. 3.18 cm

Question Number : 40 Question Id : 7155054171 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 person travels x distance with velocity v_1 and then x distance with velocity v_2 in the same direction. The average velocity of the person is v, then the relation between v, v_1 and v_2 will be.

Options :

71550513197. $v = \frac{v_1 + v_2}{2}$

71550513198. $v = v_1 + v_2$

71550513199. $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

71550513200. $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

Question Number : 40 Question Id : 7155054171 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

कोई व्यक्ति एक ही दिशा में x दूरी v_1 वेग से एवं x दूरी v_2 वेग तय करता है। व्यक्ति का औसत वेग v है, तो v, v_1 एवं v_2 के बीच सम्बंध होगा:

Options :

71550513197. $v = \frac{v_1 + v_2}{2}$

71550513198. $v = v_1 + v_2$

71550513199. $\frac{1}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

71550513200. $\frac{2}{v} = \frac{1}{v_1} + \frac{1}{v_2}$

Question Number : 41 Question Id : 7155054172 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 : An electric fan continues to rotate for some time after the current is switched off.

Reason R : Fan continues to rotate due to inertia of motion.

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

Options :

71550513201. Both **A** and **R** are correct and **R** is the correct explanation of **A**

71550513202. Both **A** and **R** are correct but **R** is **NOT** the correct explanation of **A**

71550513203. A is correct but **R** is not correct

71550513204. A is not correct but **R** is correct

Question Number : 41 Question Id : 7155054172 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 है, एक को **अभिकथन A** एवं दूसरे को **कारण R** कहा गया है।

अभिकथन A : धारा का प्रवाह बंद करने के बाद भी विद्युत पंखा कुछ समय तक घूमता रहता है।

कारण R : पंखा गति के जड़त्व के कारण घूमना जारी रखता है।

उपर्युक्त कथनों के प्रकाश में, नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513201. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513202. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513203. A सही है परन्तु R गलत है

71550513204. A गलत है परन्तु R सही है

Question Number : 42 Question Id : 7155054173 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 message signal of frequency 3kHz is used to modulate a carrier signal of frequency 1.5 MHz. The bandwidth of the amplitude modulated wave is

Options :

71550513205. 6 MHz

71550513206. 3 MHz

71550513207. 3 kHz

71550513208. 6 kHz

Question Number : 42 Question Id : 7155054173 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

3kHz आवृत्ति वाले संदेश सिग्नल का प्रयोग, 1.5 MHz आवृत्ति वाले वाहक सिग्नल को मांडुलित करने के लिए किया जाता है। आयाम मांडुलित तरंग की, बैंडविथ (बैंड परास) है:

Options :

71550513205. 6 MHz

71550513206. 3 MHz

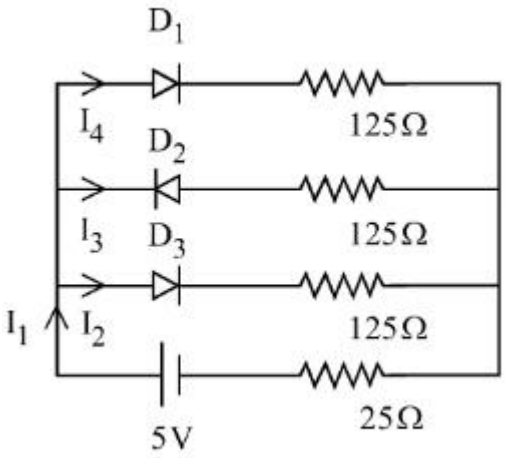
71550513207. 3 kHz

71550513208. 6 kHz

Question Number : 43 Question Id : 7155054174 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 each diode has a forward bias resistance of 25 Ω in the below circuit,



which of the following options is correct:

Options :

71550513209. $\frac{I_1}{I_2}=1$

71550513210. $\frac{I_2}{I_3}=1$

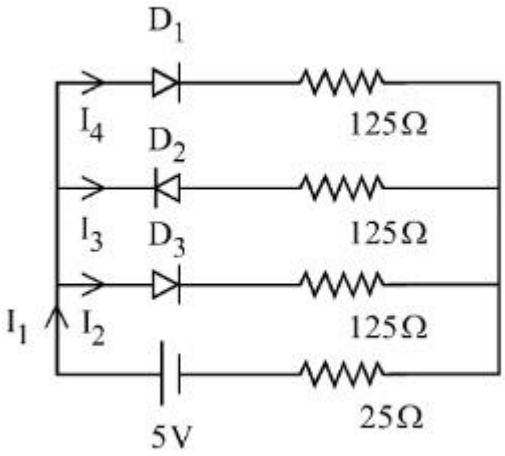
71550513211. $\frac{I_3}{I_4}=1$

71550513212. $\frac{I_1}{I_2}=2$

Question Number : 43 Question Id : 7155054174 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 दिए गए परिपथ में, यदि प्रत्येक डायोड का अग्रदिशित बायस प्रतिरोध 25 Ω है।



तो निम्न में से कौन सा विकल्प सही है:

Options :

71550513209. $\frac{I_1}{I_2}=1$

71550513210. $\frac{I_2}{I_3}=1$

71550513211. $\frac{I_3}{I_4}=1$

71550513212. $\frac{I_1}{I_2}=2$

Question Number : 44 Question Id : 7155054175 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 half life of a radioactive substance is T. The time taken, for disintegrating $\frac{7}{8}$th part of its original mass will be:

Options :

71550513213. T

71550513214. 2T

71550513215. 3T

71550513216. 8T

Question Number : 44 Question Id : 7155054175 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

किसी रेडियोऐक्टिव पदार्थ की अर्द्धायु T है। इसके वास्तविक द्रव्यमान के $\frac{7}{8}$th भाग को विघटित होने में लगा समय होगा:

Options :

71550513213. T

71550513214. 2T

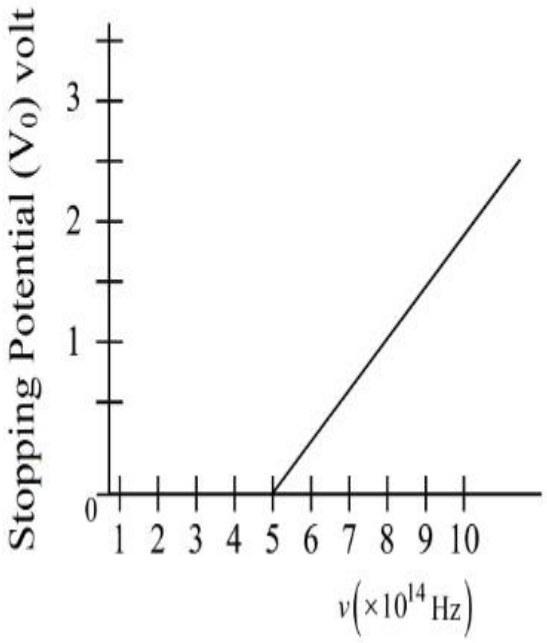
71550513215. 3T

71550513216. 8T

Question Number : 45 Question Id : 7155054176 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 variation of stopping potential (V_0) as a function of the frequency (ν) of the incident light for a metal is shown in figure. The work function of the surface is



Options :

71550513217. 1.36 eV

71550513218. 2.98 eV

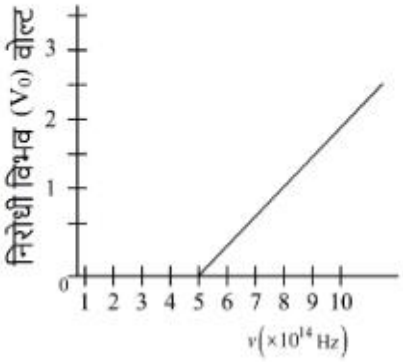
71550513219. 2.07 eV

71550513220. 18.6 eV

Question Number : 45 Question Id : 7155054176 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

किसी धातु के लिए, आपतित प्रकाश की आवृत्ति (ν) के फलन के रुप में निरोधी विभव (V_0) का परिवर्तन चित्र में प्रदर्शित हैं। धातु का कार्य फलन है:



Options :

71550513217. 1.36 eV

71550513218. 2.98 eV

71550513219. 2.07 eV

71550513220. 18.6 eV

Question Number : 46 Question Id : 7155054177 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 bar magnet is released from rest along the axis of a very long vertical copper tube. After some time the magnet will

