National Testing Agency

Question Paper Name :	SET 146
Subject Name :	B TECH
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B E and B Tech

Group Number :	1
Group Id :	71550548
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 :	715505265
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 :	715505265
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 7155054312 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 D be the domain of the function $f(x) = \sin^{-1}\left(\log_{3x}\left(\frac{6+2\log_3 x}{-5x}\right)\right)$.

If the range of the function $g : D \to \mathbb{R}$ defined by $g(x) = x - [x]$, ($[x]$ is the greatest integer function), is (α, β), then $\alpha^2 + \frac{5}{\beta}$ is equal to

Options :

71550513611. 45

71550513612. 46

71550513613. 135

71550513614. 136

Question Number : 1 Question Id : 7155054312 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 फलन $f(x) = \sin^{-1}\left(\log_{3x}\left(\frac{6+2\log_3 x}{-5x}\right)\right)$ का प्राँत D है। यदि
$g(x) = x - [x]$, ([x] महत्तम पूर्णांक फलन है), द्वारा परिभाषित फलन $g : D \to \mathbb{R}$ का
परिसर (α, β) है, तो $\alpha^2 + \frac{5}{\beta}$ बराबर है:

Options :

71550513611. 45

71550513612. 46

71550513613. 135

71550513614. 136

Question Number : 2 Question Id : 7155054313 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 α, β be the roots of the quadratic equation $x^2 + \sqrt{6}x + 3 = 0$. Then
$\frac{\alpha^{23}+\beta^{23}+\alpha^{14}+\beta^{14}}{\alpha^{15}+\beta^{15}+\alpha^{10}+\beta^{10}}$ is equal to

Options :

71550513615. 9

71550513616. 72

71550513617. 81

71550513618. 729

Question Number : 2 Question Id : 7155054313 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 द्विघातीय समीकरण $x^2+\sqrt{6}x+3=0$ के मूल α, β हैं। तो $\dfrac{\alpha^{23}+\beta^{23}+\alpha^{14}+\beta^{14}}{\alpha^{15}+\beta^{15}+\alpha^{10}+\beta^{10}}$ बराबर है:

Options :

71550513615. 9

71550513616. 72

71550513617. 81

71550513618. 729

Question Number : 3 Question Id : 7155054314 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 $A=\begin{bmatrix}1 & \frac{1}{51}\\ 0 & 1\end{bmatrix}$. If $B=\begin{bmatrix}1 & 2\\ -1 & -1\end{bmatrix}A\begin{bmatrix}-1 & -2\\ 1 & 1\end{bmatrix}$, then the sum of all the elements of the matrix $\sum_{n=1}^{50} B^n$ is equal to

Options :

71550513619. 50

71550513620. 75

71550513621. 100

71550513622. 125

Question Number : 3 Question Id : 7155054314 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 $A = \begin{bmatrix} 1 & \frac{1}{51} \\ 0 & 1 \end{bmatrix}$ है। यदि $B = \begin{bmatrix} 1 & 2 \\ -1 & -1 \end{bmatrix} A \begin{bmatrix} -1 & -2 \\ 1 & 1 \end{bmatrix}$ है, तो $\sum_{n=1}^{50} B^n$ के सभी अवयवों का योग है:

Options :

71550513619. 50

71550513620. 75

71550513621. 100

71550513622. 125

Question Number : 4 Question Id : 7155054315 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 number of five digit numbers, greater than 40000 and divisible by 5, which can be formed using the digits 0, 1, 3, 5, 7 and 9 without repetition, is equal to

Options :

71550513623. 72

71550513624. 96

71550513625. 120

71550513626. 132

Question Number : 4 Question Id : 7155054315 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

बिना पुनरावृत्ति के, अंकों 0, 1, 3, 5, 7 तथा 9 के प्रयोग से पाँच अंकों की संख्याओं, जो 40000 से बड़ी हों तथा 5 से विभाज्य हों, की संख्या है:

Options :

71550513623. 72

71550513624. 96

71550513625. 120

71550513626. 132

Question Number : 5 Question Id : 7155054316 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 sum, of the coefficients of the first 50 terms in the binomial expansion of $(1-x)^{100}$, is equal to

Options :

71550513627. ${}^{99}C_{49}$

71550513628. $-{}^{99}C_{49}$

71550513629. ${}^{101}C_{50}$

71550513630. $-{}^{101}C_{50}$

Question Number : 5 Question Id : 7155054316 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

$(1-x)^{100}$ के द्विपद प्रसार में प्रथम 50 पदों के गुणांकों का योग बराबर है:

Options :

71550513627. ${}^{99}C_{49}$

71550513628. $-{}^{99}C_{49}$

71550513629. ${}^{101}C_{50}$

71550513630. $-{}^{101}C_{50}$

Question Number : 6 Question Id : 7155054317 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 $\frac{1}{n+1}\ {}^{n}C_n + \frac{1}{n}\ {}^{n}C_{n-1} + \ldots + \frac{1}{2}\ {}^{n}C_1 + {}^{n}C_0 = \frac{1023}{10}$ then n is equal to

Options :

71550513631. 6

71550513632. 7

71550513633. 8

71550513634. 9

Question Number : 6 Question Id : 7155054317 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 $\frac{1}{n+1}\,{}^{n}C_{n}+\frac{1}{n}\,{}^{n}C_{n-1}+\ldots+\frac{1}{2}\,{}^{n}C_{1}+{}^{n}C_{0}=\frac{1023}{10}$ तो n बराबर है:

Options :

71550513631. 6

71550513632. 7

71550513633. 8

71550513634. 9

Question Number : 7 Question Id : 7155054318 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let C be the circle in the complex plane with centre $z_0=\frac{1}{2}(1+3i)$ and radius $r=1$. Let $z_1=1+i$ and the complex number z_2 be outside the circle C such that $|z_1-z_0|\,|z_2-z_0|=1$. If z_0, z_1 and z_2 are collinear, then the smaller value of $|z_2|^2$ is equal to

Options :

71550513635. $\frac{3}{2}$

71550513636. $\frac{5}{2}$

71550513637. $\frac{7}{2}$

71550513638. $\frac{13}{2}$

Question Number : 7 Question Id : 7155054318 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 सम्मिश्र तल में वृत्त C का केन्द्र $z_0 = \frac{1}{2}(1+3i)$ तथा त्रिज्या $r = 1$ हैं। माना $z_1 = 1 + i$ है तथा वृत्त के बाहर सम्मिश्र संख्या z_2 इस प्रकार है कि $|z_1 - z_0|\,|z_2 - z_0| = 1$ है। यदि z_0, z_1 तथा z_2 संरेख हैं, तो $|z_2|^2$ का छोटा मान बराबर है:

Options :

71550513635. $\frac{3}{2}$

71550513636. $\frac{5}{2}$

71550513637. $\frac{7}{2}$

71550513638.

$\frac{13}{2}$

Question Number : 8 Question Id : 7155054319 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 $< a_n >$ be a sequence such that $a_1 + a_2 + ... + a_n = \frac{n^2 + 3n}{(n+1)(n+2)}$. If $28\sum_{k=1}^{10} \frac{1}{a_k} = p_1 p_2 p_3 \cdots p_m$, where $p_1, p_2, ..., p_m$ are the first m prime numbers, then m is equal to

Options :

71550513639. 5

71550513640. 6

71550513641. 7

71550513642. 8

Question Number : 8 Question Id : 7155054319 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 $< a_n >$ एक अनुक्रम है जिसके लिए $a_1 + a_2 + ... + a_n = \frac{n^2 + 3n}{(n+1)(n+2)}$ है। यदि $28\sum_{k=1}^{10} \frac{1}{a_k} = p_1 p_2 p_3 \cdots p_m$ है, जहाँ $p_1, p_2, ..., p_m$ प्रथम m अभाज्य संख्याएँ है, तो m बराबर है:

Options :

71550513639. 5

71550513640. 6

71550513641. 7

71550513642. 8

Question Number : 9 Question Id : 7155054320 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 local maximum value of the function $f(x)=\left(\frac{\sqrt{3e}}{2\sin x}\right)^{\sin^2 x}$, $x\in\left(0,\frac{\pi}{2}\right)$, is $\frac{k}{e}$, then $\left(\frac{k}{e}\right)^8+\frac{k^8}{e^5}+k^8$ is equal to

Options :

71550513643. $e^5+e^6+e^{11}$

71550513644. $e^3+e^6+e^{10}$

71550513645. $e^3+e^5+e^{11}$

71550513646. $e^3+e^6+e^{11}$

Question Number : 9 Question Id : 7155054320 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 फलन $f(x)=\left(\frac{\sqrt{3e}}{2\sin x}\right)^{\sin^2 x}, x\in\left(0,\frac{\pi}{2}\right)$, का स्थानीय उच्चतम मान $\frac{k}{e}$ है, तो

$\left(\frac{k}{e}\right)^8+\frac{k^8}{e^5}+k^8$ बराबर है:

Options :

71550513643. $e^5+e^6+e^{11}$

71550513644. $e^3+e^6+e^{10}$

71550513645. $e^3+e^5+e^{11}$

71550513646. $e^3+e^6+e^{11}$

Question Number : 10 Question Id : 7155054321 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The area of the region enclosed by the curve $y = x^3$ and its tangent at the point $(-1, -1)$ is

Options :

71550513647. $\frac{19}{4}$

71550513648. $\frac{23}{4}$

71550513649. $\frac{27}{4}$

71550513650.

$\frac{31}{4}$

Question Number : 10 Question Id : 7155054321 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

वक्र $y = x^3$ तथा इसके बिंदु $(-1, -1)$ पर स्पर्श रेखा से घिरे क्षेत्र का क्षेत्रफल है:

Options :

71550513647. $\frac{19}{4}$

71550513648. $\frac{23}{4}$

71550513649. $\frac{27}{4}$

71550513650. $\frac{31}{4}$

Question Number : 11 Question Id : 7155054322 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $y = y(x),\ y > 0$, be a solution curve of the differential equation $(1 + x^2)\, dy = y\,(x - y)\, dx$. If $y(0) = 1$ and $y\left(2\sqrt{2}\right) = \beta$, then

Options :

71550513651.

$e^{\beta^{-1}} = e^{-2}\left(3+2\sqrt{2}\right)$

71550513652. $e^{3\beta^{-1}} = e\left(5+\sqrt{2}\right)$

71550513653. $e^{\beta^{-1}} = e^{-2}\left(5+\sqrt{2}\right)$

71550513654. $e^{3\beta^{-1}} = e\left(3+2\sqrt{2}\right)$

Question Number : 11 Question Id : 7155054322 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 अवकल समीकरण $(1+x^2)\, dy = y\,(x-y)\, dx$ का एक हल वक्र $y = y\,(x),\ y > 0$ है।
यदि $y\,(0) = 1$ तथा $y\left(2\sqrt{2}\right) = \beta$ हैं, तो

Options :

71550513651. $e^{\beta^{-1}} = e^{-2}\left(3+2\sqrt{2}\right)$

71550513652. $e^{3\beta^{-1}} = e\left(5+\sqrt{2}\right)$

71550513653. $e^{\beta^{-1}} = e^{-2}\left(5+\sqrt{2}\right)$

71550513654. $e^{3\beta^{-1}} = e\left(3+2\sqrt{2}\right)$

Question Number : 12 Question Id : 7155054323 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 $P\left(\frac{2\sqrt{3}}{\sqrt{7}}, \frac{6}{\sqrt{7}}\right)$, Q, R and S be four points on the ellipse $9x^2 + 4y^2 = 36$. Let PQ and RS be mutually perpendicular and pass through the origin. If $\frac{1}{(PQ)^2} + \frac{1}{(RS)^2} = \frac{p}{q}$, where p and q are coprime, then $p + q$ is equal to

Options :

71550513655. 137

71550513656. 143

71550513657. 147

71550513658. 157

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Question Number : 12 Question Id : 7155054323 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना दीर्घवृत्त $9x^2 + 4y^2 = 36$ पर चार बिंदु $P\left(\frac{2\sqrt{3}}{\sqrt{7}}, \frac{6}{\sqrt{7}}\right)$, Q, R तथा S हैं। माना रेखाखंड PQ तथा RS परस्पर लंबवत है तथा मूलबिंदु से होकर जाते हैं। यदि $\frac{1}{(PQ)^2} + \frac{1}{(RS)^2} = \frac{p}{q}$, जहाँ p तथा q असहभाज्य हैं, तो $p + q$ बराबर है:

