National Testing Agency

Question Paper Name :	NEW 135 OLD 36 M40 NEW ORDER
Subject Name :	B TECH
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B E and B Tech

Group Number :	1
Group Id :	36669474
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
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Show Progress Bar? :	No

Mathematics Section A

Section Id :	366694416
Section Number :	1

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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 :	366694416
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 1 Question Id : 3666947183 Question Type : MCQ Option Shuffling : Yes 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 the differentiable function $f:\mathbb{R}-\{0\}\to\mathbb{R}$, let $3f(x)+2f\left(\frac{1}{x}\right)=\frac{1}{x}-10$, then $\left|f(3)+f'\left(\frac{1}{4}\right)\right|$ is equal to

Options :

36669422601. 7

36669422602. $\frac{29}{5}$

36669422603. $\frac{33}{5}$

36669422604. 13

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Question Number : 1 Question Id : 3666947183 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

अवकलनीय फलन $f:\mathbb{R}-\{0\}\to\mathbb{R}$ के लिए माना $3f(x)+2f\left(\frac{1}{x}\right)=\frac{1}{x}-10$ है,

तो $\left|f(3)+f'\left(\frac{1}{4}\right)\right|$ बराबर है

Options :

36669422601. 7

36669422602. $\frac{29}{5}$

36669422603. $\frac{33}{5}$

36669422604. 13

Question Number : 2 Question Id : 3666947184 Question Type : MCQ Option Shuffling : Yes 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 set of all $a\in\mathbb{R}$ for which the equation $x\left|x-1\right|+\left|x+2\right|+a=0$ has exactly one real root, is

Options :

36669422605. $(-\infty,-3)$

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36669422606. $(-6, \infty)$

36669422607. $(-\infty, \infty)$

36669422608. $(-6, -3)$

Question Number : 2 Question Id : 3666947184 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

सभी $a \in \mathbb{R}$, जिनके लिए समीकरण $x|x-1|+|x+2|+a=0$ का मात्र एक वास्तविक मूल है,
का समुच्चय है

Options :

36669422605. $(-\infty, -3)$

36669422606. $(-6, \infty)$

36669422607. $(-\infty, \infty)$

36669422608. $(-6, -3)$

Question Number : 3 Question Id : 3666947185 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

Let $B=\begin{bmatrix}1 & 3 & \alpha\\ 1 & 2 & 3\\ \alpha & \alpha & 4\end{bmatrix}$, $\alpha>2$ be the adjoint of a matrix A and $|A|=2$. Then $\begin{bmatrix}\alpha & -2\alpha & \alpha\end{bmatrix} B\begin{bmatrix}\alpha\\ -2\alpha\\ \alpha\end{bmatrix}$ is equal to

Options :

36669422609. 0

36669422610. -16

36669422611. 16

36669422612. 32

Question Number : 3 Question Id : 3666947185 Question Type : MCQ Option Shuffling : Yes 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 $B=\begin{bmatrix}1 & 3 & \alpha\\ 1 & 2 & 3\\ \alpha & \alpha & 4\end{bmatrix}$, $\alpha>2$, एक आव्यूह A का सहखंडज है तथा $|A|=2$ है। तो $\begin{bmatrix}\alpha & -2\alpha & \alpha\end{bmatrix} B\begin{bmatrix}\alpha\\ -2\alpha\\ \alpha\end{bmatrix}$ बराबर है

Options :

36669422609. 0

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36669422610. -16

36669422611. 16

36669422612. 32

Question Number : 4 Question Id : 3666947186 Question Type : MCQ Option Shuffling : Yes 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 the system of linear equations

$2x+4y+2az=b$

$x+2y+3z=4$

$2x-5y+2z=8$

which of the following is NOT correct?