Options :

71550513221. move down with an acceleration equal to g

71550513222. move down with an acceleration greater than g

71550513223. move down with almost constant speed

71550513224. oscillate inside the tube

Question Number : 46 Question Id : 7155054177 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

किसी बहुत लम्बी उर्ध्वाधर ताँबे की नली में इसके अक्ष के अनुदिश, एक छड़ चुम्बक को विराम अवस्था से छोडा जाता है। कुछ समय बाद, चुम्बक:

Options :

71550513221. g के मान के बराबर त्वरण से नीचे गिरेगी

71550513222. g से ज्यादा त्वरण से नीचे गिरेगी

71550513223. लगभग स्थिर चाल से नीच गिरेगी

71550513224. नली के अंदर दोलन करेगी

Question Number : 47 Question Id : 7155054178 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 ratio of intensities at two points P and Q on the screen in a Young's double slit experiment where phase difference between two waves of same amplitude are $\pi/3$ and $\pi/2$, respectively are

Options :

71550513225. 3:2

71550513226. 2:3

71550513227. 1:3

71550513228. 3:1

Question Number : 47 Question Id : 7155054178 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

यंग के द्विझिरी प्रयोग में पर्दे पर दो बिंदुओं P एवं Q, जहाँ समान आयाम वाली दो तरंगों के मध्य का कलान्तर क्रमशः $\pi/3$ एवं $\pi/2$ है, पर तीव्रताओं का अनुपात है:

Options :

71550513225. 3:2

71550513226. 2:3

71550513227. 1:3

71550513228. 3:1

Question Number : 48 Question Id : 7155054179 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 amplitude of magnetic field in an electromagnetic wave propagating along y-axis is 6.0×10^{-7} T. The maximum value of electric field in the electromagnetic wave is

Options :

71550513229. 6.0×10^{-7} Vm^{-1}

71550513230. 180 Vm^{-1}

71550513231. 2×10^{15} Vm^{-1}

71550513232. 5×10^{14} Vm^{-1}

Question Number : 48 Question Id : 7155054179 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

y-अक्ष के अनुदिश चल रही एक वैद्युतचंबकीय तरंग के चुम्बकीय क्षेत्र का आयाम 6.0×10^{-7} T है। वैद्युतचंबकीय तरंग में निहित विद्युत क्षेत्र का अधिकतम मान है:

Options :

71550513229. 6.0×10^{-7} Vm^{-1}

71550513230. 180 Vm^{-1}

71550513231. 2×10^{15} Vm^{-1}

71550513232. 5×10^{14} Vm^{-1}

Question Number : 49 Question Id : 7155054180 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 : For diamagnetic substance, $-1 \leq \chi < 0$, where χ is the magnetic susceptibility.

Statement II : Diamagnetic substances when placed in an external magnetic field, tend to move from stronger to weaker part of the field.

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

Options :

71550513233. Both Statement I and Statement II are true

71550513234. Both Statement I and Statement II are False

71550513235. Statement I is correct but Statement II is false

71550513236. Statement I is incorrect but Statement II is true.

Question Number : 49 Question Id : 7155054180 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 : प्रतिचुम्बकीय पदार्थों के लिए, $-1 \leq \chi < 0$, जहाँ χ चुम्बकीय प्रवृत्ति है।

कथन II : प्रतिचुम्बकीय पदार्थों को जब बाह्य चुम्बकीय क्षेत्र में रखा जाता है तो वह क्षेत्र में अधिक तीव्रता वाले स्थान से कम तीव्रता वाले स्थान की ओर जाने का प्रयत्न करते हैं।

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

Options :

71550513233. कथन I एवं कथन II दोनों सत्य हैं।

71550513234. कथन I एवं कथन II दोनों असत्य हैं।

71550513235. कथन I सत्य है परन्तु कथन II असत्य है।

71550513236. कथन I असत्य है परन्तु कथन II सत्य है।

Question Number : 50 Question Id : 7155054181 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 a metallic conductor, under the effect of applied electric field, the free electrons of the conductor

Options :

71550513237. drift from higher potential to lower potential.

71550513238. move in the straight line paths in the same direction

71550513239. move with the uniform velocity throughout from lower potential to higher potential

71550513240. move in the curved paths from lower potential to higher potential

Question Number : 50 Question Id : 7155054181 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

आरोपित विद्युत क्षेत्र में रखे धात्विक चालक में, चालक के मुक्त इलेक्ट्रॉन:

Options :

71550513237. उच्च विभव से निम्न विभव की तरफ अपवाहित होते हैं।

71550513238. समान दिशा में सरल रेखीय पथों पर चलते हैं।

71550513239. सम्पूर्ण गति के दौरान एकसमान वेग से निम्न विभव से उच्च विभव की तरफ जाते हैं।

71550513240. वक्रीय पथों के द्वारा निम्न विभव से उच्च विभव की तरफ जाते हैं।

Physics Section B

Section Id :	715505256
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 :	715505256
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 51 Question Id : 7155054182 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 block of mass 5 kg attached to a horizontal spiral spring executes simple harmonic motion of amplitude 1 m and time period 3.14 s. The maximum force exerted by spring on block is _____N

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 51 Question Id : 7155054182 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

5 kg द्रव्यमान का एक आयताकार गुटका, किसी क्षैतिज स्प्रिंग के सिरे से जुडकर 1 m आयाम एवं 3.14 s आवर्तकाल के साथ सरल आवर्त गति कर रहा है। स्प्रिंग द्वारा गुटके पर आरोपित अधिकतम बल का मान _____ N है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

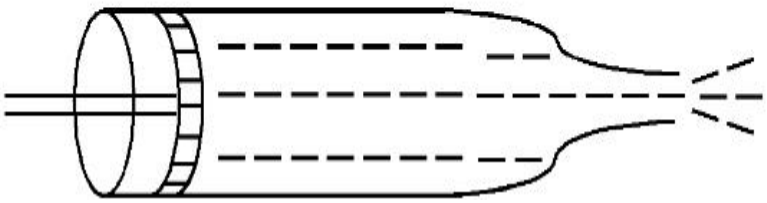
10

Question Number : 52 Question Id : 7155054183 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Figure below shows a liquid being pushed out of the tube by a piston having area of cross section 2.0 cm^2. The area of cross section at the outlet is 10 mm^2. If the piston is pushed at a speed of 4 cm s^{-1}, the speed of outgoing fluid is _____ cm s^{-1}



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

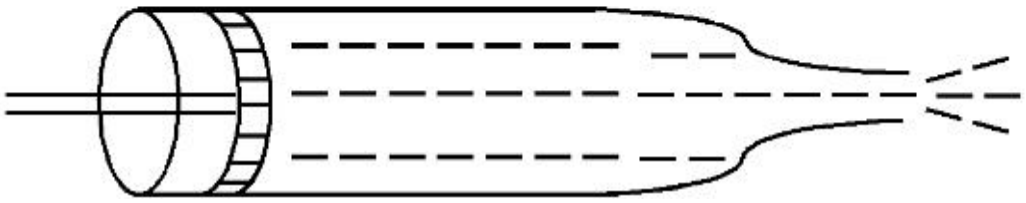
10

Question Number : 52 Question Id : 7155054183 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

नीचे दिए गए चित्र में, 2.0 cm^2 अनुप्रस्थ काट क्षेत्रफल वाले पिस्टन द्वारा नली से बाहर की तरफ ढकेला जा रहा द्रव प्रदर्शित है। निकास मुख के अनुप्रस्थ काट का क्षेत्रफल 10 mm^2 है। यदि पिस्टन को 4 cm s^{-1} की चाल से ढकेला जाता है, तो बाहर निकल रहे द्रव की चाल _____ cm s^{-1} होगी।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 53 Question Id : 7155054184 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A force of $-P\,\hat{k}$ acts on the origin of the coordinate system. The torque about the point (2, -3) is $P\left(a\hat{i} + b\hat{j}\right)$. The ratio of $\frac{a}{b}$ is $\frac{x}{2}$. 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 :

10

Question Number : 53 Question Id : 7155054184 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