Options :

71550513655. 137

71550513656. 143

71550513657. 147

71550513658. 157

Question Number : 13 Question Id : 7155054324 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 point $\left(\alpha, \frac{7\sqrt{3}}{3}\right)$ lies on the curve traced by the mid-points of the line segments of the lines $x \cos\theta + y \sin\theta = 7$, $\theta \in \left(0, \frac{\pi}{2}\right)$ between the co-ordinates axes, then α is equal to

Options :

71550513659. -7

71550513660. $-7\sqrt{3}$

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71550513661. 7

71550513662. $7\sqrt{3}$

Question Number : 13 Question Id : 7155054324 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

यदि रेखाओं $x \cos\theta + y \sin\theta = 7$, $\theta \in \left(0, \frac{\pi}{2}\right)$ के निर्देशांक अक्षों के बीच रेखाखंडों के मध्य बिंदुओं द्वारा बने वक्र पर एक बिंदु $\left(\alpha, \frac{7\sqrt{3}}{3}\right)$ है, तो α बराबर है:

Options :

71550513659. -7

71550513660. $-7\sqrt{3}$

71550513661. 7

71550513662. $7\sqrt{3}$

Question Number : 14 Question Id : 7155054325 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 plane P: $4x - y + z = 10$ be rotated by an angle $\frac{\pi}{2}$ about its line of intersection with the plane $x + y - z = 4$. If α is the distance of the point $(2, 3, -4)$ from the new position of the plane P, then 35α is equal to

Options :

71550513663. 85

71550513664. 90

71550513665. 105

71550513666. 126

Question Number : 14 Question Id : 7155054325 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 समतल P: $4x - y + z = 10$ को इसकी, समतल $x + y - z = 4$ से प्रतिच्छेदन रेखा के सापेक्ष $\frac{\pi}{2}$ के कोण तक घुमाया जाता है। यदि बिंदु $(2, 3, -4)$ की समतल P की नई स्थिति दूरी α है, तो 35α बराबर है:

Options :

71550513663. 85

71550513664. 90

71550513665. 105

71550513666. 126

Question Number : 15 Question Id : 7155054326 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 lines $l_1 : \frac{x+5}{3} = \frac{y+4}{1} = \frac{z-\alpha}{-2}$ and $l_2 : 3x + 2y + z - 2 = 0 = x - 3y + 2z - 13$ be coplanar. If the point P(a, b, c) on l_1 is nearest to the point Q(-4, -3, 2), then $|a|+|b|+|c|$ is equal to

Options :

71550513667. 8

71550513668. 10

71550513669. 12

71550513670. 14

Question Number : 15 Question Id : 7155054326 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

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माना रेखाएँ $l_1 : \frac{x+5}{3} = \frac{y+4}{1} = \frac{z-\alpha}{-2}$ तथा $l_2 : 3x + 2y + z - 2 = 0 = x - 3y + 2z - 13$ सहलतीय हैं। यदि l_1 पर बिंदु P(a, b, c), बिंदु Q(-4, -3, 2) के निकटतम है, तो $|a| + |b| + |c|$ बराबर है:

Options :

71550513667. 8

71550513668. 10

71550513669. 12

71550513670. 14

Question Number : 16 Question Id : 7155054327 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, b, c be three distinct real numbers, none equal to one. If the vectors $a\hat{i} + \hat{j} + \hat{k}$, $\hat{i} + b\hat{j} + \hat{k}$ and $\hat{i} + \hat{j} + c\hat{k}$ are coplanar, then $\frac{1}{1-a} + \frac{1}{1-b} + \frac{1}{1-c}$ is equal to

Options :

71550513671. -1

71550513672. 1

71550513673. -2

71550513674. 2

Question Number : 16 Question Id : 7155054327 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना a, b, c तीन भिन्न वास्तविक संख्याएँ हैं तथा इनमें से कोई भी एक के बराबर नहीं है। यदि सदिश $a\hat{i}+\hat{j}+\hat{k}$, $\hat{i}+b\hat{j}+\hat{k}$ तथा $\hat{i}+\hat{j}+c\hat{k}$ सहनलीय हैं, तो $\frac{1}{1-a}+\frac{1}{1-b}+\frac{1}{1-c}$ बराबर है:

Options :

71550513671. -1

71550513672. 1

71550513673. -2

71550513674. 2

Question Number : 17 Question Id : 7155054328 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 $\lambda \in \mathbb{Z}, \vec{a} = \lambda\hat{i} + \hat{j} - \hat{k}$ and $\vec{b} = 3\hat{i} - \hat{j} + 2\hat{k}$. Let $\vec{c}$ be a vector such that $(\vec{a}+\vec{b}+\vec{c})\times\vec{c} = \vec{0}, \vec{a}\cdot\vec{c} = -17$ and $\vec{b}\cdot\vec{c} = -20$. Then $\left|\vec{c}\times\left(\lambda\hat{i}+\hat{j}+\hat{k}\right)\right|^2$ is equal to

Options :

71550513675. 46

71550513676. 49

71550513677. 53

71550513678. 62

Question Number : 17 Question Id : 7155054328 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 $\lambda \in \mathbb{Z}, \vec{a} = \lambda\hat{i} + \hat{j} - \hat{k}$ तथा $\vec{b} = 3\hat{i} - \hat{j} + 2\hat{k}$ है। माना $\vec{c}$ के लिए $(\vec{a}+\vec{b}+\vec{c})\times\vec{c} = \vec{0}, \vec{a}\cdot\vec{c} = -17$ तथा $\vec{b}\cdot\vec{c} = -20$ हैं। तो $\left|\vec{c}\times(\lambda\hat{i}+\hat{j}+\hat{k})\right|^2$ बराबर है:

Options :

71550513675. 46

71550513676. 49

71550513677. 53

71550513678. 62

Question Number : 18 Question Id : 7155054329 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 dice A and B are rolled. Let the numbers obtained on A and B be α and β respectively. If the variance of $\alpha - \beta$ is $\frac{p}{q}$, where p and q are co-prime, then the sum of the positive divisors of p is equal to

Options :

71550513679. 31

71550513680. 36

71550513681. 48

71550513682. 72

Question Number : 18 Question Id : 7155054329 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

दो पासे A तथा B फेंको जाते हैं। माना A तथा B पर प्राप्त संख्याएँ α तथा β हैं। यदि $\alpha - \beta$ का प्रसरण $\frac{p}{q}$ है, जहाँ p तथा q असहभाज्य हैं, तो p के धनात्मक भाजकों का योग बराबर है:

Options :

71550513679. 31

71550513680. 36

71550513681. 48

71550513682. 72

Question Number : 19 Question Id : 7155054330 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 triangle ABC, if $\cos A + 2\cos B + \cos C = 2$ and the lengths of the sides opposite to the angles A and C are 3 and 7 respectively, then $\cos A - \cos C$ is equal to

Options :

71550513683. $\frac{3}{7}$

71550513684. $\frac{10}{7}$

71550513685. $\frac{5}{7}$

71550513686. $\frac{9}{7}$

Question Number : 19 Question Id : 7155054330 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 में $\cos A + 2\cos B + \cos C = 2$ है तथा कोणों A तथा C के सम्मुख भुजाओं की लंबाई क्रमशः 3 तथा 7 है, तो $\cos A - \cos C$ बराबर है:

Options :

71550513683. $\frac{3}{7}$

71550513684. $\frac{10}{7}$

71550513685. $\frac{5}{7}$

71550513686. $\frac{9}{7}$

Question Number : 20 Question Id : 7155054331 Question Type : MCQ Option Shuffling : Yes Is

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Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Among the two statements

(S1) : $(p \Rightarrow q) \wedge (p \wedge (\sim q))$ is a contradiction and

(S2) : $(p \wedge q) \vee ((\sim p) \wedge q) \vee (p \wedge (\sim q)) \vee ((\sim p) \wedge (\sim q))$ is a tautology

Options :

71550513687. both are true.

71550513688. both are false.

71550513689. only (S1) is true.

71550513690. only (S2) is true

Question Number : 20 Question Id : 7155054331 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

दो कथनों

$(S_1) : (p \Rightarrow q) \wedge (p \wedge (\sim q))$ एक विरोधोक्ति है तथा

$(S_2) : (p \wedge q) \vee ((\sim p) \wedge q) \vee (p \wedge (\sim q)) \vee ((\sim p) \wedge (\sim q))$ एक पुनरुक्ति है, इनमें से

Options :

71550513687. दोनों सत्य हैं

71550513688. दोनों असत्य हैं

71550513689. केवल (S1) सत्य है

71550513690. केवल (S2) सत्य है

Mathematics Section B

Section Id :	715505266
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 :	715505266
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 7155054332 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 relations, on the set $\{1, 2, 3\}$ containing $(1, 2)$ and $(2, 3)$, which are reflexive and transitive but not symmetric, is ___________.

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 : 7155054332 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

समुच्चय {1, 2, 3} पर संबंधों, जिनमें (1, 2) तथा (2, 3) हैं, तथा जो स्वतुल्य और संक्रामक हैं परन्तु सममित नहीं हैं, 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 : 22 Question Id : 7155054333 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $D_k = \begin{vmatrix} 1 & 2k & 2k-1 \\ n & n^2+n+2 & n^2 \\ n & n^2+n & n^2+n+2 \end{vmatrix}$. If $\sum_{k=1}^{n} D_k = 96$, then n 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 : 7155054333 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $D_k = \begin{vmatrix} 1 & 2k & 2k-1 \\ n & n^2+n+2 & n^2 \\ n & n^2+n & n^2+n+2 \end{vmatrix}$ है। यदि $\sum_{k=1}^{n} D_k = 96$, तो n 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 : 7155054334 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 digits a, b, c be in A. P. Nine-digit numbers are to be formed using each of these three digits thrice such that three consecutive digits are in A.P. at least once. How many such numbers can be formed?

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 : 7155054334 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना तीन अंक a, b, c A. P. में हैं। इनमें से प्रत्यक अंक को तीन बार प्रयोग कर 9 अंकों की संख्याएँ इस प्रकार बनाई जाती हैं कि तीन क्रमागत संख्याएँ कम से कम एक बार A.P. में हों। इस प्रकार की कितनी संख्याएँ बनाई जा सकती हैं?

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 : 7155054335 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 positive numbers a_1, a_2, a_3, a_4 and a_5 be in a G.P. Let their mean and variance be $\frac{31}{10}$ and $\frac{m}{n}$ respectively, where m and n are co-prime. If the mean of their reciprocals is $\frac{31}{40}$ and $a_3 + a_4 + a_5 = 14$, then m + n 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 : 7155054335 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना धनात्मक संख्याएँ a_1, a_2, a_3, a_4 तथा a_5 एक G.P. में हैं। माना इनके माध्य तथा प्रसरण क्रमशः $\frac{31}{10}$ तथा $\frac{m}{n}$ हैं, जहाँ m तथा n असहभाज्य हैं। यदि इन संख्याओं के व्युत्क्रमों का माध्य $\frac{31}{40}$ है तथा $a_3 + a_4 + a_5 = 14$ है, तो $m + n$ 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 : 7155054336 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $[x]$ be the greatest integer $\leq x$. Then the number of points in the interval $(-2, 1)$, where the function $f(x) = |[x]| + \sqrt{x - [x]}$ is discontinuous, 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 : 7155054336 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $[x]$ महत्तम पूर्णांक $\leq x$ है। तो अंतराल $(-2, 1)$ में उन बिंदुओं, जहाँ फलन $f(x) = |[x]| + \sqrt{x - [x]}$ असंतत है, की संख्या है______

Response Type : Numeric

Evaluation Required For SA : Yes

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Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 26 Question Id : 7155054337 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

If $\int_{-0.15}^{0.15} |100x^2 - 1| dx = \frac{k}{3000}$, then k 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 : 7155054337 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि $\int_{-0.15}^{0.15} |100x^2 - 1| dx = \frac{k}{3000}$ है, तो k 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 : 7155054338 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $I(x)=\int\sqrt{\frac{x+7}{x}}\,dx$ and $I(9)=12+7\log_e 7$. If $I(1)=\alpha+7\log_e\left(1+2\sqrt{2}\right)$,

then α^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 : 27 Question Id : 7155054338 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $I(x)=\int\sqrt{\frac{x+7}{x}}\,dx$ तथा $I(9)=12+7\log_e 7$ हैं। यदि