Options :

36669422613. It has unique solution if $a=b=6$

36669422614. It has unique solution if $a=b=8$

36669422615. It has infinitely many solutions if $a=3,\ b=8$

36669422616. It has infinitely many solutions if $a=3,\ b=6$

Question Number : 4 Question Id : 3666947186 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

रैखिक समीकरण निकाय

$$2x + 4y + 2az = b$$
$$x + 2y + 3z = 4$$
$$2x - 5y + 2z = 8$$

के लिए निम्न में से कौन सा सही **नहीं** है

Options :

36669422613. इसका अद्वितीय हल हे यदि $a = b = 6$ हैं

36669422614. इसका अद्वितीय हल हे यदि $a = b = 8$ हैं

36669422615. इसके अनंत हल हैं यदि $a = 3, b = 8$ हैं

36669422616. इसके अनंत हल हैं यदि $a = 3, b = 6$ हैं

Question Number : 5 Question Id : 3666947187 Question Type : MCQ Option Shuffling : Yes 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 symmetric matrices of order 3, with all the entries from the set $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$, is

Options :

36669422617. 10^9

36669422618. 9^{10}

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36669422619. 10^6

36669422620. 6^{10}

Question Number : 5 Question Id : 3666947187 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कोटि 3 के समामित आव्हूहों, जिनके सभी अवयव समुच्चय {0,1, 2, 3, 4, 5, 6, 7, 8, 9}
से हैं, की संख्या है

Options :

36669422617. 10^9

36669422618. 9^{10}

36669422619. 10^6

36669422620. 6^{10}

Question Number : 6 Question Id : 3666947188 Question Type : MCQ Option Shuffling : Yes 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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Let $s_1, s_2, s_3, \ldots, s_{10}$ respectively be the sum to 12 terms of 10 A.P. s whose first terms are 1, 2, 3, ..., 10 and the common differences are 1, 3, 5,....., 19 respectively. Then $\sum_{i=1}^{10} s_i$ is equal to

Options :

36669422621. 7260

36669422622. 7220

36669422623. 7360

36669422624. 7380

Question Number : 6 Question Id : 3666947188 Question Type : MCQ Option Shuffling : Yes 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 10 A.P, जिनके प्रथम पद 1, 2, 3,.....,10 तथा आर्व अंतर क्रमशः $1, 3, 5, \ldots\ldots, 19$ हैं, के 12 पदों का योग क्रमशः $s_1, s_2, s_3, \ldots, s_{10}$ है। तो $\sum_{i=1}^{10} s_i$ बराबर है

Options :

36669422621. 7260

36669422622. 7220

36669422623. 7360

7380

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Question Number : 7 Question Id : 3666947189 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Among

(S1) : $\lim_{n\to\infty} \frac{1}{n^2}\left(2+4+6+.....+2n\right)=1$

(S2) : $\lim_{n\to\infty} \frac{1}{n^{16}}\left(1^{15}+2^{15}+3^{15}+.....+n^{15}\right)=\frac{1}{16}$

Options :

36669422625. Only (S1) is true

36669422626. Only (S2) is true

36669422627. Both (S1) and (S2) are true

36669422628. Both (S1) and (S2) are false

Question Number : 7 Question Id : 3666947189 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

(S1) : $\lim_{n\to\infty} \frac{1}{n^2}\left(2+4+6+.....+2n\right)=1$

(S2) : $\lim_{n\to\infty} \frac{1}{n^{16}}\left(1^{15}+2^{15}+3^{15}+.....+n^{15}\right)=\frac{1}{16}$ में से

Options :

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36669422625. केवल (S1) सत्य है

36669422626. केवल (S2) सत्य है

36669422627. दोनों (S1) तथा (S2) सत्य हैं

36669422628. दोनों (S1) तथा (S2) असत्य हैं

Question Number : 8 Question Id : 3666947190 Question Type : MCQ Option Shuffling : Yes 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 equation of plane passing through the line of intersection of the planes $x+2y+\alpha z=2$ and $x-y+z=3$ be $5x-11y+bz=6\alpha-1$. For $c\in\mathbb{Z}$, if the distance of this plane from the point $(a,-c,c)$ is $\frac{2}{\sqrt{a}}$, then $\frac{a+b}{c}$ is equal to