निर्देशांक प्रणाली के मूलबिन्दु पर $-P\,\hat{k}$ बल आरोपित है। बिंदु (2, -3) के परित: बलाघूर्ण $P\left(a\hat{i}+b\hat{j}\right)$ है। अनुपात $\frac{a}{b}$ का मान $\frac{x}{2}$ है। x का मान _____ है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 54 Question Id : 7155054185 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 maximum load carried by an elevator is 1400 kg (600 kg - Passengers + 800 kg - elevator), which is moving up with a uniform speed of 3 m $s^{-1}$and the frictional force acting on it is 2000 N, then the maximum power used by the motor is _____ kW ($g = 10\ m/s^2$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 54 Question Id : 7155054185 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि किसी लिफ्ट द्वारा उठाया गया अधिकतम भार 1400 kg (600 kg : यात्री + 800 kg : लिफ्ट) है, जो कि 3 m s^{-1} की एकसमान चाल से ऊपर की तरफ जा रही है। यदि इस पर कार्यरत घर्षण बाल का मान 2000 N है, तो मोटर द्वारा प्रयुक्त अधिकतम शक्ति _____ kW है ($g = 10\ m/s^2$)।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

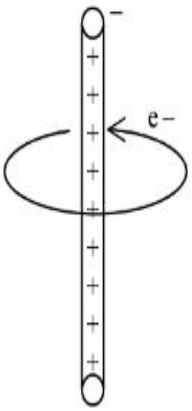
10

Question Number : 55 Question Id : 7155054186 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

An electron revolves around an infinite cylindrical wire having uniform linear charge density 2×10^{-8} C m^{-1} in circular path under the influence of attractive electrostatic field as shown in the figure. The velocity of electron with which it is revolving is _____ $\times10^6$ m s^{-1}. Given mass of electron = 9×10^{-31}kg



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

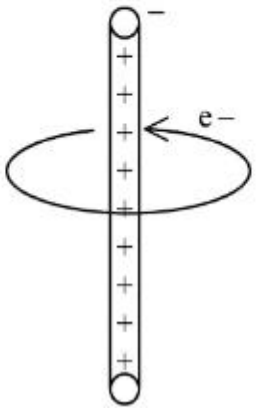
10

Question Number : 55 Question Id : 7155054186 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

आकर्षित स्थैतिक विद्युत क्षेत्र के अन्तर्गत एक इलेक्ट्रॉन अनन्त लम्बाई वाले बेलनाकार तार के चारों तरफ वृत्ताकार पथ पर परिक्रमण कर रहा है, तार पर एकसमान रेखीय आवेश घनत्व 2×10^{-8} C m^{-1} है। इलेक्ट्रॉन का वेग, जिससे ये परिक्रमण कर रहा है वह _____ $\times10^{6}$ m s^{-1} है। (दिया है, इलेक्ट्रॉन का द्रव्यमान = 9×10^{-31}kg)।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 56 Question Id : 7155054187 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

If 917 $\mathring{A}$ be the lowest wavelength of Lyman series then the lowest wavelength of Balmer series will be _____ $\mathring{A}$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 56 Question Id : 7155054187 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि लाइमैन श्रेणी की न्यूनतम तरंदैर्ध्य 917 Å है तो बामर श्रेणी की न्यूनतम तरंगदैर्ध्य _____ Å होगी।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

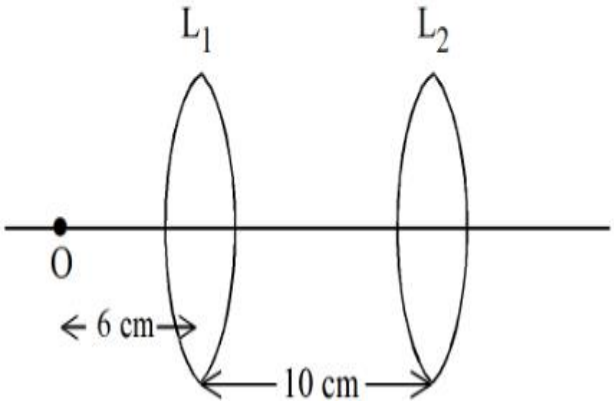
10

Question Number : 57 Question Id : 7155054188 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A point object, 'O' is placed in front of two thin symmetrical coaxial convex lenses L_1 and L_2 with focal length 24 cm and 9 cm respectively. The distance between two lenses is 10 cm and the object is placed 6 cm away from lens L_1 as shown in the figure. The distance between the object and the image formed by the system of two lenses is _____ cm.



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

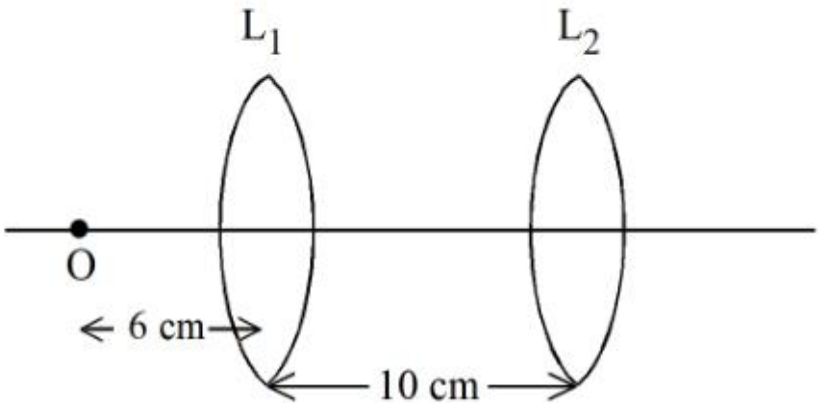
10

Question Number : 57 Question Id : 7155054188 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

क्रमशः 24 cm एवं 9 cm फोकस दूरी वाले दो पतले सममित सह-अक्षीय उत्तल लैंसों, L_1 और L_2 के सामने एक बिंदु वस्तु 'O' रखी है। दोनों लैंसों के बीच की दूरी 10 cm है, एवं वस्तु L_1 से 6 cm की दूरी पर रखी है। दोनों लैंसों के निकाय द्वारा बने प्रतिबिम्ब एवं वस्तु के बीच की दूरी _____ cm है।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 58 Question Id : 7155054189 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A square loop of side 2.0 cm is placed inside a long solenoid that has 50 turns per centimetre and carries a sinusoidally varying current of amplitude 2.5A and angular frequency 700 rad s^{-1}. The central axes of the loop and solenoid coincide. The amplitude of the emf induced in the loop is $x \times 10^{-4}$ V. The value of x is _____.

(Take, $\pi = \frac{22}{7}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 58 Question Id : 7155054189 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

2.0 cm भुजा वाला एक वर्गाकार घेरा, किसी प्रति सेंटीमीटर 50 फेरों वाली परिनालिका में रखा है, जिसमें 2.5A आयाम वाली एक ज्यावक्रीय धारा 700 rad s^{-1} की कोणीय आवृत्ति के साथ प्रवाहित हो रही है। घेरे एवं परिनलिका के केन्द्रीय अक्ष उभयनिष्ठ हैं। घेरे में प्रेरित हुए विद्युत वाहक बल का आयाम $x \times 10^{-4}$ V है। x का मान _____ है।

(यदि, $\pi = \frac{22}{7}$)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

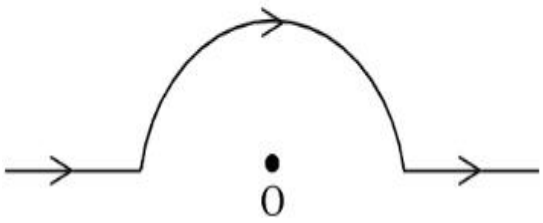
10

Question Number : 59 Question Id : 7155054190 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A straight wire carrying a current of 14 A is bent into a semicircular arc of radius 2.2 cm as shown in the figure. The magnetic field produced by the current at the centre (O) of the arc. is _____ $\times 10^{-4}$T