$I(1)=\alpha+7\log_e\left(1+2\sqrt{2}\right)$ है, तो α^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 : 28 Question Id : 7155054339 Question Type : SA Calculator : None

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

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

Two circles in the first quadrant of radii r_1 and r_2 touch the coordinate axes. Each of them cuts off an intercept of 2 units with the line $x+y=2$. Then $r_1^2+r_2^2-r_1r_2$ 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 :** 7155054339 **Question Type :** SA **Calculator :** None

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

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

प्रथम चतुर्थांश में r_1 तथा r_2 त्रिज्या के दो वृत्त निर्देशांक अक्षों को स्पर्श करते हैं। इनमें से प्रत्येक रेखा $x+y=2$ से 2 इकाई का अंतःखंड काटता है। तो $r_1^2+r_2^2-r_1r_2$ 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 :** 7155054340 **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 plane $x+3y-2z+6=0$ meet the co-ordinate axes at the points A, B, C. If the orthocenter of the triangle ABC is $\left(\alpha, \beta, \frac{6}{7}\right)$, then $98(\alpha+\beta)^2$ 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 : 29 Question Id : 7155054340 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना समतल $x + 3y - 2z + 6 = 0$ निर्देशांक अक्षों को बिंदुओं A, B, C पर मिलता है। यदि त्रिभुज ABC का लंबकेन्द्र $\left(\alpha, \beta, \frac{6}{7}\right)$ है, तो $98\,(\alpha+\beta)^2$ 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 : 30 Question Id : 7155054341 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A fair n $(n > 1)$ faces die is rolled repeatedly until a number less than n appears. If the mean of the number of tosses required is $\frac{n}{9}$, then n 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 : 7155054341 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक न्याय n $(n > 1)$ फलकों के पासे को बार बार फेंका जाता है जब तक कि n से कम संख्या प्राप्त न हो जाए। यदि पासे को फेंकने की आवश्यक संख्याओं का माध्य $\frac{n}{9}$ है, तो n 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 :	715505267
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

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Sub-Section Id : 715505267

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 31 Question Id : 7155054342 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 satellites A and B move round the earth in the same orbit. The mass of A is twice the mass of B. The quantity which is same for the two satellites will be

Options :

71550513701. Speed

71550513702. Kinetic energy

71550513703. Potential energy

71550513704. Total energy

Question Number : 31 Question Id : 7155054342 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 एवं B उपग्रह, पृथ्वी के परित: समान कक्षा में परिक्रमण कर रहे हैं। A का द्रव्यमान, B के द्रव्यमान से दोगुना है। दोनों उपग्रहों के लिए जो राशि समान रहेगी, वह है:

Options :

71550513701. चाल

71550513702. गतिज ऊर्जा

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71550513703. स्थितिज ऊर्जा

71550513704. कुल ऊर्जा

Question Number : 32 Question Id : 7155054343 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.	Spring constant	I.	$[T^{-1}]$
B.	Angular speed	II.	$[MT^{-2}]$
C.	Angular momentum	III.	$[ML^{2}]$
D.	Moment of Inertia	IV.	$[ML^{2}T^{-1}]$

Choose the correct answer from the options given below:

Options :

71550513705. A-I, B-III, C-II, D-IV

71550513706. A-II, B-I, C-IV, D-III

71550513707. A-IV, B-I, C-III, D-II

71550513708. A-II, B-III, C-I, D-IV

Question Number : 32 Question Id : 7155054343 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

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सूची I का सूची II से मिलान करें

सूची I		सूची II	
A.	स्प्रिंग नियतांक	I.	$[T^{-1}]$
B.	कोणीय चाल	II.	$[MT^{-2}]$
C.	कोणीय संवेग	III.	$[ML^{2}]$
D.	जडत्वाघूर्ण	IV.	$[ML^{2}T^{-1}]$

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513705. A-I, B-III, C-II, D-IV

71550513706. A-II, B-I, C-IV, D-III

71550513707. A-IV, B-I, C-III, D-II

71550513708. A-II, B-III, C-I, D-IV

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Question Number : 33 Question Id : 7155054344 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I : A truck and a car moving with same kinetic energy are brought to rest by applying breaks which provide equal retarding forces. Both come to rest in equal distance.

Statement II : A car moving towards east takes a turn and moves towards north, the speed remains unchanged. The acceleration of the car is zero.

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

Options :

71550513709. Both Statement I and Statement II are correct.

71550513710. Both Statement I and Statement II are incorrect.

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71550513711. Statement I is correct but Statement II is incorrect.

71550513712. Statement I is incorrect but Statement II is correct.

Question Number : 33 Question Id : 7155054344 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 : समान गतिज ऊर्जा से चल रहे एक ट्रक एवं एक कार को, ब्रेक लगाकर विरामावस्था में लाया जाता है, जबकि ब्रेक समान मंदक बल प्रदान करते हैं। दोनों समान दूरियो तय करने के बाद विरामावस्था में आते हैं।

कथन II : पूरब की तरफ चल रही एक कार मुडती है एवं उत्तर की तरफ चलती है, जबकि उसको चाल अपरिवर्तित रहती है। कार का त्वरण शून्य है।

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

Options :

71550513709. कथन I एवं कथन II दोनों सही हैं।

71550513710. कथन I एवं कथन II दोनों गलत हैं।

71550513711. कथन I सही है परन्तु कथन II गलत है।

71550513712. कथन I गलत है परन्तु कथन II सही है।

Question Number : 34 Question Id : 7155054345 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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Correct Marks : 4 Wrong Marks : 1

The amplitude of 15 sin (1000 πt) is modulated by 10 sin (4 πt) signal. The amplitude modulated signal contains frequencies of

A. 500 Hz
B. 2 Hz
C. 250 Hz
D. 498 Hz
E. 502 Hz

Choose the correct answer from the options given below:

Options :

71550513713. A, D and E only

71550513714. A and B only

71550513715. A and C only

71550513716. A and D only

Question Number : 34 Question Id : 7155054345 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

15 sin (1000 πt) का आयाम, 10 sin (4 πt) के सिग्नल द्वारा मांडुलित किया जाता है।
आयाम मांडुलित सिग्नल में आवृत्तियाँ होंगी।

A. 500 Hz
B. 2 Hz
C. 250 Hz
D. 498 Hz
E. 502 Hz

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513713. केवल A, D एवं E

71550513714. केवल A एवं B

71550513715. केवल A एवं C

71550513716. केवल A एवं D

Question Number : 35 Question Id : 7155054346 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 : When the frequency of an a.c source in a series LCR circuit increases, the current in the circuit first increases, attains a maximum value and then decreases.

Statement II : In a series LCR circuit, the value of power factor at resonance is one.

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

Options :

71550513717. Both Statement I and Statement II are true.

71550513718. Both Statement I and Statement II are False.

71550513719. Statement I is correct but Statement II is false.

71550513720. Statement I is incorrect but Statement II is true.

Question Number : 35 Question Id : 7155054346 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं:

कथन I : जब किसी श्रेणीबद्ध LCR परिपथ में प्रत्यावर्ती स्रोत की आवृत्ति बढ़ाई जाती है, तो परिपथ में धारा पहले बढ़ती है, फिर अधिकतम मान धारण करती है, इसके बाद घटती है।

कथन II : श्रेणीबद्ध LCR परिपथ में, अनुनाद की स्थिति में शक्ति गुणांक का मान एक होता है।

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

Options :

71550513717. कथन I एवं कथन II दोनों सत्य हैं।

71550513718. कथन I एवं कथन II दोनों असत्य हैं।

71550513719. कथन I सत्य है परन्तु कथन II असत्य है।

71550513720. कथन I असत्य है परन्तु कथन II सत्य है।

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Question Number : 36 Question Id : 7155054347 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 escape velocity of a planet to the escape velocity of earth will be:-

Given: Mass of the planet is 16 times mass of earth and radius of the planet is 4 times the radius of earth.

Options :

71550513721. 2:1

71550513722. $1:\sqrt{2}$

71550513723. 4:1

71550513724. 1:4

Question Number : 36 Question Id : 7155054347 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 ग्रह के पलायन वेग का पृथ्वी के पलायन वेग से अनुपात होगा:

दिया है: ग्रह का द्रव्यमान, पृथ्वी के द्रव्यमान का 16 गुना एवं ग्रह की त्रिज्या, पृथ्वी की त्रिज्या की 4 गुनी है।

Options :

71550513721. 2:1

71550513722. $1:\sqrt{2}$

71550513723. 4:1

71550513724. 1:4

Question Number : 37 Question Id : 7155054348 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 body cools from 80℃ to 60℃ in 5 minutes. The temperature of the surrounding is 20℃. The time it takes to cool from 60℃ to 40℃ is:

Options :

71550513725. $\frac{25}{3}$ s

71550513726. 500 s

71550513727. 450 s

71550513728. 420 s

Question Number : 37 Question Id : 7155054348 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 पिण्ड 5 मिनट में 80℃ से 60℃ तक ठंडा होता है। वातावरण का तापमान 20℃ है।
इसे 60℃ से 40℃ तक ठंडा होने में लगा समय है:

Options :

71550513725. $\frac{25}{3}$ s

71550513726. 500 s

71550513727. 450 s

71550513728. 420 s

Question Number : 38 Question Id : 7155054349 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

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An engine operating between the boiling and freezing points of water will have

A. efficiency more than 27%.
B. efficiency less than the efficiency of a Carnot engine operating between the same two temperatures.
C. efficiency equal to 27%
D. efficiency less than 27%

Choose the correct answer from the options given below:

Options :

71550513729. B and C only

71550513730. B and D only

71550513731. A and B only

71550513732. B, C and D only

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Question Number : 38 Question Id : 7155054349 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

पानी के क्वथनांक एवं हिमांक के बीच कार्यरत एक इंजन की:

A. दक्षता 27% से अधिक होगी।
B. दक्षता समान तापमानों बिंदुओं के बीच कार्यरत कार्नो इंजन की दक्षता से कम होगी।
C. दक्षता 27% के बराबर होगी
D. दक्षता 27% से कम होगी

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513729. केवल B एवं C

71550513730. केवल B एवं D

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71550513731. केवल A एवं B

71550513732. केवल B, C एवं D

Question Number : 39 Question Id : 7155054350 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 r. m. s speed of chlorine molecule is 490 m/s at 27℃, the r. m. s speed of argon molecules at the same temperature will be (Atomic mass of argon = 39.9 u, molecular mass of chlorine = 70.9 u)

Options :

71550513733. 451.7 m/s

71550513734. 551.7 m/s

71550513735. 651.7 m/s

71550513736. 751.7 m/s

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Question Number : 39 Question Id : 7155054350 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 27℃ पर क्लोरीन अणु की वर्ग मध्य मूल चाल 490 m/s है। समान तापमान पर ऑर्गन अणु की वर्ग माध्य मूल चाल होगी (ऑर्गन का परमाणु द्रव्यमान = 39.9 u, क्लोरीन का अण्विक द्रव्यमान = 70.9 u)

Options :

71550513733. 451.7 m/s

71550513734. 551.7 m/s

71550513735. 651.7 m/s

71550513736. 751.7 m/s

Question Number : 40 Question Id : 7155054351 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

A particle is executing simple harmonic motion (SHM). The ratio of potential energy and kinetic energy of the particle when its displacement is half of its amplitude will be

Options :

71550513737. 1:4

71550513738. 1:3

71550513739. 2:1

71550513740. 1:1

Question Number : 40 Question Id : 7155054351 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

एक कण सरल आवर्तगति कर रहा है। जब इस कण का विस्थापन, इसके आयाम का आधा है तब इसकी स्थितिज ऊर्जा एवं गतिज ऊर्जा का अनुपात होगा:

Options :

71550513737. 1:4

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71550513738. 1:3

71550513739. 2:1

71550513740. 1:1

Question Number : 41 Question Id : 7155054352 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 : If an electric dipole of dipole moment 30×10^{-5} C m is enclosed by a closed surface, the net flux coming out of the surface will be zero.

Reason R : Electric dipole consists of two equal and opposite charges.