Options :

36669422629. -4

36669422630. -2

36669422631. 2

36669422632. 4

Question Number : 8 Question Id : 3666947190 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

माना समतलों $x+2y+az=2$ तथा $x-y+z=3$ की प्रतिच्छेदन रेखा से होकर जाने वाले समतल का समीकरण $5x-11y+bz=6a-1$ है। $c \in \mathbb{Z}$ के लिए, यदि इस समतल की बिंदु $(a,-c,c)$ से दूरी $\frac{2}{\sqrt{a}}$ है, तो $\frac{a+b}{c}$ बराबर है

Options :

36669422629. -4

36669422630. -2

36669422631. 2

36669422632. 4

Question Number : 9 Question Id : 3666947191 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a}=\hat{i}+4\hat{j}+2\hat{k}$, $\vec{b}=3\hat{i}-2\hat{j}+7\hat{k}$ and $\vec{c}=2\hat{i}-\hat{j}+4\hat{k}$. If a vector $\vec{d}$ satisfies $\vec{d}\times\vec{b}=\vec{c}\times\vec{b}$ and $\vec{d}\cdot\vec{a}=24$, then $\left|\vec{d}\right|^2$ is equal to

Options :

36669422633. 323

36669422634. 313

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423

36669422636. 413

Question Number : 9 Question Id : 3666947191 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a}=\hat{i}+4\hat{j}+2\hat{k},\ \vec{b}=3\hat{i}-2\hat{j}+7\hat{k}$ तथा $\vec{c}=2\hat{i}-\hat{j}+4\hat{k}$ हैं। यदि सदिश $\vec{d},\ \vec{d}\times\vec{b}=\vec{c}\times\vec{b}$ तथा $\vec{d}\cdot\vec{a}=24$ को संतुष्ट करता है, तो $|\vec{d}|^2$ बराबर है

Options :

36669422633. 323

36669422634. 313

36669422635. 423

36669422636. 413

Question Number : 10 Question Id : 3666947192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\max_{0\le x\le\pi}\left\{x-2\sin x\cos x+\frac{1}{3}\sin 3x\right\}=$$

Options :

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36669422637. $\frac{\pi+2-3\sqrt{3}}{6}$

36669422638. $\frac{5\pi+2+3\sqrt{3}}{6}$

36669422639. π

36669422640. 0

Question Number : 10 Question Id : 3666947192 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\max_{0\le x\le\pi}\left\{x-2\sin x\cos x+\frac{1}{3}\sin 3x\right\}=$$

Options :

36669422637. $\frac{\pi+2-3\sqrt{3}}{6}$

36669422638. $\frac{5\pi+2+3\sqrt{3}}{6}$

36669422639. π

36669422640. 0

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Question Number : 11 Question Id : 3666947193 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\int_0^{\infty} \frac{6}{e^{3x}+6e^{2x}+11e^{x}+6}dx =$$

Options :

36669422641. $\log_e\left(\frac{512}{81}\right)$

36669422642. $\log_e\left(\frac{64}{27}\right)$

36669422643. $\log_e\left(\frac{256}{81}\right)$

36669422644. $\log_e\left(\frac{32}{27}\right)$

Question Number : 11 Question Id : 3666947193 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\int_0^{\infty} \frac{6}{e^{3x}+6e^{2x}+11e^{x}+6}dx =$$

Options :

36669422641. $\log_e\left(\frac{512}{81}\right)$

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36669422642. $\log_e\left(\frac{64}{27}\right)$

36669422643. $\log_e\left(\frac{256}{81}\right)$

36669422644. $\log_e\left(\frac{32}{27}\right)$

Question Number : 12 Question Id : 3666947194 Question Type : MCQ Option Shuffling : Yes 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 $f(x)=\max\{\sin x, \cos x\}, -\pi \le x \le \pi$ and the x-axis is

Options :