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

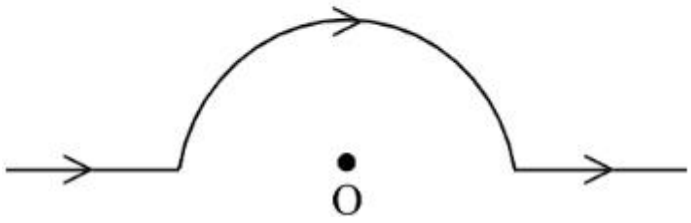
10

Question Number : 59 Question Id : 7155054190 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक सरलरेखीय तार जिसमें 14 A की धारा प्रवाहित हो रही है, को मोड़कर चित्रानुसार 2.2 cm त्रिज्या वाला अद्धवृत्तीय चाप बनाया गया है। धारा द्वारा चाप के केन्द्र (O) पर उत्पन्न चुम्बकीय क्षेत्र _____ $\times 10^{-4}$T है।



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 60 Question Id : 7155054191 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 parallelopiped is measured as 1 cm × 1 cm × 100 cm. If its specific resistance is $3\times10^{-7}\Omega$ m, then the resistance between its two opposite rectangular faces will be _____$\times10^{-7}\ \Omega$.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 60 Question Id : 7155054191 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक आयताकार समांतर षटफलक को 1 cm×1 cm ×100 cm मापा जाता है। यदि इसका विशिष्ठ प्रतिरोध $3\times10^{-7}\Omega$ m है तो इसके दो विपरीत आयाताकार फलकों के बीच का प्रतिरोध _____$\times10^{-7}\ \Omega$ होगा।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Chemistry Section A

Section Id :	715505257
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 :	715505257
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 61 Question Id : 7155054192 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		LIST II	
A.	16 g of CH_4 (g)	I.	Weighs 28g
B.	1 g of H_2 (g)	II.	60.2×10^{23} electrons
C.	1 mole of N_2 (g)	III.	Weighs 32 g
D.	0.5 mol of SO_2 (g)	IV.	Occupies 11.4 L volume at STP

Choose the correct answer from the options given below:

Options :

71550513251. A-I, B-III, C-II, D-IV

71550513252. A-II, B-IV, C-I, D-III

71550513253. A-II, B-IV, C-III, D-I

71550513254. A-II, B-III, C-IV, D-I

Question Number : 61 Question Id : 7155054192 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		सूची II	
A.	CH_4 (g) के 16 g	I.	28g भार
B.	H_2 (g) के 1 g	II.	60.2×10^{23} इलेक्ट्रॉन
C.	N_2 (g) के 1 मोल	III.	32 g भार
D.	SO_2 (g) के 0.5 मोल	IV.	STP पर 11.4 L आयतन

नीचे दिए गए विकल्पों में से सहीं उत्तर चुनें:

Options :

71550513251. A-I, B-III, C-II, D-IV

71550513252. A-II, B-IV, C-I, D-III

71550513253. A-II, B-IV, C-III, D-I

71550513254. A-II, B-III, C-IV, D-I

Question Number : 62 Question Id : 7155054193 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 correct relationships between unit cell edge length 'a' and radius of sphere 'r' for face-centred and body-centred cubic structures respectively are:

Options :

71550513255. $2\sqrt{2}r = a \text{ and } 4r = \sqrt{3}a$

71550513256. $r = 2\sqrt{2}a \text{ and } 4r = \sqrt{3}a$

71550513257. $r = 2\sqrt{2}a \text{ and } \sqrt{3}r = 4a$

71550513258. $2\sqrt{2}r = a \text{ and } \sqrt{3}r = 4a$

Question Number : 62 Question Id : 7155054193 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

फलक केन्द्रित घनीय एवं अंतः केन्द्रित घनीय सरचनाओं के लिए क्रमशः एकक कोष्ठिका के कोर की लम्बाई 'a' एवं गोले की त्रिज्या 'r' के मध्य सही सम्बन्ध है:

Options :

71550513255. $2\sqrt{2}r = a \text{ and } 4r = \sqrt{3}a$

71550513256. $r = 2\sqrt{2}a \text{ and } 4r = \sqrt{3}a$

71550513257. $r = 2\sqrt{2}a \text{ and } \sqrt{3}r = 4a$

71550513258. $2\sqrt{2}r = a \text{ and } \sqrt{3}r = 4a$

Question Number : 63 Question Id : 7155054194 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

Ferric chloride is applied to stop bleeding because -

Options :

71550513259. $FeCl_3$ reacts with the constituents of blood which is a positively charged sol.

71550513260. Cl^- ions cause coagulation of blood.

71550513261. Fe^{3+} ions coagulate blood which is a negatively charged sol.

71550513262. Blood absorbs $FeCl_3$ and forms a complex.

Question Number : 63 Question Id : 7155054194 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

रक्त स्राव रोकने के लिए फेरिक क्लोराइड का प्रयोग किया जाता है क्योकि:

Options :

71550513259. $FeCl_3$ रक्त जो एक घनवेशित सॉल है, के अवयवों के साथ क्रिया करता है।

71550513260. Cl^- आयन रक्त का स्कंदन करता है।

71550513261. Fe^{3+} रक्त, जो एक ऋणावेशित सॉल है, का स्कंदन करता है।

71550513262. रक्त $FeCl_3$ को अवशोषित कर एक संकुल का निर्माण करता है।

Question Number : 64 Question Id : 7155054195 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 correct order of metallic character is =

Options :

71550513263. $K > Ca > Be$

71550513264. $Be > Ca > K$

71550513265. $K > Be > Ca$

71550513266. $Ca > K > Be$

Question Number : 64 Question Id : 7155054195 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

घत्विक लक्षण का सही क्रम है:

Options :

71550513263. $K > Ca > Be$

71550513264. $Be > Ca > K$

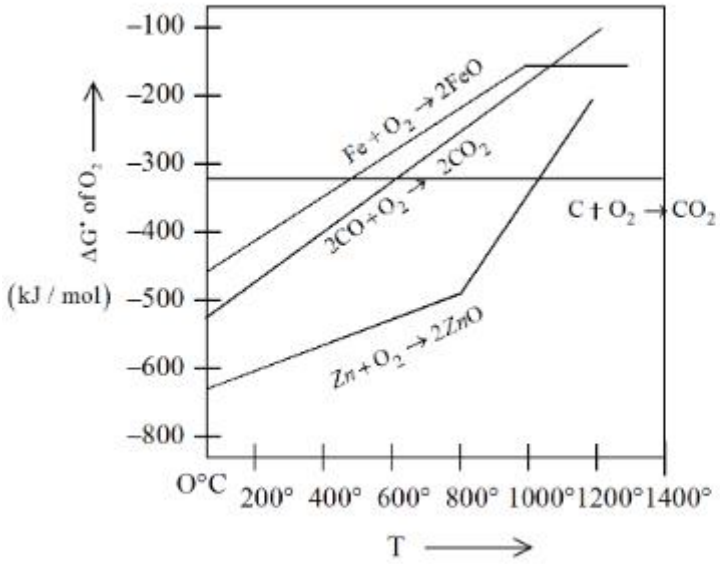
71550513265. $K > Be > Ca$

71550513266. $Ca > K > Be$

Question Number : 65 Question Id : 7155054196 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

Gibbs energy vs T plot for the formation of oxides is given below.



For the given diagram, the correct statement is -

Options :

71550513267. At 600 ℃, C can reduce FeO

71550513268. At 600 ℃, C can reduce ZnO

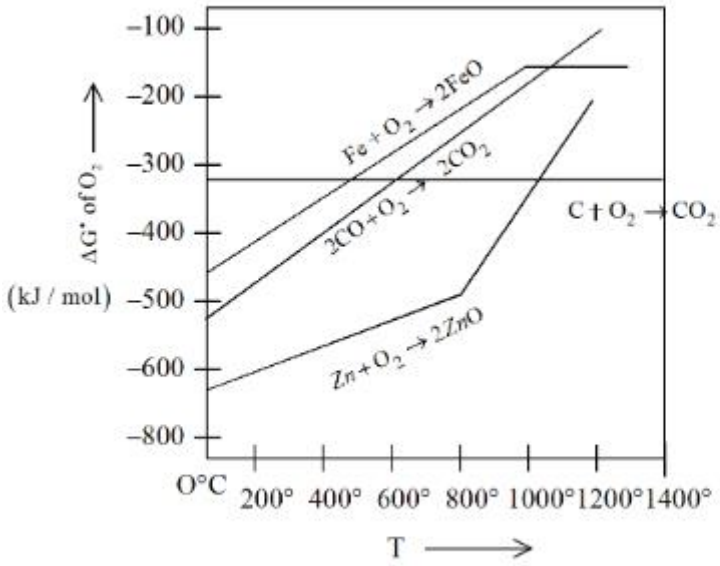
71550513269. At 600 ℃, CO can reduce ZnO

71550513270. At 600 ℃, CO cannot reduce FeO

Question Number : 65 Question Id : 7155054196 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

ऑक्साइड के निर्माण हेतु गिब्ज उर्जा vs T का ग्राफ नीचे दिया गया है:



नीचे दिए गए चित्र हेतु, सही कथन है:

Options :

71550513267. 600 ℃ पर, C FeO को अपचयित कर सकता है

71550513268. 600 ℃ पर, C ZnO को अपचयित कर सकता है

71550513269. 600 ℃ पर, CO ZnO को अपचयित कर सकता है

71550513270. 600 ℃ पर, CO FeO को अपचयित कर सकता है

Question Number : 66 Question Id : 7155054197 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 : Physical properties of isotopes of hydrogen are different.