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

Options :

71550513741. Both A and R are true and R is the correct explanation of A

71550513742. Both A and R are true but R is NOT the correct explanation of A

71550513743. A is true but R is false

71550513744. A is false but R is true

Question Number : 41 Question Id : 7155054352 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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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 : यदि 30×10^{-5} C m द्विध्रुव आघूर्ण वाला एक विद्युत द्विध्रुव, किसी बंद पृष्ठ से घिरा है, तो पृष्ठ से निकलने वाले कुल फ्लक्स का मान शून्य होगा।

कारण R : विद्युत द्विध्रुव में दो समान एवं विपरीत आवेश होते हैं।

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

Options :

71550513741. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513742. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513743. A सही है परन्तु R गलत है

71550513744. A गलत है परन्तु R सही है

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Question Number : 42 Question Id : 7155054353 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 wire of resistance 160 Ω is melted and drawn in a wire of one-fourth of its length. The new resistance of the wire will be

Options :

71550513745. 10 Ω

71550513746. 16 Ω

71550513747. 40 Ω

71550513748. 640 Ω

Question Number : 42 Question Id : 7155054353 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

160 Ω प्रतिरोध वाले तार को पिघलाकर इसकी लम्बाई की एक-चौथाई लम्बाई के बराबर का एक तार बनाया जाता है। तार एक नया प्रतिरोध होगा:

Options :

71550513745. 10 Ω

71550513746. 16 Ω

71550513747. 40 Ω

71550513748. 640 Ω

Question Number : 43 Question Id : 7155054354 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Given below are two statements:

Statement I : The diamagnetic property depends on temperature.

Statement II : The induced magnetic dipole moment in a diamagnetic sample is always opposite to the magnetizing field.

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

Options :

71550513749. Both Statement I and Statement II are true.

71550513750. Both Statement I and Statement II are False.

71550513751. Statement I is correct but Statement II is false.

71550513752. Statement I is incorrect but Statement II is true.

Question Number : 43 Question Id : 7155054354 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 गुण, तापमान पर निर्भर करता है।

कथन II : प्रतिचुम्बकीय नमूने में प्रेरित चुम्बकीय द्विध्रुव आघूर्ण, सदैव चुम्बकीय क्षेत्र के विपरीत होता है।

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

Options :

71550513749. कथन I एवं कथन II दोनों सही हैं।

71550513750. कथन I एवं कथन II दोनों गलत हैं।

71550513751. कथन I सही है परन्तु कथन II गलत है।

71550513752. कथन I गलत है परन्तु कथन II सही है।

Question Number : 44 Question Id : 7155054355 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

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A ball is thrown vertically upward with an initial velocity of 150 m/s. The ratio of velocity after 3 s and 5 s is $\frac{x+1}{x}$. The value of x is ______.

{take, $g = 10\ m/s^2$}

Options :

71550513753. 5

71550513754. 6

71550513755. 10

71550513756. –5

Question Number : 44 Question Id : 7155054355 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 गेंद ऊर्ध्वाधर ऊपर की ओर 150 m/s के प्रारम्भिक वेग से फेंकी जाती है। 3 s एवं 5 s के बाद इसके वेगों का अनुपात $\frac{x+1}{x}$ है। x का मान_______ है (यदि, $g = 10\ m/s^2$)

Options :

71550513753. 5

71550513754. 6

71550513755. 10

71550513756. –5

Question Number : 45 Question Id : 7155054356 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Three forces F_1=10 N, F_2=8 N, F_3=6 N are acting on a particle of mass 5 kg. The forces F_2 and F_3 are applied perpendicularly so that particle remains at rest. If the force F_1 is removed, then the acceleration of the particle is:

Options :

71550513757. 2 ms^{-2}

71550513758. 7 ms^{-2}

71550513759. 4.8 ms^{-2}

71550513760. 0.5 ms^{-2}

Question Number : 45 Question Id : 7155054356 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

5 kg द्रव्यमान के एक कण पर F_1=10 N, F_2=8 N एवं F_3=6 N के तीन बल लगे हैं। बल F_2 एवं F_3 लम्बवत है एवं कण पर इस प्रकार आरोपित हैं कि कण विरामावस्था में है। यदि बल F_1 को हटा लिया जाए, तो कण का त्वरण है:

Options :

71550513757. 2 ms^{-2}

71550513758. 7 ms^{-2}

71550513759. 4.8 ms^{-2}

71550513760. 0.5 ms^{-2}

Question Number : 46 Question Id : 7155054357 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

An ice cube has a bubble inside. When viewed from one side the apparent distance of the bubble is 12 cm. When viewed from the opposite side, the apparent distance of the bubble is observed as 4 cm. If the side of the ice cube is 24 cm, the refractive index of the ice cube is

Options :

71550513761. $\frac{6}{5}$

71550513762. $\frac{2}{3}$

71550513763. $\frac{4}{3}$

71550513764. $\frac{3}{2}$

Question Number : 46 Question Id : 7155054357 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 बर्फ के घन के अन्दर एक बुलबुला है। एक तरफ से देखने पर बुलबुले की आभासी दूरी 12 cm है। विपरीत दिशा से देखने पर बुलबुले की दूरी 4 cm प्रतीत होती है। यदि बर्फ के घन की भुजा 24cm है, तो बर्फ के घन का अपवर्तनांक है:

Options :

71550513761. $\frac{6}{5}$

71550513762. $\frac{2}{3}$

71550513763. $\frac{4}{3}$

71550513764. $\frac{3}{2}$

Question Number : 47 Question Id : 7155054358 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 proton and an α-particle are accelerated from rest by 2 V and 4 V potentials, respectively. The ratio of their de-Broglie wavelength is :

Options :

71550513765. 2:1

71550513766. 4:1

71550513767. 8:1

71550513768. 16:1

Question Number : 47 Question Id : 7155054358 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

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एक प्रोटॉन एवं एक α-कण को क्रमशः 2 V एवं 4 V के द्वारा विश्राम से त्वरित किया जाता है। उनकी डी-ब्रॉगली तरंगदैर्ध्यों का अनुपात है:

Options :

71550513765. 2:1

71550513766. 4:1

71550513767. 8:1

71550513768. 16:1

Question Number : 48 Question Id : 7155054359 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 12.5 eV electron beam is used to bombard gaseous hydrogen at room temperature. The number of spectral lines emitted will be:

Options :

71550513769. 1

71550513770. 2

71550513771. 3

71550513772. 4

Question Number : 48 Question Id : 7155054359 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

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कमरे के तापमान पर रखी गैसीय हाइड्रोजन पर 12.5 eV वाली इलेक्ट्रॉन किरण पुँज से बमबारी की जाती है। उत्सर्जित हुई स्पेक्ट्रमी रेखाओं की संख्या होगी:

Options :

71550513769. 1

71550513770. 2

71550513771. 3

71550513772. 4

Question Number : 49 Question Id : 7155054360 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 n-p-n common emitter (CE) transistor the collector current changes from 5 mA to 16 mA for the change in base current from 100 μA and 200 μA, respectively. The current gain of transistor is ________.

Options :

71550513773. 0.9

71550513774. 9

71550513775. 110

71550513776. 210

Question Number : 49 Question Id : 7155054360 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

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n-p-n उभयनिष्ठ उत्सर्जक ट्रांजिस्टर (CE) में आधार धारा में क्रमश: 100 μA से 200 μA तक परिवर्तित होने में संग्राहक धारा का मान 5 mA से 16 mA हो जाता है। ट्रान्जिस्टर का धारा लाभ _______ है।

Options :

71550513773. 0.9

71550513774. 9

71550513775. 110

71550513776. 210

Question Number : 50 Question Id : 7155054361 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 : EM waves used for optical communication have longer wavelengths than that of microwave, employed in Radar technology.

Reason R : Infrared EM waves are more energetic than microwaves, (used in Radar)

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

Options :

71550513777. Both A and R are true and r is the correct explanation of A

71550513778. Both A and R are true but R is NOT the correct explanation of A

71550513779. A is true but R is false

71550513780. A is false but R is true

Question Number : 50 Question Id : 7155054361 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 : प्रकाशिक (ऑपटिकल) संचार में प्रयुक्त EM तरंग का तरंगदैर्ध्य, राडार तकनीक में प्रयुक्त सूक्ष्मतरंगों के तरंगदैर्ध्य से बडा होता है।

कारण R : अवरक्त वैद्युतचुंबकीय तरंगों की ऊर्जा राडार में प्रयुक्त सूक्ष्म तरंगों की ऊर्जा से अधिक होती है।

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

Options :

71550513777. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513778. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513779. A सही है परन्तु R गलत है

71550513780. A गलत है परन्तु R सही है

Physics Section B

Section Id :	715505268
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 : 715505268

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 51 Question Id : 7155054362 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A compass needle oscillates 20 times per minute at a place where the dip is 30° and 30 times per minute where the dip is 60°. The ratio of total magnetic field due to the earth at two places respectively is $\frac{4}{\sqrt{x}}$. 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 : 51 Question Id : 7155054362 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

किसी स्थान पर कम्पास की सूई प्रति मिनट 20 दोलन करती है, जहाँ नमन कोण 30° है, एवं प्रतिमिनट 30 दोलन की स्थिति में नमन कोण 60° है। दोनों स्थानों पर पृथ्वी के कुल चुम्बकीय क्षेत्रों का अनुपात $\frac{4}{\sqrt{x}}$ 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 : 52 Question Id : 7155054363 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

To maintain a speed of 80 km/h by a bus of mass 500 kg on a plane rough road for 4 km distance, the work done by the engine of the bus will be _________ KJ. [The coefficient of friction between tyre of bus and road is 0.04.]

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 : 7155054363 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

किसी खुरदरे तल वाली सड़क पर 4 km की दूरी तक, 500 kg द्रव्यमान वाली बस के द्वारा 80 km/h की चाल को बनाये रखने के लिए, बस के इंजन द्वारा किया गया कार्य _________ kJ है [बस के पहियों एवं सडक के बीच का घर्षण गुणांक 0.04 है]।

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 : 7155054364 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 rolling spherical shell, the ratio of rotational kinetic energy and total kinetic energy is $\frac{x}{5}$. 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

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Question Number : 53 Question Id : 7155054364 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

लढ़काते हुए खोखले गोलक के लिए, घूर्णन गतिज ऊर्जा एवं कुल गतिज ऊर्जा का अनुपात $\frac{x}{5}$ 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 : 7155054365 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Glycerin of density 1.25×10^3 kg m^{-3} is flowing through the conical section of pipe. The area of cross-section of the pipe at its ends are 10 cm^2 and 5 cm^2 and pressure drop across its length is 3 Nm^{-2}. The rate of flow of glycerin through the pipe is $x\times10^{-5}$ m^{3}s^{-1}. 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 : 54 Question Id : 7155054365 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

1.25×10^3 kg m^{-3} घनत्व वाली ग्लिसरीन, एक नली के शंक्वाकार भाग में प्रवाहित हो रही है। नली के अंतिम सिरों के अनुप्रस्थ काट का क्षेत्रफल 10 cm^2 एवं 5 cm^2 है, एवं इसके सिरों पर दाबान्तर 3 Nm^{-2} है। नली के अन्दर ग्लिसरीन के प्रवाह की दर $x\times10^{-5}$ m^{3}s^{-1} 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 : 55 Question Id : 7155054366 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

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For a certain organ pipe, the first three resonance frequencies are in the ratio of 1:3:5 respectively. If the frequency of fifth harmonic is 405 Hz and the speed of sound in air is 324 ms^{-1} the length of the organ pipe is _____ m

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 : 7155054366 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

किसी विशेष अनुनाद नली के लिए, पहली तीन अनुनादी आवृत्तियों का अनुपात क्रमशः 1:3:5 है। यदि पांचवी गुणावृत्ति की आवृत्ति 405 Hz है, एवं हवा में ध्वनी की चाल 324 ms^{-1} है, तो अनुनाद नली की लम्बाई _____ m है।

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 : 7155054367 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

64 identical drops each charged upto potential of 10 mV are combined to form a bigger drop. The potential of the bigger drop will be ______ mV.

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 : 7155054367 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

64 एकसमान बूँदें जिनमें प्रत्येक को 10 mV तक आवेशित किया गया है, को मिश्रित करके एक बड़ी बूँद बनायी गई है। बडी बूँद का विभव ______ mV होगा।

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 : 7155054368 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The current flowing through a conductor connected across a source is 2 A and 1.2 A at 0℃ and 100℃ respectively. The current flowing through the conductor at 50℃ will be ________ $\times 10^2$ mA.