36669422645. $2\sqrt{2}\left(\sqrt{2}+1\right)$

36669422646. 4

36669422647. $2\left(\sqrt{2}+1\right)$

36669422648. $4\left(\sqrt{2}\right)$

Question Number : 12 Question Id : 3666947194 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

वक्र $f(x)=\max\{\sin x, \cos x\}, -\pi \le x \le \pi$ तथा x-अक्ष से घिरे क्षेत्र का क्षेत्रफल है

Options :

36669422645. $2\sqrt{2}\left(\sqrt{2}+1\right)$

36669422646. 4

36669422647. $2\left(\sqrt{2}+1\right)$

36669422648. $4\left(\sqrt{2}\right)$

Question Number : 13 Question Id : 3666947195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\text{Fractional part of the number } \frac{4^{2022}}{15} \text{ is equal to}$$

Options :

36669422649. $\frac{1}{15}$

36669422650. $\frac{4}{15}$

36669422651.

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$\frac{8}{15}$

36669422652. $\frac{14}{15}$

Question Number : 13 Question Id : 3666947195 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

संख्या $\frac{4^{2022}}{15}$ का भिन्न भाग है

Options :

36669422649. $\frac{1}{15}$

36669422650. $\frac{4}{15}$

36669422651. $\frac{8}{15}$

36669422652. $\frac{14}{15}$

Question Number : 14 Question Id : 3666947196 Question Type : MCQ Option Shuffling : Yes 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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Let $y = y_1(x)$ and $y = y_2(x)$ be the solution curves of the differential equation $\frac{dy}{dx} = y + 7$ with initial conditions $y_1(0) = 0$ and $y_2(0) = 1$ respectively. Then the curves $y = y_1(x)$ and $y = y_2(x)$ intersect at

Options :

36669422653. no point

36669422654. one point

36669422655. two points

36669422656. infinite number of points

Question Number : 14 Question Id : 3666947196 Question Type : MCQ Option Shuffling : Yes 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 $\frac{dy}{dx} = y + 7$ के प्रारंभिक प्रतिबंधो $y_1(0) = 0$ तथा $y_2(0) = 1$ के साथ हल वक्र क्रमशः $y = y_1(x)$ तथा $y = y_2(x)$ हैं। तो वक्र $y = y_1(x)$ तथा $y = y_2(x)$

Options :

36669422653. किसी भी बिंदु पर नहीं मिलते

36669422654. एक बिंदु पर मिलते हैं

36669422655. दो बिंदुओं पर मिलते हैं

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36669422656. अनंत बिंदुओं पर मिलते हैं

Question Number : 15 Question Id : 3666947197 Question Type : MCQ Option Shuffling : Yes 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 tangent and normal at the point $\left(3\sqrt{3}, 1\right)$ on the ellipse $\frac{x^2}{36}+\frac{y^2}{4}=1$ meet the y-axis at the points A and B respectively. Let the circle C be drawn taking AB as a diameter and the line $x=2\sqrt{5}$ intersect C at the points P and Q. If the tangents at the points P and Q on the circle intersect at the point (α, β), then $\alpha^2-\beta^2$ is equal to

Options :

36669422657. 60

36669422658. 61

36669422659. $\frac{304}{5}$

36669422660. $\frac{314}{5}$

Question Number : 15 Question Id : 3666947197 Question Type : MCQ Option Shuffling : Yes 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 दीर्घवृत $\frac{x^2}{36}+\frac{y^2}{4}=1$ के बिंदु $\left(3\sqrt{3},1\right)$ पर स्पर्श रेखा तथा अभिलंब y-अक्ष को क्रमशः बिंदुओं A तथा B पर मिलते हैं। माना AB को एक व्यास लेकर खींचा गया वृत्त C है तथा रेखा $x=2\sqrt{5}$, वृत्त C को बिंदुओं P तथा Q पर काटती है। यदि वृत्त के बिंदुओं P तथा Q पर स्पर्श रेखाओं का प्रतिच्छेदन बिंदु (α,β) है, तो $\alpha^2-\beta^2$ बराबर है

Options :

36669422657. 60

36669422658. 61

36669422659. $\frac{304}{5}$

36669422660. $\frac{314}{5}$

Question Number : 16 Question Id : 3666947198 Question Type : MCQ Option Shuffling : Yes 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 PQ be a focal chord of the parabola $y^2=36x$ of length 100, making an acute angle with the positive x-axis. Let the ordinate of P be positive and M be the point on the line segment PQ such that PM:MQ = 3:1. Then which of the following points does NOT lie on the line passing through M and perpendicular to the line PQ?