Reason R : Mass difference between isotopes of hydrogen is very large.

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

Options :

71550513271. Both **A** and **R** are true and R is the correct explanation of **A**

71550513272. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

71550513273. **A** is true but **R** is false

71550513274. **A** is false but **R** is true

Question Number : 66 Question Id : 7155054197 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 है, एक को अभिकथन A एवं दूसरे को कारण R कहा गया है।

अभिकथन A : हाइड्रोजन के समस्थनिकों के भौतिक गुण भिन्न होते हैं।

कारण R : हाइड्रोजन के समस्थानिकों के द्रव्यमानों में अंतर बहुत अधिक है।

उपर्युक्त कथनों के प्रकाश में, नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513271. **A** एवं **R** दोनों सही हैं तथा **A** की सही व्याख्या R है

71550513272. **A** एवं **R** दोनों सही हैं तथा **A** की सही व्याख्या R नहीं है

71550513273. **A** सही है परन्तु **R** गलत है

71550513274. **A** गलत है परन्तु **R** सही है

Question Number : 67 Question Id : 7155054198 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

Number of water molecules in washing soda and soda ash respectively are:

Options :

71550513275. 10 and 1

71550513276. 1 and 10

71550513277. 10 and 0

71550513278. 1 and 0

Question Number : 67 Question Id : 7155054198 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

द्यावन सोडा एवं सोडा ऐश में जल के अणुओं की संख्या है, क्रमशः:

Options :

71550513275. 10 एवं 1

71550513276. 1 एवं 10

71550513277. 10 एवं 0

71550513278. 1 एवं 0

Question Number : 68 Question Id : 7155054199 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 : The energy required to form Mg^{2+} from Mg is much higher than that required to produce Mg^{+}

Reason R : Mg^{2+} is small ion and carry more charge than Mg^{+}

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

Options :

71550513279. Both **A** and **R** are true and **R** is the correct explanation of **A**

71550513280. Both **A** and **R** are true but R is **NOT** the correct explanation of **A**

71550513281. **A** is true but **R** is false

71550513282. **A** is false but **R** is true

Question Number : 68 Question Id : 7155054199 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 है, एक को अभिकथन A एवं दूसरे को कारण R कहा गया है।
अभिकथन A : Mg से Mg^{2+} बनाने में आवश्यक उर्जा, Mg^{+} बनाने की तुलना में, काफी अधिक है।
कारण R : Mg^{2+} छोटा आयन है जो Mg^{+} से अधिक आवेश रखता है।

कथनों के प्रकाश में, नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513279. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513280. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513281. A सही है परन्तु R गलत है

71550513282. A गलत है परन्तु R सही है

Question Number : 69 Question Id : 7155054200 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 correct order of the number of unpaired electrons in the given complexes is

A. $[Fe\ (CN)_6]^{3-}$
B. $[Fe\ F_6]^{3-}$
C. $[Co\ F_6]^{3-}$
D. $[Cr\ (oxalate)_3]^{3-}$
E. $[Ni\ (CO)_4]$

Choose the correct answer from the options given below:

Options :

71550513283. E < A < B < D < C

71550513284. A < E < D < C < B

71550513285. $E < A < D < C < B$

71550513286. $A < E < C < B < D$

Question Number : 69 Question Id : 7155054200 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

दिए गए संकुलों में अयुग्मित इलेक्ट्रॉनों की संख्या का सही क्रम है:

A. $[Fe\ (CN)_6]^{3-}$
B. $[Fe\ F_6]^{3-}$
C. $[Co\ F_6]^{3-}$
D. $[Cr\ (oxalate)_3]^{3-}$
E. $[Ni\ (CO)_4]$

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513283. $E < A < B < D < C$

71550513284. $A < E < D < C < B$

71550513285. $E < A < D < C < B$

71550513286. $A < E < C < B < D$

Question Number : 70 Question Id : 7155054201 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 Complex		LIST II Crystal Field splitting energy (Δ_0)	
A.	$[Ti(H_2O)_6]^{2+}$	I.	–1.2
B.	$[V(H_2O)_6]^{2+}$	II.	–0.6
C.	$[Mn(H_2O)_6]^{3+}$	III.	0
D.	$[Fe(H_2O)_6]^{3+}$	IV.	-0.8

Choose the correct answer from the options given below:

Options :

71550513287. A-IV, B-I, C-II, D-III

71550513288. A-II, B-IV, C-I, D-III

71550513289. A-IV, B-I, C-III, D-II

71550513290. A-II, B-IV, C-III, D-I

Question Number : 70 Question Id : 7155054201 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 मिलान सूची II से करें

सूची I संकुल		सूची II क्रिस्टल क्षेत्र विपाटन उर्जा (Δ_0)	
A.	$[Ti(H_2O)_6]^{2+}$	I.	–1.2
B.	$[V(H_2O)_6]^{2+}$	II.	–0.6
C.	$[Mn(H_2O)_6]^{3+}$	III.	0
D.	$[Fe(H_2O)_6]^{3+}$	IV.	-0.8

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513287. A-IV, B-I, C-II, D-III

71550513288. A-II, B-IV, C-I, D-III

71550513289. A-IV, B-I, C-III, D-II

71550513290. A-II, B-IV, C-III, D-I

Question Number : 71 Question Id : 7155054202 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 delicate balance of CO_2 and O_2 is NOT disturbed by

Options :

71550513291. Burning of Coal

71550513292. Burning of petroleum

71550513293. Deforestation

71550513294. Respiration

Question Number : 71 Question Id : 7155054202 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

CO_2 एवं O_2 का नाजुक संतुलन प्रभावित नहीं होता है-

Options :

71550513291. कोयले को जलाने से

71550513292. पेट्रोलियम को जलाने से

71550513293. वनों तो काटने से

71550513294. श्वसन से

Question Number : 72 Question Id : 7155054203 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 Carius tube, an organic compound 'X' is treated with sodium peroxide to form a mineral acid 'Y'.

The solution of $BaCl_2$ is added to 'Y' to form a precipitate 'Z'. 'Z' is used for the quantitative estimation of an extra element. 'X' could be

Options :

71550513295. A nucleotide

71550513296. Methionine

71550513297. Cytosine

71550513298. Chloroxylenol

Question Number : 72 Question Id : 7155054203 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

कैरिअस नलिका में एक कार्बनिक यौगिक 'X' को सोडियम परॉक्साइड के साथ उपचारित करने पर एक खनिज अम्ल 'Y' प्राप्त होता है। 'Y' प्राप्त होता है। 'Y' में $BaCl_2$ का विलयन मिलाने पर एक अवक्षेप 'Z' बनता है। 'Z' का उपयोग अतिरिक्त तत्व के मात्रात्मक आकलन में होता है। 'X' हो सकता है:

Options :

71550513295. एक न्यक्लिओटाइड

71550513296. मेथाइओनिन

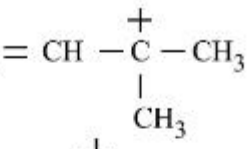
71550513297. साइटोसीन

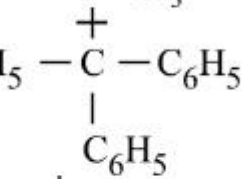
71550513298. क्लोरोज़ाइलिनॉल

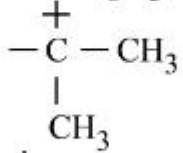
Question Number : 73 Question Id : 7155054204 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

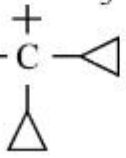
Correct Marks : 4 Wrong Marks : 1

The decreasing order of hydride affinity for following carbocations is:

A. 