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 : 7155054368 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

किसी स्रोत के सिरों से जुड़े चालक में 0℃ एवं 100℃ पर क्रमशः 2 A एवं 1.2 A की धारा प्रवाहित होती है। 50℃ पर चालक में प्रवाहित धारा का मान ________ $\times 10^2$ mA होगा।

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 : 7155054369 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A conducting circular loop is placed in a uniform magnetic field of 0.4 T with its plane perpendicular to the field. Somehow, the radius of the loop starts expanding at a constant rate of 1 mm/s. The magnitude of induced emf in the loop at an instant when the radius of the loop is 2 cm will be ________ μV.

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 : 7155054369 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक चालक वृत्ताकार घेरा, 0.4 T के एकसमान चुम्बकीय क्षेत्र में इस प्रकार रखा है कि इसका तल क्षेत्र के लम्बवत है। किसी प्रकार, घेरे की त्रिज्या 1 mm/s की दर से बढ़ती है। जिस समय घेरे की त्रिज्या 2 cm है, उस क्षण पर घेरे में प्रेरित विद्युत वाहक बल का परिमाण ________ μV होगा।

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 : 7155054370 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Two convex lenses of focal length 20 cm each are placed coaxially with a separation of 60 cm between them. The image of the distant object formed by the combination is at ______ cm from the first lens.

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 : 7155054370 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

20 cm फोकस दूरी वाले दो उत्तल लैंस, एक उभनिष्ठ अक्ष पर एक-दूसरे से 60 cm की दूरी पर रखे हैं। दूर रखी वस्तु का, संयोजन द्वारा बना प्रतिबिम्ब पहले लैंस से ______ cm दूरी पर बनेगा।

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 : 7155054371 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A common example of alpha decay is

$$^{238}_{92}U \longrightarrow ^{234}_{90}Th + {}_2He^4 + Q$$

Given :

$$^{238}_{92}U = 238.05060\,u,$$

$$^{234}_{90}Th = 234.04360\,u,$$

$$^{4}_{2}He = 4.00260\,u \text{ and}$$

$$1u = 931.5\,\frac{MeV}{c^2}$$

The energy released (Q) during the alpha decay of $^{238}_{92}U$ is ____ MeV

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 : 7155054371 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

ऐल्फा क्षय का साधारण उदाहरण है

$$^{238}_{92}U \longrightarrow ^{234}_{90}Th + {}_2He^4 + Q$$

दिया है:

$^{238}_{92}U = 238.05060\,u,$

$^{234}_{90}Th = 234.04360\,u,$

$^{4}_{2}He = 4.00260\,u$ एवं

$1u = 931.5\,\frac{MeV}{c^2}$

$^{238}_{92}U$ के ऐल्फा क्षय के दौरान मुक्त हुई ऊर्जा (Q) ____ MeV है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

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Chemistry Section A

Section Id :	715505269
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	Yes

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Clear Response :

Maximum Instruction Time : 0

Sub-Section Number : 1

Sub-Section Id : 715505269

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 61 Question Id : 7155054372 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 metal chloride contains 55.0% of chlorine by weight . 100 mL vapours of the metal chloride at STP weigh 0.57 g. The molecular formula of the metal chloride is
(Given: Atomic mass of chlorine is 35.5u)

Options :

71550513791. MCl

71550513792. MCl_2

71550513793. MCl_3

71550513794. MCl_4

Question Number : 61 Question Id : 7155054372 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 धातु क्लोराइड में भार के अनुसार 55.0% क्लोरीन उस्थित है। STP पर धातु क्लोराइड के 100 mL वाष्प का भार 0.57 g है। धातु क्लोराइड का अणु सूत्र है (दिया गया है: क्लोरिन परमाणु द्रव्यमान 35.5u है)

Options :

71550513791. MCl

71550513792. MCl_2

71550513793. MCl_3

71550513794. MCl_4

Question Number : 62 Question Id : 7155054373 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 bond order and magnetic property of acetylide ion are same as that of

Options :

71550513795. O_2^+

71550513796. N_2^+

71550513797. NO^+

71550513798. O_2^-

Question Number : 62 Question Id : 7155054373 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

ऐसिटिलाइड आयन की आबन्ध कोटि एवं चुम्बकीय आघूर्ण किसके समान है?

Options :

71550513795. O_2^+

71550513796. N_2^+

71550513797. NO^+

71550513798. O_2^-

Question Number : 63 Question Id : 7155054374 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 lead storage battery pick the correct statements

A. During charging of battery, $PbSO_4$ on anode is converted into PbO_2
B. During charging of battery, $PbSO_4$ on cathode is converted into PbO_2
C. Lead storage battery consists of grid of lead packed with PbO_2 as anode
D. Lead storage battery has $\sim 38\%$ solution of sulphuric acid as an electrolyte

Choose the correct answer from the options given below:

Options :

71550513799. A, B, D only

71550513800. B, D only

71550513801. B, C only

71550513802. B, C, D only

Question Number : 63 Question Id : 7155054374 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

लेड संचायक बैटरी के संदर्भ में, सही कथनों को चुनें:

A. बैटरी के चार्जिंग के दौरान, एनोड पर $PbSO_4$ परिवर्तित होता है PbO_2 में।
B. बैटरी के चार्जिंग के दौरान, कैथोड पर $PbSO_4$ परिवर्तित होता है PbO_2 में।
C. लेड संचायक बैटरी में लेड का एक ग्रिड होता है जिसमें भरा हुआ PbO_2 एनोड का कार्य करता है।
D. लेड संचायक बैटरी में विद्युत अपघटय के रूप में ~ 38% सल्फ्यूरिक अम्ल होता है।

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513799. केवल A, B, D

71550513800. केवल B, D

71550513801. केवल B, C

71550513802. केवल B, C, D

Question Number : 64 Question Id : 7155054375 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

Four gases A, B, C and D have critical temperatures 5.3, 33.2, 126.0 and 154.3K respectively.

For their adsorption on a fixed amount of charcoal, the correct order is:

Options :

71550513803. D > C > B > A

71550513804. D > C > A > B

71550513805. C > D > B > A

71550513806. C > B > D > A

Question Number : 64 Question Id : 7155054375 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

चार गैसों A, B, C एवं D का क्रान्तिक तापमान क्रमशः 5.3, 33.2, 126.0 एवं 154.3K है।

चारकोल के सीमित मात्रा पर उनके अधिशोषण का सही क्रम है:

Options :

71550513803. D > C > B > A

71550513804. D > C > A > B

71550513805. C > D > B > A

71550513806. C > B > D > A

Question Number : 65 Question Id : 7155054376 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 density of alkali metals is in the order

Options :

71550513807. K < Na < Rb < Cs

71550513808. Na < K < Cs < Rb

71550513809. $K < Cs < Na < Rb$

71550513810. $Na < Rb < K < Cs$

Question Number : 65 Question Id : 7155054376 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

क्षार धातुओं के घनत्व का क्रम है:

Options :

71550513807. $K < Na < Rb < Cs$

71550513808. $Na < K < Cs < Rb$

71550513809. $K < Cs < Na < Rb$

71550513810. $Na < Rb < K < Cs$

Question Number : 66 Question Id : 7155054377 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 : In the Ellingham diagram, a sharp change in slope of the line is observed for $Mg \rightarrow MgO$ at ~ 1120 °C

Reason R: There is a large change of entropy associated with the change of state

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

Options :

71550513811. Both **A** and **R** are true and **R** is the correct explanation of **A**

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71550513812. Both **A** and **R** are true but **R** is NOT the correct explanation of **A**

71550513813. **A** is true but **R** is false

71550513814. **A** is false but **R** is true

Question Number : 66 Question Id : 7155054377 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 : एलिंघम चित्र में ~ 1120 °C
पर Mg →MgO के लिए रेखा के ढ़ाल में तीव्र परिवर्तन देखा गया है।

कारण R: अवस्था में परिवर्तन के साथ एन्ट्रॉपी में बड़ा परिवर्तन जुडा है।

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

Options :

71550513811. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513812. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513813. A सही है परन्तु R गलत है

71550513814. A गलत है परन्तु R सही है

Question Number : 67 Question Id : 7155054378 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum

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Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Match List I with List II

LIST I Type of Hydride		LIST II Example	
A.	Electron deficient hydride	I.	MgH_2
B.	Electron rich hydride	II.	HF
C.	Electron precise hydride	III.	B_2H_6
D.	Saline hydride	IV.	CH_4

Choose the correct answer from the options given below:

Options :

71550513815. A-II, B-III, C-I, D-IV

71550513816. A-II, B-III, C-IV, D-I

71550513817. A-III, B-II, C-IV, D-I

71550513818. A-III, B-II, C-I, D-IV

Question Number : 67 Question Id : 7155054378 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 सूची II से मिलान करें

सूची I हाइड्राइड का प्रकार		सूची II उदाहरण	
A.	इलेक्ट्रॉन न्यून हाइड्राइड	I.	MgH_2
B.	इलेक्ट्रॉन समृद्ध हाइड्राइड	II.	HF
C.	इलेक्ट्रॉन परिशुद्ध हाइड्राइड	III.	B_2H_6
D.	लवणीय हाइड्राइड	IV.	CH_4

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513815. A-II, B-III, C-I, D-IV

71550513816. A-II, B-III, C-IV, D-I

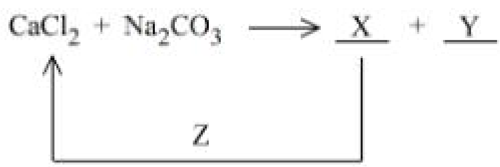
71550513817. A-III, B-II, C-IV, D-I

71550513818. A-III, B-II, C-I, D-IV

Question Number : 68 Question Id : 7155054379 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

In the given reaction cycle



X, Y and Z respectively are

Options :

	X	Y	Z
71550513819.	CaO	$NaCl + CO_2$	NaCl

	X	Y	Z
71550513820.	CaO	$NaCl + CO_2$	KCl

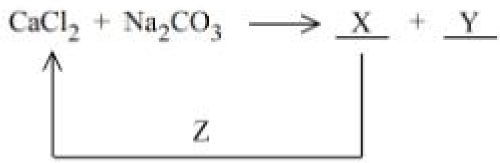
	X	Y	Z
71550513821.	$CaCO_3$	NaCl	HCl

	X	Y	Z
71550513822.	$CaCO_3$	NaCl	KCl

Question Number : 68 Question Id : 7155054379 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 के लिए



X, Y एवं Z हैं, क्रमश:

Options :

71550513819.

X	Y	Z
CaO	$NaCl + CO_2$	$NaCl$

71550513820.

X	Y	Z
CaO	$NaCl + CO_2$	KCl

71550513821.

X	Y	Z
$CaCO_3$	$NaCl$	HCl

71550513822.

X	Y	Z
$CaCO_3$	$NaCl$	KCl

Question Number : 69 Question Id : 7155054380 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

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Given below are two statements:

Statement I : Boron is extremely hard indicating its high lattice energy

Statement II : Boron has highest melting and boiling point compared to its other group members.

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

Options :

71550513823. Both statement I and Statement II are correct

71550513824. Both Statement I and Statement II are incorrect

71550513825. Statement I is correct but Statement II is incorrect

71550513826. Statement I is incorrect but Statement II is correct

Question Number : 69 Question Id : 7155054380 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 : बोरॉन अत्यधिक कठोर है जो इसके उच्च जालक उर्जा को इंगित करता है।

कथन II : समूह के अन्य सदस्यों की तुलना में बोरॉन का गलनांक एवं क्वथनांक सर्वाधिक है।

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

Options :

71550513823. कथन I एवं कथन II दोनों सही हैं।

71550513824. कथन I एवं कथन II दोनों गलत हैं।

71550513825. कथन I सही है परन्तु कथन II गलत है।

71550513826. कथन I गलत है परन्तु कथन II सही है।

Question Number : 70 Question Id : 7155054381 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 : $SbCl_5$ is more covalent than $SbCl_3$

Statement II: The higher oxides of halogens also tend to be more stable than the lower ones.