Options :

36669422661. $(3,\ 33)$

36669422662. $(-6,\ 45)$

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36669422663. $(-3, 43)$

36669422664. $(6, 29)$

Question Number : 16 Question Id : 3666947198 Question Type : MCQ Option Shuffling : Yes 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 परवलय $y^2 = 36x$ की एक नाभीय जीवा PQ की लंबाई 100 है, जो धनात्मक x अक्ष से एक न्यून कोण बनाती है। माना P की कोटी धनात्मक है तथा रेखाखंड PQ पर बिंदु M इस प्रकार है कि PM:MQ = 3:1 है। तो बिंदु M से होकर जाने वाली तथा रेखा PQ के लंबवत रेखा पर निम्न में से कौन सा बिंदु स्थित **नहीं** है?

Options :

36669422661. $(3, 33)$

36669422662. $(-6, 45)$

36669422663. $(-3, 43)$

36669422664. $(6, 29)$

Question Number : 17 Question Id : 3666947199 Question Type : MCQ Option Shuffling : Yes 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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The distance of the point (–1, 2, 3) from the plane $\vec{r}\cdot\left(\hat{i}-2\hat{j}+3\hat{k}\right)=10$ parallel to the line of the shortest distance between the lines $\vec{r}=\left(\hat{i}-\hat{j}\right)+\lambda\left(2\hat{i}+\hat{k}\right)$ and $\vec{r}=\left(2\hat{i}-\hat{j}\right)+\mu\left(\hat{i}-\hat{j}+\hat{k}\right)$ is

Options :

36669422665. $3\sqrt{5}$

36669422666. $2\sqrt{6}$

36669422667. $3\sqrt{6}$

36669422668. $2\sqrt{5}$

Question Number : 17 Question Id : 3666947199 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बिंदु (-1,2,3) की रेखाओं $\vec{r}=\left(\hat{i}-\hat{j}\right)+\lambda\left(2\hat{i}+\hat{k}\right)$ तथा $\vec{r}=\left(2\hat{i}-\hat{j}\right)+\mu\left(\hat{i}-\hat{j}+\hat{k}\right)$ के बीच न्यूनतम दूरी की रेखा के समांतर समतल $\vec{r}\cdot\left(\hat{i}-2\hat{j}+3\hat{k}\right)=10$ से दूरी है

Options :

36669422665. $3\sqrt{5}$

36669422666. $2\sqrt{6}$

36669422667 $3\sqrt{6}$

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36669422668. $2\sqrt{5}$

Question Number : 18 Question Id : 3666947200 Question Type : MCQ Option Shuffling : Yes 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 coin is biased so that the head is 3 times as likely to occur as tail. This coin is tossed until a head or three tails occur. If X denotes the number of tosses of the coin, then the mean of X is

Options :

36669422669. $\frac{21}{16}$

36669422670. $\frac{15}{16}$

36669422671. $\frac{81}{64}$

36669422672. $\frac{37}{16}$

Question Number : 18 Question Id : 3666947200 Question Type : MCQ Option Shuffling : Yes 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 सिक्का इस प्रकार अभिनत है कि चित्त के आने की संभावना पट् के आने की संभावना की तीन गुना है। इस सिक्के को तब तक उछाला जाता है जब तक कि एक चित्त या तीन पट् दिख जाएँ। यदि X सिक्के को उछालने की संख्या को दर्शाता है, तो X का माध्य है

Options :