B. 

C. 

D. 

Choose the correct answer from the options given below:

Options :

71550513299. C, A, B, D

71550513300. A, C, B, D

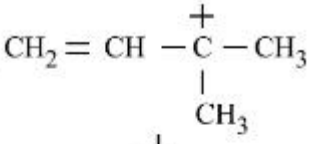
71550513301. A, C, D, B

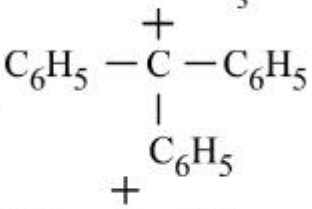
71550513302. C, A, D, B

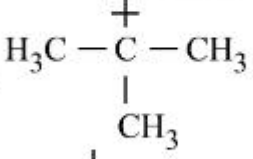
Question Number : 73 Question Id : 7155054204 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

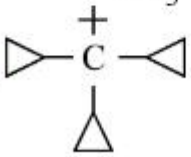
Correct Marks : 4 Wrong Marks : 1

निम्न कार्वधनायनों के लिए 'हाइड्राइड एफीनिटी' का घटता क्रम है:

A. 

B. 

C. 

D. 

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513299. C, A, B, D

71550513300. A, C, B, D

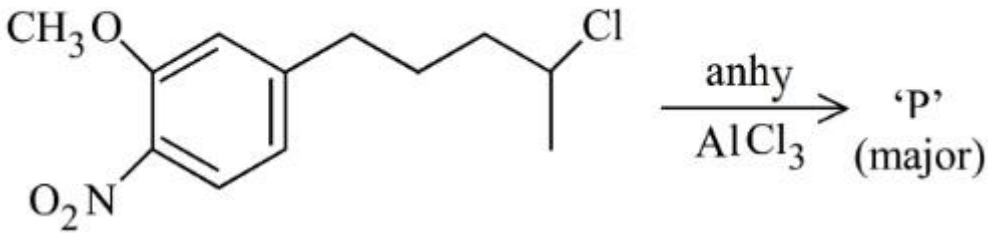
71550513301. A, C, D, B

71550513302. C, A, D, B

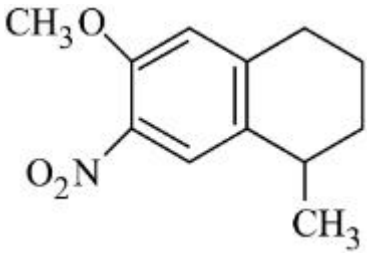
Question Number : 74 Question Id : 7155054205 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

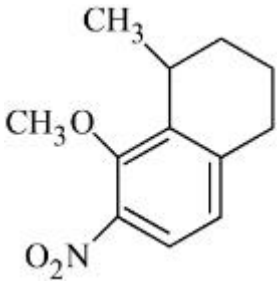
Correct Marks : 4 Wrong Marks : 1

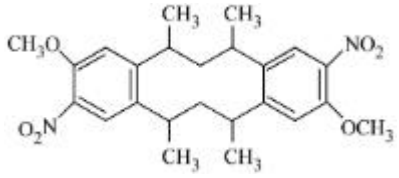
The major product 'P' formed in the given reaction is:

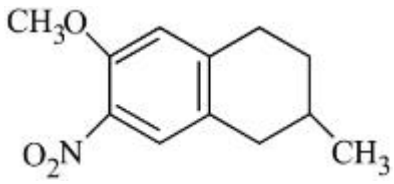


Options :

71550513303. 

71550513304. 

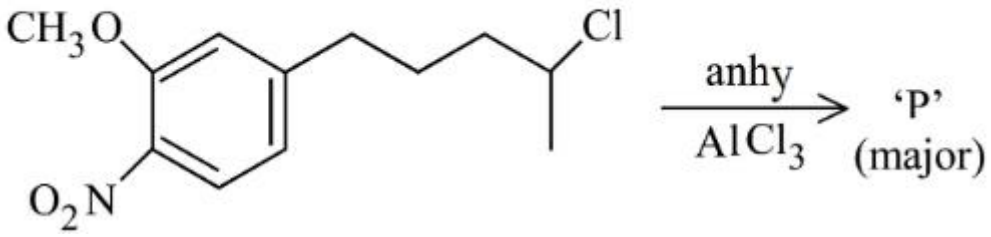
71550513305. 

71550513306. 

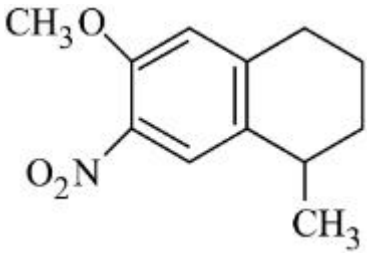
Question Number : 74 Question Id : 7155054205 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

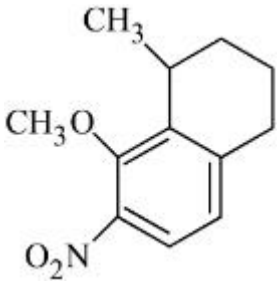
Correct Marks : 4 Wrong Marks : 1

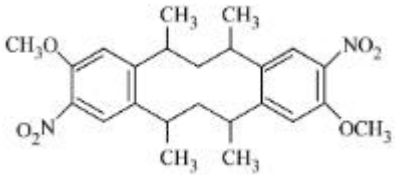
दिए गए अभिक्रिया में मुख्य उत्पाद 'P' है:

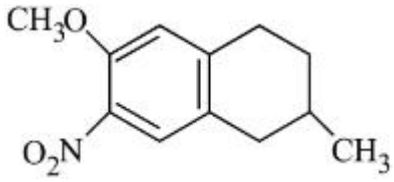


Options :

71550513303. 

71550513304. 

71550513305. 

71550513306. 

Question Number : 75 Question Id : 7155054206 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

Incorrect method of preparation for alcohols from the following is:

Options :

71550513307. Hydroboration-oxidation of alkene.

71550513308. Reaction of Ketone with RMgBr followed by hydrolysis.

71550513309. Ozonolysis of alkene.

71550513310. Reaction of alkyl halide with aqueous NaOH.

Question Number : 75 Question Id : 7155054206 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 ऐल्कोहॉलों के निर्माण की गलत विधि है?

Options :

71550513307. एल्कीन का हाइड्रोबोरेशन-ऑक्सीकरण

71550513308. कीटोन की RMgBr के साथ क्रिया तदुपरान्त जल अपघटन

71550513309. एल्कीन की ओज़ोनोलिसिस

71550513310. ऐल्किन हैलाइड की जलीय NaOH के साथ क्रिया

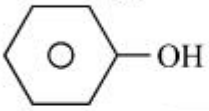
Question Number : 76 Question Id : 7155054207 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

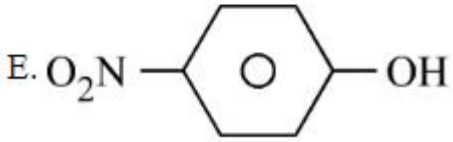
The correct order for acidity of the following hydroxyl compound is :

A. CH_3OH

B. $(CH_3)_3COH$

C. 

D. 

E. 

Choose the correct answer from the options given below:

Options :

71550513311. $E > C > D > A > B$

71550513312. $E > D > C > B > A$

71550513313. $D > E > C > A > B$

71550513314. $C > E > D > B > A$

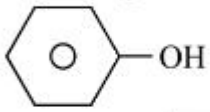
Question Number : 76 Question Id : 7155054207 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

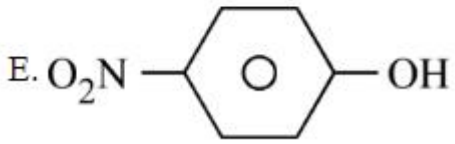
निम्न हाइड्रॉक्सिल यौगिकों के लिए अम्लता का सही क्रम है:

A. CH_3OH

B. $(CH_3)_3COH$

C. 

D. 

E. 