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

Options :

71550513827. Both statement I and Statement II are correct

71550513828. Both Statement I and Statement II are incorrect

71550513829. Statement I is correct but Statement II is incorrect

71550513830. Statement I is incorrect but Statement II is correct

Question Number : 70 Question Id : 7155054381 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

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नीचे दो कथन दिए गए हैं:

कथन I : $SbCl_3$ की तुलना में $SbCl_5$ अधिक सहसंयोजी है।

कथन II: हेलोजनों के उच्च आक्साइड निम्न की तुलना में अधिक स्थायी होते हैं।

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

Options :

71550513827. कथन I एवं कथन II दोनों सही हैं।

71550513828. कथन I एवं कथन II दोनों गलत हैं।

71550513829. कथन I सही है परन्तु कथन II गलत है।

71550513830. कथन I गलत है परन्तु कथन II सही है।

Question Number : 71 Question Id : 7155054382 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 statement: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: 5f electrons can participate in bonding to a far greater extent than 4f electrons

Reason R: 5f orbitals are not as buried as 4f orbitals

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

Options :

71550513831. Both **A** and **R** are true and **R** is the correct explanation of **A**

71550513832. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

71550513833. **A** is true but **R** is false

71550513834. **A** is false but **R** is true

Question Number : 71 Question Id : 7155054382 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: 4f इलेक्ट्रॉनों की तुलना में 5f इलेक्ट्रॉन आबन्धन में अधिक मात्रा में भाग ले सकते हैं।

कारण R: 5f कथक उतने नहीं घंसे हुए होते हैं जितने कि 4f कक्षक।

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

Options :

71550513831. A एवं R दोनों सही हैं तथा A की सही व्याख्या R है

71550513832. A एवं R दोनों सही हैं तथा A की सही व्याख्या R नहीं है

71550513833. A सही है परन्तु R गलत है

71550513834. A गलत है परन्तु R सही है

Question Number : 72 Question Id : 7155054383 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

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Match List I with List II

LIST I Complex		LIST II CFSE (Δ_o)	
A.	$[Cu(NH_3)_6]^{2+}$	I.	− 0.6
B.	$[Ti(H_2O)_6]^{3+}$	II.	− 2.0
C.	$[Fe(CN)_6]^{3-}$	III.	− 1.2
D.	$[Ni\,F_6]^{4-}$	IV.	− 0.4

Choose the correct answer from the options given below:

Options :

71550513835. A-III, B-IV, C-I, D-II

71550513836. A-I, B-IV, C-II, D-III

71550513837. A-II, B-III, C-I, D-IV

71550513838. A-I, B-II, C-IV, D-III

Question Number : 72 Question Id : 7155054383 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 संकुल		सूची II CFSE (Δ_o)	
A.	$[Cu(NH_3)_6]^{2+}$	I.	− 0.6
B.	$[Ti(H_2O)_6]^{3+}$	II.	− 2.0
C.	$[Fe(CN)_6]^{3-}$	III.	− 1.2
D.	$[Ni\,F_6]^{4-}$	IV.	− 0.4

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513835. A-III, B-IV, C-I, D-II

71550513836. A-I, B-IV, C-II, D-III

71550513837. A-II, B-III, C-I, D-IV

71550513838. A-I, B-II, C-IV, D-III

Question Number : 73 Question Id : 7155054384 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.	Nitrogen oxides in air	I.	Eutrophication
B.	Methane in air	II.	pH of rain water becomes 5.6
C.	Carbon dioxide	III.	Global warming
D.	Phosphate fertilisers in water	IV.	Acid rain

Choose the correct answer from the options given below:

Options :

71550513839. A-I, B-II, C-III, D-IV

71550513840. A-II, B-III, C-I, D-IV

71550513841. A-IV, B-III, C-II, D-I

71550513842. A-IV, B-II, C-III, D-I

Question Number : 73 Question Id : 7155054384 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

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Correct Marks : 4 Wrong Marks : 1

सूची I का मिलान सूची II से करें

	सूची I		सूची II
A.	वायु में नाइट्रोजन आक्साइड्स	I.	सुपोषण (यूट्रोफिकेशन)
B.	वायु में मेथेन	II.	वर्षा जल का pH 5.6 हो जाता है
C.	कार्बन हाइऑक्साइड	III.	ग्लोबल वार्मिंग (भूमंडलीय तापवृद्धि)
D.	जल में फ़ास्फेट उर्वरक	IV.	अम्ल वर्षा

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513839. A-I, B-II, C-III, D-IV

71550513840. A-II, B-III, C-I, D-IV

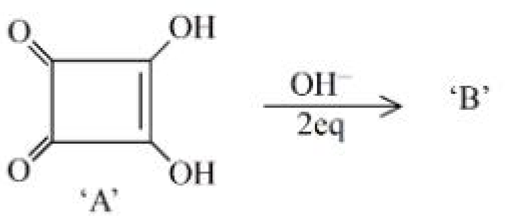
71550513841. A-IV, B-III, C-II, D-I

71550513842. A-IV, B-II, C-III, D-I

Question Number : 74 Question Id : 7155054385 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

Correct statements for the given reaction are :



A. Compound 'B' is aromatic
B. The completion of above reaction is very slow
C. 'A' shows tautomerism
D. The bond lengths of C-C in compound B are found to be same

Choose the correct answer from the options given below:

Options :

71550513843. A, B and C only

71550513844. B, C and D only

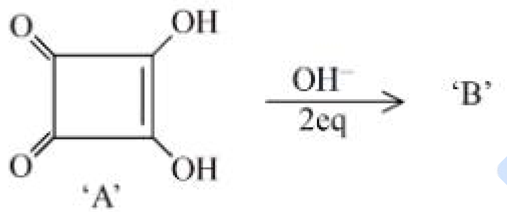
71550513845. A, C and D only

71550513846. A, B and D only

Question Number : 74 Question Id : 7155054385 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 के लिए



A. यौगिक 'B' ऐरोमैटिक है
B. उपर्युक्त अभिक्रिया की पूर्णता अव्यन्त धीमी है
C. 'A' चलावयवता प्रदर्शित करता है
D. यौगिक B में C-C की लम्बाई समान पायी गई हैं

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513843. केवल A, B और C

71550513844. केवल B, C और D

71550513845. केवल A, C और D

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71550513846. केवल A, B और D

Question Number : 75 Question Id : 7155054386 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

$$\text{2-hexene} \xrightarrow[\text{(ii) } H_2O]{\text{(i) } O_3} \text{Products}$$

The two products formed in above reaction are -

Options :

71550513847. Butanoic acid and acetic acid

71550513848. Butanal and acetaldehyde

71550513849. Butanoic acid and acetaldehyde

71550513850. Butanal and acetic acid

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Question Number : 75 Question Id : 7155054386 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

$$\text{2-hexene} \xrightarrow[\text{(ii) } H_2O]{\text{(i) } O_3} \text{Products}$$

उपर्युक्त अभिक्रिया में निर्मित दो उत्पाद है -

Options :

71550513847. ब्यूटनॉइक अम्ल और ऐसीटिक अम्ल

71550513848. ब्यूटनैल और ऐसीयैल्डिहाइड

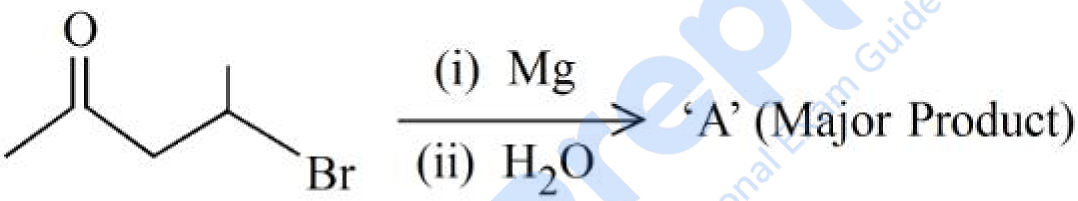
71550513849. ब्यूटेनॉइक अम्ल और ऐसीटैल्डिहाइड

71550513850. ब्यूटेनैल और ऐसीटिक अम्ल

Question Number : 76 Question Id : 7155054387 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

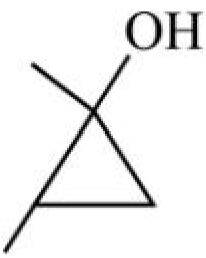
Correct Marks : 4 Wrong Marks : 1

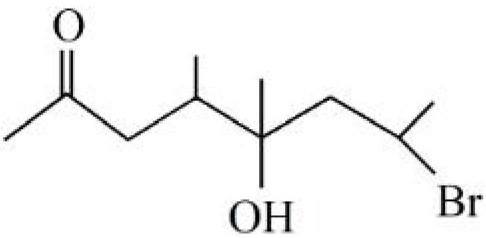
In the following reaction



A is

Options :

71550513851. 

71550513852. 

71550513853.

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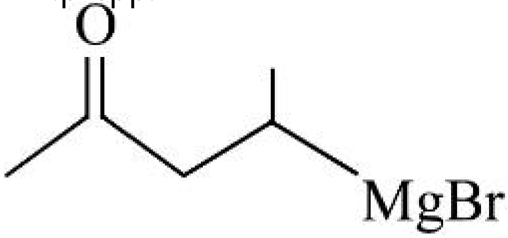
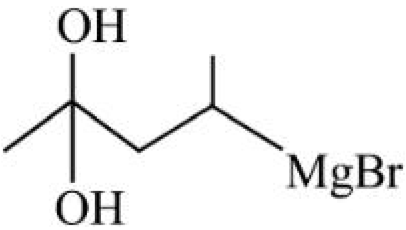
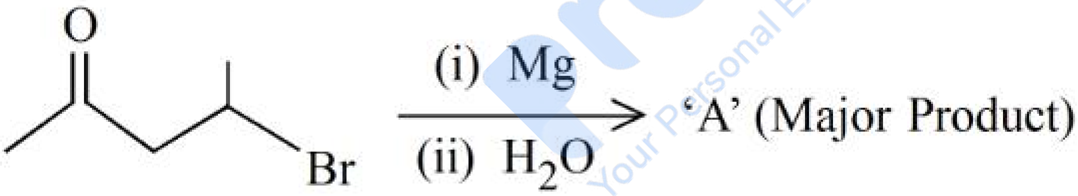


71550513854. 

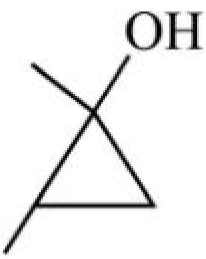
Question Number : 76 Question Id : 7155054387 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

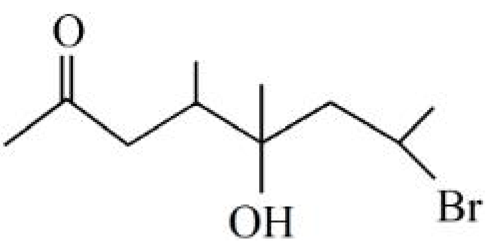
Correct Marks : 4 Wrong Marks : 1

निम्न अभिक्राय में A है:

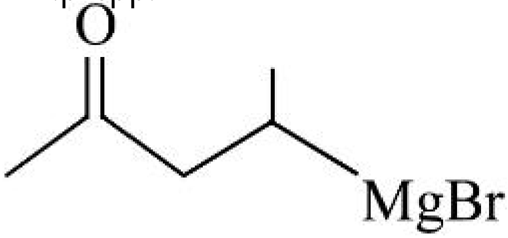


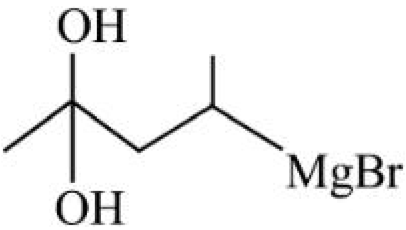
Options :

71550513851. 

71550513852. 

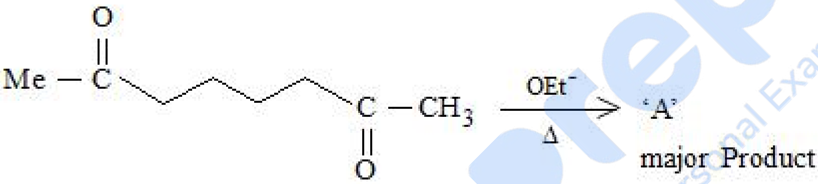
71550513853.



71550513854. 