36669422669. $\frac{21}{16}$

36669422670. $\frac{15}{16}$

36669422671. $\frac{81}{64}$

36669422672. $\frac{37}{16}$

Question Number : 19 Question Id : 3666947201 Question Type : MCQ Option Shuffling : Yes 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 $x \in \mathbb{R}$, two real valued functions $f(x)$ and $g(x)$ are such that, $g(x)=\sqrt{x}+1$ and $fog(x)=x+3-\sqrt{x}$. Then $f(0)$ is equal to

Options :

36669422673. -3

36669422674. 0

36669422675. 1

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36669422676. 5

Question Number : 19 Question Id : 3666947201 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$x \in \mathbb{R}$ के लिए दो वास्तविक फलन $f(x)$ तथा $g(x)$ इस प्रकार है कि $g(x)=\sqrt{x}+1$ तथा $fog(x)=x+3-\sqrt{x}$ हैं। तो $f(0)$ बराबर है

Options :

36669422673. -3

36669422674. 0

36669422675. 1

36669422676. 5

Question Number : 20 Question Id : 3666947202 Question Type : MCQ Option Shuffling : Yes 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 negation of the statement $\big((A \wedge (B \vee C)) \Rightarrow (A \vee B)\big) \Rightarrow A$ is

Options :

36669422677. a fallacy

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equivalent to $B \vee \sim C$

36669422679. equivalent to $\sim A$

36669422680. equivalent to $\sim C$

Question Number : 20 Question Id : 3666947202 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

कथन $\big((A \wedge (B \vee C)) \Rightarrow (A \vee B)\big) \Rightarrow A$ का निषेधन

Options :

36669422677. हेत्वा भास (fallacy) है

36669422678. $B \vee \sim C$ के तुल्य है

36669422679. $\sim A$ के तुल्य है

36669422680. $\sim C$ के तुल्य है

Mathematics Section B

Section Id :	366694417
Section Number :	2
Section type :	Online

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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 :	366694417
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 21 Question Id : 3666947203 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $w = z\bar{z} + k_1 z + k_2 iz + \lambda(1+i)$, $k_1, k_2 \in \mathbb{R}$. Let $\mathrm{Re}(w) = 0$ be the circle C of radius 1 in the first quadrant touching the line $y = 1$ and the y-axis. If the curve $\mathrm{Im}(w) = 0$ intersects C at A and B, then $30(AB)^2$ 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 : 21 Question Id : 3666947203 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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माना $w = z\bar{z} + k_1 z + k_2 iz + \lambda(1+i),\ k_1, k_2 \in \mathbb{R}$ है। माना $\mathrm{Re}(w) = 0$ प्रथम चतुर्थांश में इकाई त्रिज्या का एक वृत्त C है, जो रेखा $y = 1$ तथा y-अक्ष को स्पर्श करता है। यदि वक्र $\mathrm{Im}(w) = 0$, वृत्त C को A तथा B पर काटता है, तो $30(AB)^2$ 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 : 22 Question Id : 3666947204 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 seven digit positive integers formed using the digits 1, 2, 3 and 4 only and sum of the digits equal to 12 is _____.

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 : 3666947204 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

केवल अंको 1, 2, 3 तथा 4 के प्रयोग से बनने वाले सात अंकों के घनात्मक पूर्णांकों, जिनके अंको का योग 12 है, की संख्या है _____

Response Type : Numeric

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Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 23 Question Id : 3666947205 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let α be the constant term in the binomial expansion of $\left(\sqrt{x}-\frac{6}{x^{\frac{3}{2}}}\right)^{n}, n \leq 15$. If the sum of the coefficients of the remaining terms in the expansion is 649 and the coefficient of x^{-n} is $\lambda\alpha$, then λ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 23 Question Id : 3666947205 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $\left(\sqrt{x}-\frac{6}{x^{\frac{3}{2}}}\right)^{n}, n \leq 15$ के द्विपद प्रसार में अचर पद α है। यदि इस प्रसार में शेष पदों के गुणांकों का योग 649 है तथा x^{-n} का गुणांक $\lambda\alpha$ है, तो λ बराबर है _____