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513311. $E > C > D > A > B$

71550513312. $E > D > C > B > A$

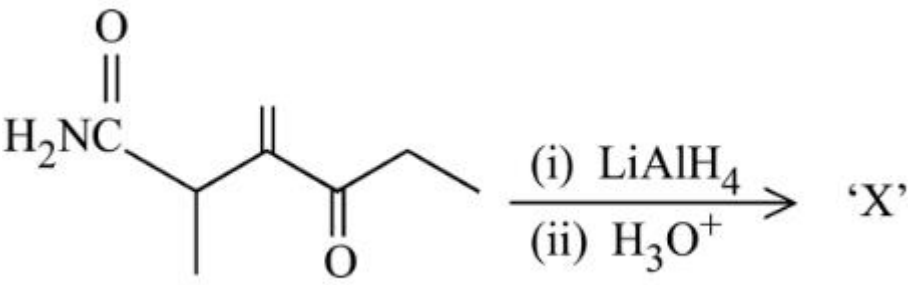
71550513313. $D > E > C > A > B$

71550513314. $C > E > D > B > A$

Question Number : 77 Question Id : 7155054208 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

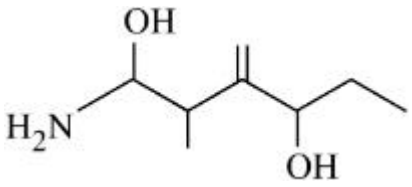
Correct Marks : 4 Wrong Marks : 1

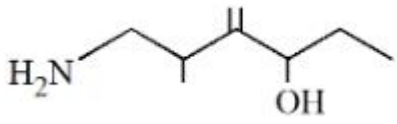
In the reaction given below :

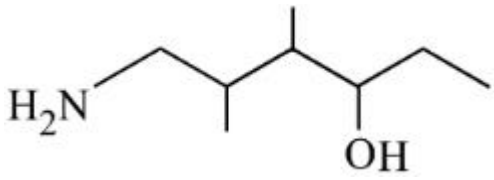


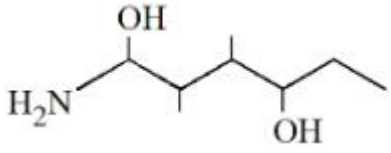
The product 'X' is :

Options :

71550513315. 

71550513316. 

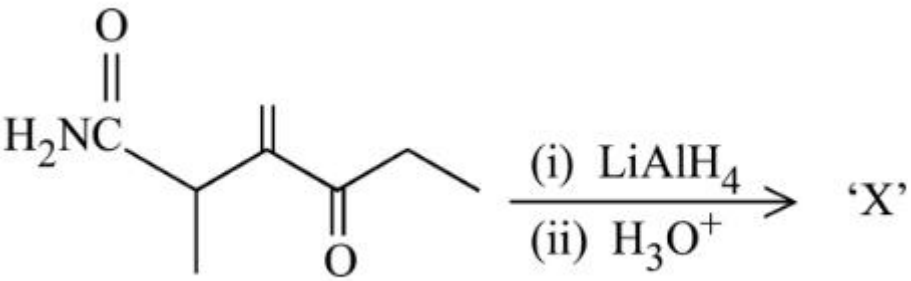
71550513317. 

71550513318. 

Question Number : 77 Question Id : 7155054208 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

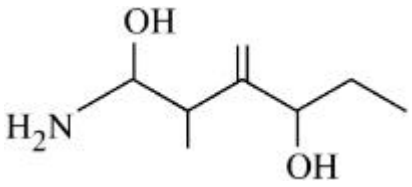
Correct Marks : 4 Wrong Marks : 1

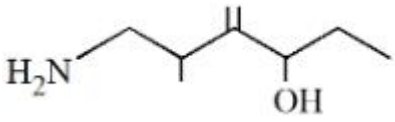
नीचे दी गई अभिक्रिया में:

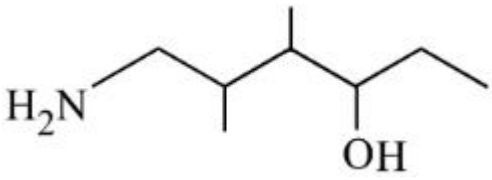


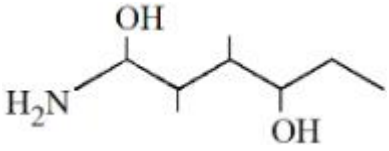
उत्पाद 'X' है:

Options :

71550513315. 

71550513316. 

71550513317. 

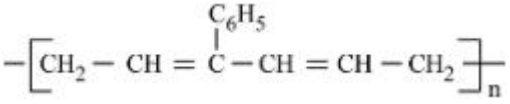
71550513318. 

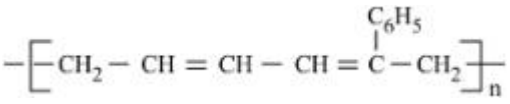
Question Number : 78 Question Id : 7155054209 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

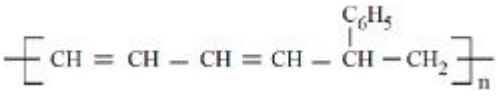
Correct Marks : 4 Wrong Marks : 1

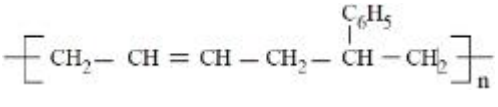
Buna-S can be represented as:

Options :

71550513319. 

71550513320. 

71550513321. 

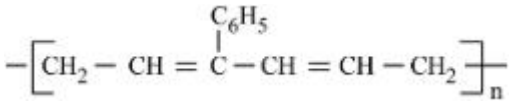
71550513322. 

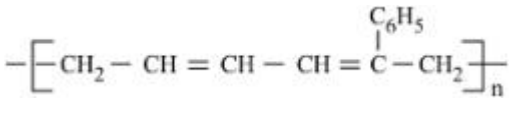
Question Number : 78 Question Id : 7155054209 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

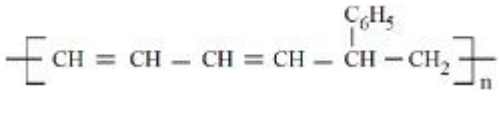
Correct Marks : 4 Wrong Marks : 1

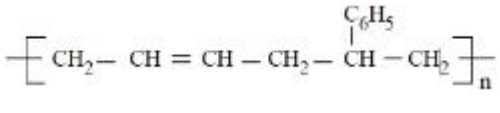
ब्यूना-S को निरुपित किया जा सकता है:

Options :

71550513319. 

71550513320. 

71550513321. 

71550513322. 

Question Number : 79 Question Id : 7155054210 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 reaction used for preparation of soap from fat is :

Options :

71550513323. an addition reaction

71550513324. alkaline hydrolysis reaction

71550513325. an oxidation reaction

71550513326. reduction reaction

Question Number : 79 Question Id : 7155054210 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

वसा से साबुन का निर्माण अभिक्रिया है, एक -

Options :

71550513323. योगात्मक अभिक्रिया

71550513324. क्षारीय जलअपघन अभिक्रिया

71550513325. ऑक्सीकरण अभिक्रिया

71550513326. अपचयन अभिक्रिया

Question Number : 80 Question Id : 7155054211 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 : 3.1500g of hydrated oxalic acid dissolved in water to make 250.0 mL solution will result in 0.1 M oxalic acid solution.