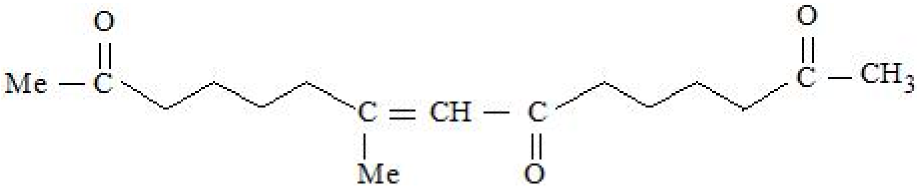
Question Number : 77 Question Id : 7155054388 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

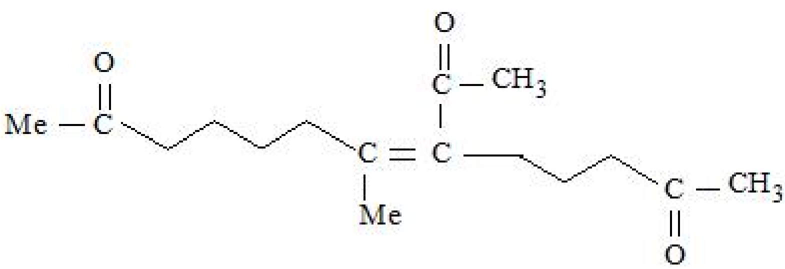
Correct Marks : 4 Wrong Marks : 1



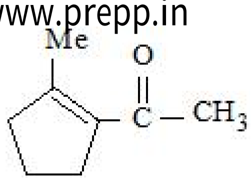
A in the above reaction is:

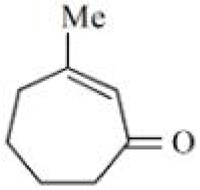
Options :

71550513855. 

71550513856. 

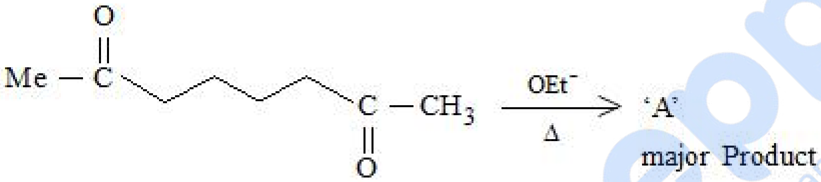
71550513857.



71550513858. 

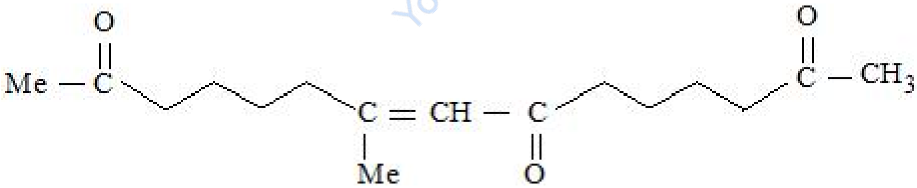
Question Number : 77 Question Id : 7155054388 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

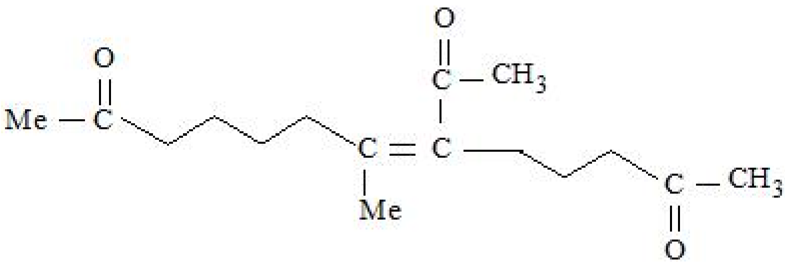
Correct Marks : 4 Wrong Marks : 1

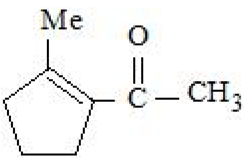


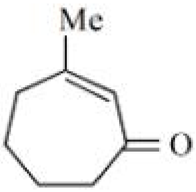
उपर्युक्त अभिक्रिया में A है:

Options :

71550513855. 

71550513856. 

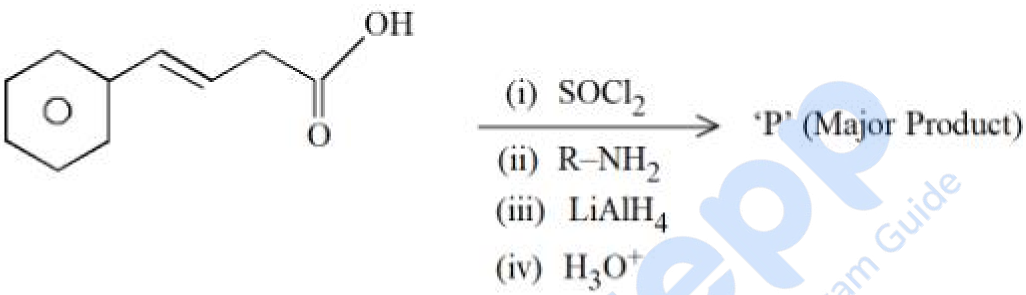
71550513857. 

71550513858. 

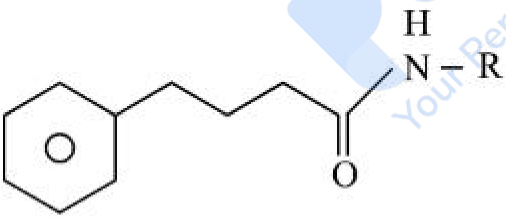
Question Number : 78 Question Id : 7155054389 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

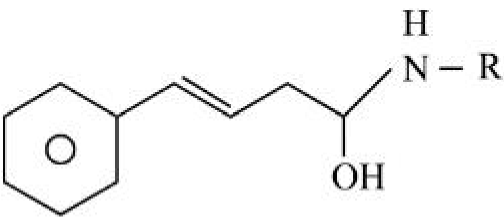
Correct Marks : 4 Wrong Marks : 1

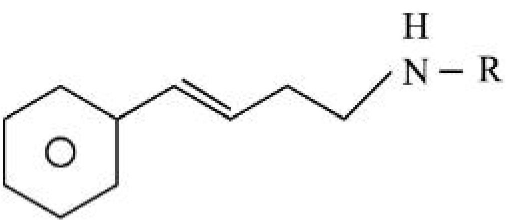
The major product 'P' formed in the following sequence of reactions is



Options :

71550513859. 

71550513860. 

71550513861. 

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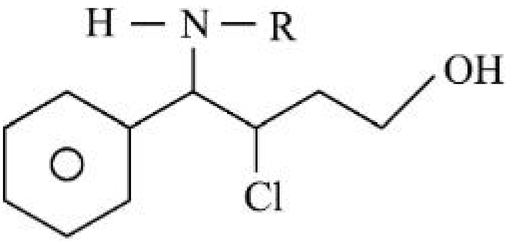
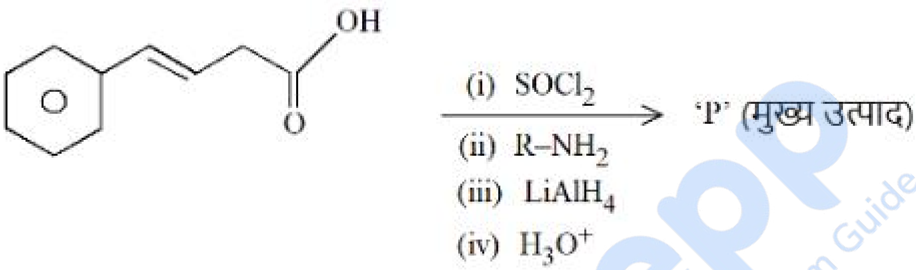
71550513862. 

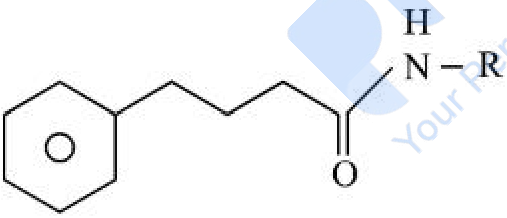
Question Number : 78 Question Id : 7155054389 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

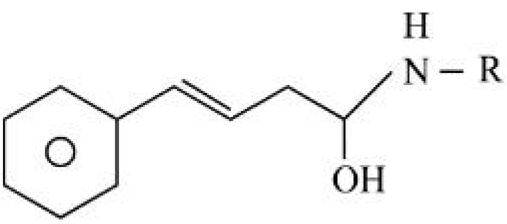
Correct Marks : 4 Wrong Marks : 1

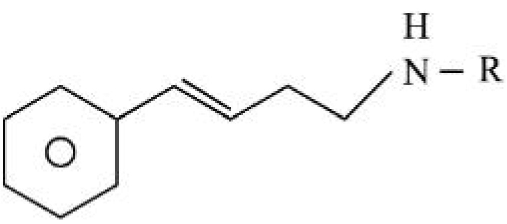
अभिक्रियाओंके निम्न क्रम में निर्मित मुख्य उत्पाद 'P' है:



Options :

71550513859. 

71550513860. 

71550513861. 

71550513862.

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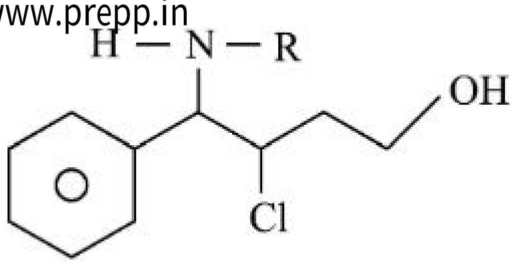
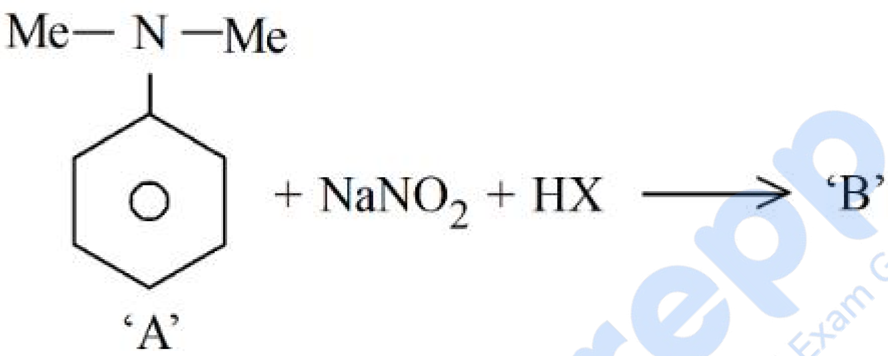


Question Number : 79 Question Id : 7155054390 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

The incorrect statement regarding the reaction given below is



Options :

71550513863. The product 'B' formed in the above reaction is p-nitroso compound at low temperature

71550513864. The reaction occurs at low temperature

71550513865. The electrophile involved in the reaction is NO^+

71550513866. 'B' is N-nitroso ammonium compound

Question Number : 79 Question Id : 7155054390 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

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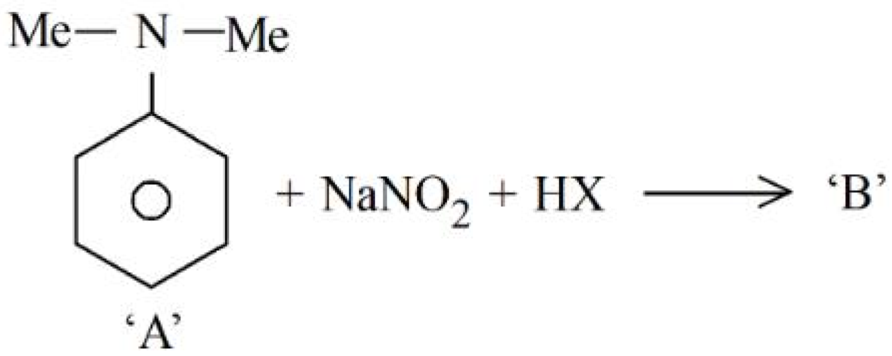
नीचे दी गई अभिक्रिया के संदर्भ में गलत कथन है:



Options :

71550513863. उपर्युक्त अभिक्रिया में कम तापमान पर निर्मित उत्पाद 'B' p-नाइट्रोसो यौगिक है