Response Type : Numeric

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Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 24 Question Id : 3666947206 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The sum to 20 terms of the series $2\cdot 2^2-3^2+2\cdot 4^2-5^2+2\cdot 6^2-.....$ 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 : 24 Question Id : 3666947206 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

श्रेणी $2\cdot 2^2-3^2+2\cdot 4^2-5^2+2\cdot 6^2-.....$ के 20 पदों का योग है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

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10

Question Number : 25 Question Id : 3666947207 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let for $x \in \mathbb{R}$, $S_0(x) = x$, $S_k(x) = C_k x + k\int_0^x S_{k-1}(t)dt$, where

$C_0 = 1, C_k = 1 - \int_0^1 S_{k-1}(x)dx, k = 1, 2, 3,....$ Then $S_2(3) + 6C_3$ is equal to

_____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 25 Question Id : 3666947207 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $x \in \mathbb{R}$ के लिए, $S_0(x) = x$, $S_k(x) = C_k x + k\int_0^x S_{k-1}(t)dt$ हैं, जहाँ

$C_0 = 1, C_k = 1 - \int_0^1 S_{k-1}(x)dx, k = 1, 2, 3,....,$ हैं। तो $S_2(3) + 6C_3$ बराबर 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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Question Number : 26 Question Id : 3666947208 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let m_1 and m_2 be the slopes of the tangents drawn from the point P(4, 1) to the hyperbola $H : \frac{y^2}{25} - \frac{x^2}{16} = 1$. If Q is the point from which the tangents drawn to H have slopes $|m_1|$ and $|m_2|$ and they make positive intercepts α and β on the x-axis, then $\frac{(PQ)^2}{\alpha\beta}$ is equal to _____.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 26 Question Id : 3666947208 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना बिंदु P(4,1) से अतिपरवलय $H : \frac{y^2}{25} - \frac{x^2}{16} = 1$ पर खींची गई स्पर्श रेखाओं की प्रवणताएं m_1 तथा m_2 हैं। यदि Q वह बिंदु है, जिससे H पर खींची गई स्पर्श रेखाओं की प्रवणताएं $|m_1|$ तथा $|m_2|$ हैं तथा यह स्पर्श रेखाएं x-अक्ष पर घनात्मक अंतःखंड α तथा β बनाती है, तो $\frac{(PQ)^2}{\alpha\beta}$ बराबर है _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

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10

Question Number : 27 Question Id : 3666947209 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 image of the point $\left(\frac{5}{3}, \frac{5}{3}, \frac{8}{3}\right)$ in the plane $x-2y+z-2=0$ be P. If the distance of the point $Q(6,-2,\alpha), \alpha>0$, from P is 13, then α 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 : 3666947209 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 $x-2y+z-2=0$ में बिंदु $\left(\frac{5}{3}, \frac{5}{3}, \frac{8}{3}\right)$ का प्रतिबिंब बिंदु P है। यदि बिंदु $Q(6,-2,\alpha), \alpha>0$ की बिंदु P से दूरी 13 है, तो α बराबर 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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Question Number : 28 Question Id : 3666947210 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Let $\vec{a}=3\hat{i}+\hat{j}-\hat{k}$ and $\vec{c}=2\hat{i}-3\hat{j}+3\hat{k}$. If $\vec{b}$ is a vector such that $\vec{a}=\vec{b}\times\vec{c}$ and $\left|\vec{b}\right|^2=50$, then $\left|72-\left|\vec{b}+\vec{c}\right|^2\right|$ 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 : 3666947210 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना $\vec{a}=3\hat{i}+\hat{j}-\hat{k}$ तथा $\vec{c}=2\hat{i}-3\hat{j}+3\hat{k}$ हैं। यदि एक सदिश $\vec{b}$ इस प्रकार है कि $\vec{a}=\vec{b}\times\vec{c}$ तथा $\left|\vec{b}\right|^2=50$ हैं, तो $\left|72-\left|\vec{b}+\vec{c}\right|^2\right|$ 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 : 3666947211 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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Let the mean of the data

x	1	3	5	7	9
Frequency (f)	4	24	28	α	8

be 5. If m and σ^2 are respectively the mean deviation about the mean and the variance of the data, then $\frac{3\alpha}{m+\sigma^2}$ 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 : 3666947211 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