Reason R : Molar mass of hydrated oxalic acid is 126 g mol^{-1}

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

Options :

71550513327. Both **A** and **R** are true and **R** is the correct explanation of **A**

71550513328. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

71550513329. **A** is true but **R** is false

71550513330. **A** is false but **R** is true

Question Number : 80 Question Id : 7155054211 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 है, एक को अभिकथन **A** एवं दूसरे को कारण **R** लिखा गया है।

अभिकथन A : 3.1500g हाइड्रेटेड (जल योजित) ऑक्सैलिक अम्ल को जल में घोलकर 250.0 mL विलयन 0.1 M ऑक्सैलिक अम्ल विलयन प्राप्त हुआ।

कारण R : हाइड्रेटेड ऑक्सैलिक अम्ल का मोलन द्रव्यमान 126 g mol^{-1} है।

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

Options :

71550513327. **A** एवं **R** दोनों सही हैं तथा **A** ही सही व्याख्या **R** है।

71550513328. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513329. A सही है परन्तु R गलत है

71550513330. A गलत है परन्तु R सही है

Chemistry Section B

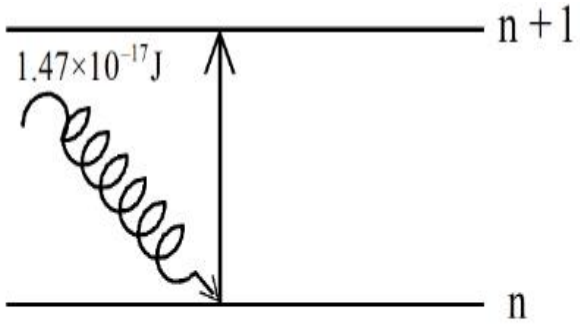
Section Id :	715505258
Section Number :	6
Section type :	Online

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 :	715505258
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 7155054212 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1



The electron in the n^{th} orbit of Li^{2+} is excited to (n + 1) orbit using the radiation of energy 1.47×10^{-17} J (as shown in the diagram). The value of n is _____

Given: $R_H = 2.18 \times 10^{-18}$ J

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

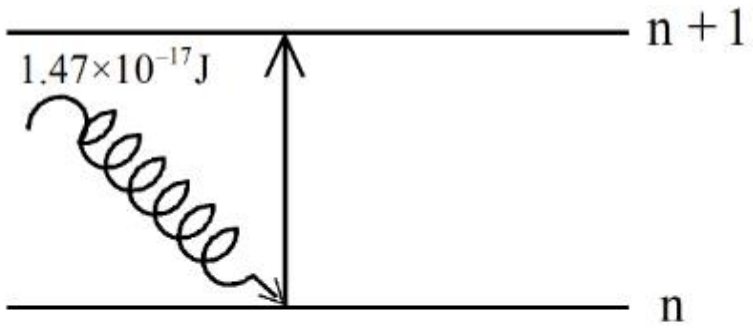
Possible Answers :

10

Question Number : 81 Question Id : 7155054212 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1



Li^{2+} के n^{th} कक्षा में उपस्थित इलेक्ट्रॉन को 1.47×10^{-17} J उर्जा वाली विकिरण के उपयोग से (n + 1) कक्षा में उत्तेजित किया जाता है (जैसा चित्र में दिखाया गया है)। n का मान है

_____

दिया गया है: $R_H = 2.18 \times 10^{-18}$ J

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 82 Question Id : 7155054213 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 from the following which contain only two lone pair of electrons is _____

H_2O , N_2 , CO , XeF_4 , NH_3 , NO , CO_2 , F_2

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 82 Question Id : 7155054213 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 उन अणुओं की संख्या जिनमें इलेक्ट्रानों के केवल दो एककी युग्म उपस्थित है:_____

H_2O , N_2 , CO , XeF_4 , NH_3 , NO , CO_2 , F_2

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 83 Question Id : 7155054214 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 endothermic process/es from the following is _____

A. $I_2\,(g) \rightarrow 2I\,(g)$
B. $HCl\,(g) \rightarrow H(g) + Cl(g)$
C. $H_2O(l) \rightarrow H_2O(g)$
D. $C(s) + O_2\,(g) \rightarrow CO_2\,(g)$
E. Dissolution of ammonium chloride in water

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 83 Question Id : 7155054214 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 उष्माशोषी प्रक्रिया/यों की संख्या है:_____

A. $I_2\,(g) \rightarrow 2I\,(g)$
B. $HCl\,(g) \rightarrow H(g) + Cl(g)$
C. $H_2O(l) \rightarrow H_2O(g)$
D. $C(s) + O_2\,(g) \rightarrow CO_2\,(g)$
E. अमोनियम क्लोराइड का जल में घुलना

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 84 Question Id : 7155054215 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

An aqueous solution of volume 300 cm^3 contains 0.63 g of protein. The osmotic pressure of the solution at 300 K is 1.29 mbar. The molar mass of the protein is _____ $g\ mol^{-1}$

Given: R = 0.083 L bar K^{-1} mol^{-1}

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 84 Question Id : 7155054215 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

जलीय विलयन के 300 cm^3 आयतन में 0.63 g प्रोटीन उपस्थित है। 300 K पर विलयन का परासरण दाब 1.29 mbar है। प्रोटीन का मोलर द्रव्यमान _____ $g\ mol^{-1}$ है।

दिया गया है: $R = 0.083\ L\ bar\ K^{-1}\ mol^{-1}$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 85 Question Id : 7155054216 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$$A(g) \rightleftharpoons 2B(g) + C(g)$$

For the given reaction, if the initial pressure is 450 mm Hg and the pressure at time t is 720 mm Hg at a constant temperature T and constant volume V. The fraction of A(g) decomposed under these conditions is $x \times 10^{-1}$. The value of x is _____ (nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 85 Question Id : 7155054216 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$A(g) \rightleftharpoons 2B(g) + C(g)$

दिए गए अभिक्रिया के लिए, यदि प्रारम्भिक दाब 450 mm Hg है तथा समय t पर स्थिर तापमान T एवं स्थिर आयतन V पर दाब 720 mm Hg है। उपर्युक्त दशाओं में विघटित A(g) का अंश $x \times 10^{-1}$ है। x का मान है _____ (निकटतम पूर्णांक में)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 86 Question Id : 7155054217 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The specific conductance of 0.0025 M acetic acid is 5×10^{-5} S cm^{-1} at a certain temperature. The dissociation constant of acetic acid is _____ $\times 10^{-7}$.
(Nearest integer)

Consider limiting molar conductivity of CH_3COOH as 400 S cm^2 mol^{-1}

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 86 Question Id : 7155054217 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक दिए गए तापमान परस 0.0025 M ऐसिटिक अम्ल की चालकता 5×10^{-5} S cm^{-1} है।
ऐसीटिक अम्ल का वियोजन स्थिरांक _____ $\times 10^{-7}$. (निकटतम पूर्णांक में)
CH_3COOH की सीमांत मोलर चालकता को 400 S cm^2 mol^{-1} मानें

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 87 Question Id : 7155054218 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 incorrect statement/s from the following is _____

A. The successive half lives of zero order reactions decreases with time.
B. A substance appearing as reactant in the chemical equation may not affect the rate of reaction
C. Order and molecularity of a chemical reaction can be a fractional number
D. The rate constant units of zero and second order reaction are mol L^{-1} s^{-1} and mol^{-1} L s^{-1} respectively

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 87 Question Id : 7155054218 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 असत्य कथन/नों की संख्या है:_____

A. शून्य कोटि की अभिक्रिया के लिए उत्तरोत्तर अर्धआयु काल समय के साथ घटता है।
B. रासायनिक समीकरण में दिखने वाला अभिकारक अभिक्रिया की दर को प्रभावित नहीं कर सकता है।
C. किसी रासायनिक अभिक्रिया की कोटि एवं अधिकता अपूर्णांक हो सकते हैं।
D. शून्य कोटि एवं द्वितीय कोटि की अभिक्रिया का वेग स्थिरांक क्रमशः $mol\ L^{-1}\ s^{-1}$ एवं $mol^{-1}\ L\ s^{-1}$ हैं।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 88 Question Id : 7155054219 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The difference in the oxidation state of Xe between the oxidised product of Xe formed on complete hydrolysis of XeF_4 and XeF_4 is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 88 Question Id : 7155054219 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

XeF_4 के पूर्ण जलअपघटन पर प्राप्त ऑक्सीकृत उत्पाद एवं Xe के ऑक्सीकरण संख्याओं का अंतर है:_____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 89 Question Id : 7155054220 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

For a metal ion, the calculated magnetic moment is 4.90 BM. This metal ion has _____ number of unpaired electrons.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 89 Question Id : 7155054220 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

किसी धातु आयन के लिए, परिकलित चुम्बकीय आघूर्ण 4.90 BM है। इस धातु आयन में अयुग्मित इलेक्ट्रॉनों की संख्या है:_____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 90 Question Id : 7155054221 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

In alkaline medium, the reduction of permanganate anion involves a gain of _____ electrons.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 90 Question Id : 7155054221 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

क्षारीय माध्यम में, परमैंगनेट ऋणायन के अपचयन के दौरान _____ इलेक्ट्रॉन प्राप्त किए जाते हैं।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10