71550513864. अभिक्रिया निम्न तापमान पर संपादित होती है।

71550513865. अभिक्रिया में शामिल इलेक्ट्रॉन स्नेही, NO^+ है

71550513866. 'B' N-नाइट्रोसो अमोनियम यौगिक है।

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Question Number : 80 Question Id : 7155054391 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 (Examples)		LIST II (Type)	
A.	2-chloro-1,3- butadiene	I.	Biodegradable polymer
B.	Nylon 2-nylon 6	II.	Synthetic Rubber
C.	Polyacrylonitrile	III.	Polyester
D.	Dacron	IV.	Addition Polymer

Choose the correct answer from the options given below:

Options :

71550513867. A-II, B-IV, C-I, D-III

71550513868. A-II, B-I, C-IV, D-III

71550513869. A-IV, B-I, C-III, D-II

71550513870. A-IV, B-III, C-I, D-II

Question Number : 80 Question Id : 7155054391 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 (उदाहरण)		सूची II (प्रकार)	
A.	2-क्लोरो-1,3-ब्यूटाडाईन	I.	जैव निम्ननीकरणीय बहुलक
B.	नाइलॉन 2- नाइलॉन 6	II.	संश्लेषित रबर
C.	पॉलिऐक्रिलोनाइट्राइल	III.	पॉलिस्टर
D.	डेक्रॉन	IV.	योगात्मक बहुलक

नीचे दिए गए विकल्पों में से सही उत्तर चुनें:

Options :

71550513867. A-II, B-IV, C-I, D-III

71550513868. A-II, B-I, C-IV, D-III

71550513869. A-IV, B-I, C-III, D-II

71550513870. A-IV, B-III, C-I, D-II

Chemistry Section B

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Section Id :	715505270
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 :	715505270
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 7155054392 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

At 600K, the root mean square (rms) speed of gas X (molar mass = 40) is equal to the most probable speed of gas Y at 90K. The molar mass of the gas Y is _____ g mol^{-1}.(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 : 81 Question Id : 7155054392 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

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600K पर, गैस X (मोलर द्रव्यमान = 40) का वर्ग माध्य मूल वेग (rms) 90K पर गैस Y के अतिसंभाव्य गति के बराबर है। गैस Y का मोलर द्रव्यमान ______ g mol^{-1} 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 : 82 Question Id : 7155054393 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Values of work function (W_0) for a few metals are given below

Metal	Li	Na	K	Mg	Cu	Ag
W_o/eV	2.42	2.3	2.25	3.7	4.8	4.3

The number of metals which will show photoelectric effect when light of wavelength 400nm falls on it is _______

Given: $h = 6.6 \times 10^{-34}$ J s

$c = 3 \times 10^{8} m s^{-1}$

$e = 1.6 \times 10^{-19}$ C

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 : 7155054393 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

नीचे कुछ धातुओं के कार्य फलन (W_0) के मान दिए गए है:

धातु	Li	Na	K	Mg	Cu	Ag
W_o/eV	2.42	2.3	2.25	3.7	4.8	4.3

उन धातुओं की संख्या जो उन पर पड़ने वाले 400nm की तरंगदैर्घ्य वाले प्रकाश के साथ प्रकाश विद्युत प्रभाव प्रदर्शित करेंगे:

दिया गया है: $h = 6.6 \times 10^{-34}$ J s

$c = 3 \times 10^8 m\ s^{-1}$

$e = 1.6 \times 10^{-19}$ C

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 : 7155054394 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

One mole of an ideal gas at 350K is in a 2.0 L vessel of thermally conducting walls, which are in contact with the surroundings. It undergoes isothermal reversible expansion from 2.0L to 3.0L against a constant pressure of 4 atm. The change in entropy of the surroundings (ΔS) is __________ J K^{-1} (Nearest integer)

Given: R = 8.314 J K^{-1} mol^{-1}.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

Question Number : 83 Question Id : 7155054394 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

350K पर किसी आदर्श गैस का एक मोल उष्मीय सुचालक दिवारों वाले 2.0 L के पात्र में है जो परिवेश के सम्पर्क में है। इसमें 4 atm के स्थिर दाब पर समतापी उत्क्रमणीय प्रसरण के कारण आयतन 2.0L से 3.0L हो जाता है। परिवेश का एन्ट्रॉपी परिवर्तन (ΔS) ____________ $J K^{-1}$ है। (निकटतम पूर्णांक में)

दिया गया है: $R = 8.314 J K^{-1} mol^{-1}$.

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 : 7155054395 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

80 mole percent of $MgCl_2$ is dissociated in aqueous solution. The vapour pressure of 1.0 molal aqueous solution of $MgCl_2$ at 38°C is _______ mm Hg. (Nearest integer)

Given : Vapour pressure of water at 38°C is 50 mm Hg

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 : 7155054395 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$MgCl_2$ का 80 मोल प्रतिशत जलीय विलयन में वियोजित है। 38°C पर 1.0 मोलल $MgCl_2$ जलीय विलयन का वाष्प दाब ________ mm Hg है। (निकटतम पूर्णांक में)

दिया : 38°C पर जल का वाष्प Hg है।

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 : 7155054396 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

An analyst wants to convert 1L HCl of pH =1 to a solution of HCl of pH 2. The volume of water needed to do this dilution is ________ mL. (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 : 7155054396 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

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एक विश्लेषक pH =1 के 1L HCl विलयन में परिवर्तित करना चाहता है। इस तनुता के लिए आवश्यक जल का आयतन है: ________ mL. (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 : 7155054397 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The reaction $2NO + Br_2 \rightarrow 2NOBr$

takes places through the mechanism given below:

$NO + Br_2 \Leftrightarrow NOBr_2$ (fast)
$NOBr_2 + NO \rightarrow 2NOBr$ (slow)

The overall order of the reaction is ______.

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 : 7155054397 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

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अभिक्रिया $2NO + Br_2 \rightarrow 2NOBr$

नीचे दी गए क्रियाविधि के साथ सम्पादित होती है:

$NO + Br_2 \Leftrightarrow NOBr_2$ (fast)
$NOBr_2 + NO \rightarrow 2NOBr$ (slow)

अभिक्रिया की कुल कोटि है:

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

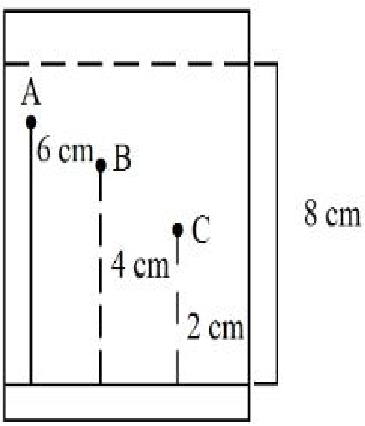
10

Question Number : 87 Question Id : 7155054398 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Three organic compounds A, B and C were allowed to run in thin layer chromatography using hexane and gave the following result (see figure). The R_f value of the most polar compound is _______ $\times 10^{-2}$



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

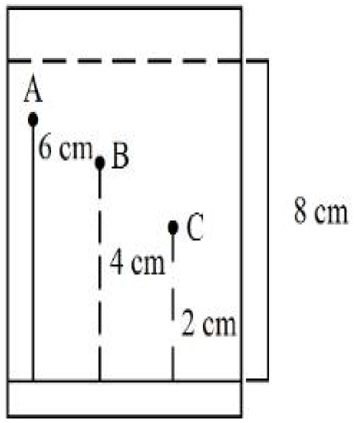
10

Question Number : 87 Question Id : 7155054398 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

तीन कार्बनिक यौगिक A, B एवं C एक पतली परत वर्णलेखन पर हेक्सेन का उपयोग कर चढ़ाए गए जिन्होंवे निम्न परिणाम दिए (चित्र देखें)। सर्वाधिक ध्रुवीय यौगिक R_f मान है: ______ $\times 10^{-2}$



Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

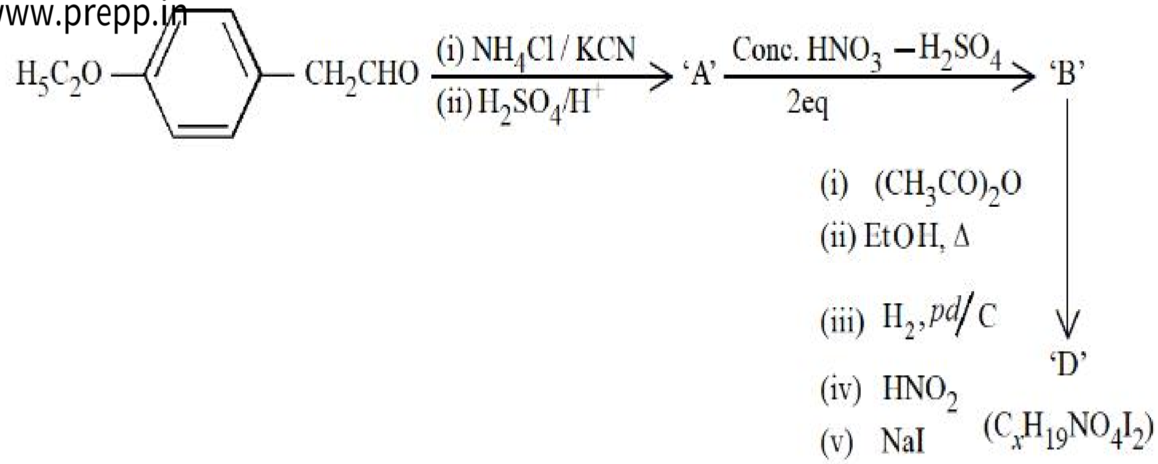
Possible Answers :

10

Question Number : 88 Question Id : 7155054399 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1



The value of x in compound 'D' is ______

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

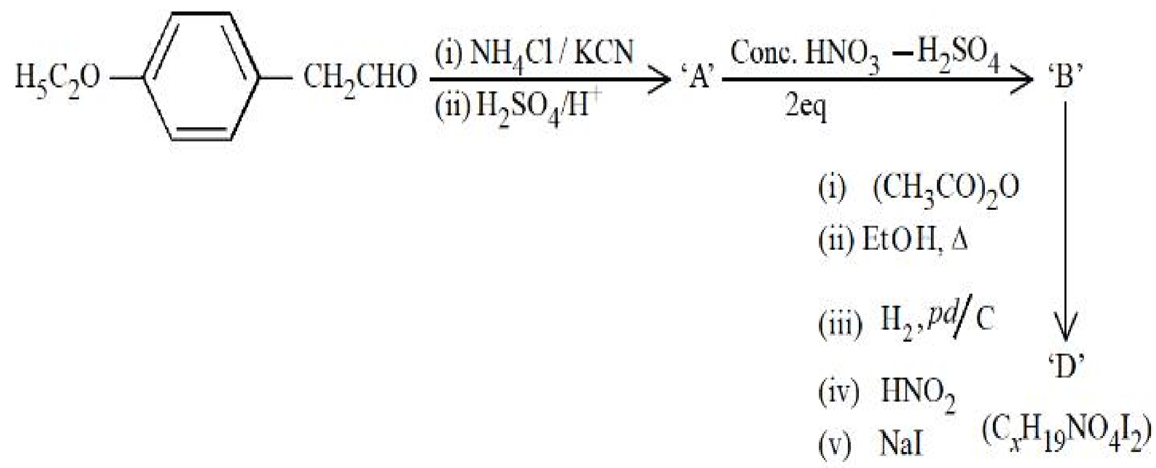
Possible Answers :

10

Question Number : 88 Question Id : 7155054399 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1



यौगिक 'D' में 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 : 89 Question Id : 7155054400 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

In an oligopeptide named Alanylglycylphenyl alanyl isoleucine, the number of sp^2 hybridised carbons is ________.

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 : 7155054400 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

ऐलनिलग्लाइसिल फेनिलआलानिल आइसोल्यूसीन नामक ओलिगोपेप्टाइड में sp^2 संकरित कार्बन परमाणुओं 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 : 7155054401 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The mass of NH_3 produced when 131.8 kg of cyclohexanecarbaldehyde undergoes Tollen's test is ________kg. (Nearest Integer)

Molar Mass of C = 12g/mol

N = 14g/mol

O = 16g/mol

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 : 7155054401 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

जब 131.8 kg साइक्लोहेक्सेन कार्बल्डिहाइड टॉलन परीक्षण देता है तो उत्पादित NH_3 का द्रव्यमान ________kg है। (निकटतम पूर्णांक में)

मोलर द्रव्यमान: C = 12g/mol

N = 14g/mol

O = 16g/mol

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

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