माना आंकडो

x	1	3	5	7	9
बारंबारता (f)	4	24	28	α	8

का माध्य 5 है। यदि इन आंकडों के माध्य के सापेक्ष माध्य विचलन तथा प्रसरण क्रमशः m तथा σ^2 हैं, तो $\frac{3\alpha}{m+\sigma^2}$ बराबर 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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Question Number : 30 Question Id : 3666947212 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

If $S=\left\{x \in \mathbb{R} : \sin^{-1}\left(\frac{x+1}{\sqrt{x^2+2x+2}}\right)-\sin^{-1}\left(\frac{x}{\sqrt{x^2+1}}\right)=\frac{\pi}{4}\right\}$,

then $\sum_{x \in s}\left(\sin\left(\left(x^2+x+5\right)\frac{\pi}{2}\right)-\cos\left(\left(x^2+x+5\right)\pi\right)\right)$ 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 : 3666947212 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

यदि $S=\left\{x \in \mathbb{R} : \sin^{-1}\left(\frac{x+1}{\sqrt{x^2+2x+2}}\right)-\sin^{-1}\left(\frac{x}{\sqrt{x^2+1}}\right)=\frac{\pi}{4}\right\}$ है, तो

$\sum_{x \in s}\left(\sin\left(\left(x^2+x+5\right)\frac{\pi}{2}\right)-\cos\left(\left(x^2+x+5\right)\pi\right)\right)$ बराबर 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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Physics Section A

Section Id :	366694418
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	366694418
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 31 Question Id : 3666947213 Question Type : MCQ Option Shuffling : Yes 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 of mass (5 ± 0.5) kg is moving with a velocity of (20 ± 0.4) m/s. Its kinetic energy will be

Options :

36669422691. (1000 ± 0.14) J

36669422692. (1000 ± 140) J

36669422693. (500 ± 0.14) J

36669422694. (500 ± 140) J

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Question Number : 31 Question Id : 3666947213 Question Type : MCQ Option Shuffling : Yes 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 ± 0.5) kg द्रव्यमान का एक पिण्ड, (20 ± 0.4) m/s के वेग से गति कर रहा है। इसकी गतिज ऊर्जा होगी

Options :

36669422691. (1000 ± 0.14) J

36669422692. (1000 ± 140) J

36669422693. (500 ± 0.14) J

36669422694. (500 ± 140) J

Question Number : 32 Question Id : 3666947214 Question Type : MCQ Option Shuffling : Yes 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 trains 'A' and 'B' of length 'l' and '$4l$' are travelling into a tunnel of length 'L' in parallel tracks from opposite directions with velocities 108 km/h and 72 km/h, respectively. If train 'A' takes 35s less time than train 'B' to cross the tunnel then, length 'L' of tunnel is :

(Given $L = 60\ l$)

Options :

36669422695. 1800 m

36669422696. 900 m

36669422697. 1200 m

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36669422698. 2700 m

Question Number : 32 Question Id : 3666947214 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

'l' एवं '$4l$' लम्बाई वाली दो ट्रेनें A एवं B, 'L' लम्बाई की सुरंग (टनल) में समानान्तर पथों पर एक-दूसरे के विपरित दिशाओं में क्रमशः 108 km/h एवं 72 km/h के वेग से चल रही है। यदि सुरंग को पार करने में ट्रेन A को, ट्रेन B से 35 सेकण्ड कम का समय लगता है, तो सुरंग की लम्बाई 'L' है:

(दिया है, L = 60 l)

Options :

36669422695. 1800 m

36669422696. 900 m

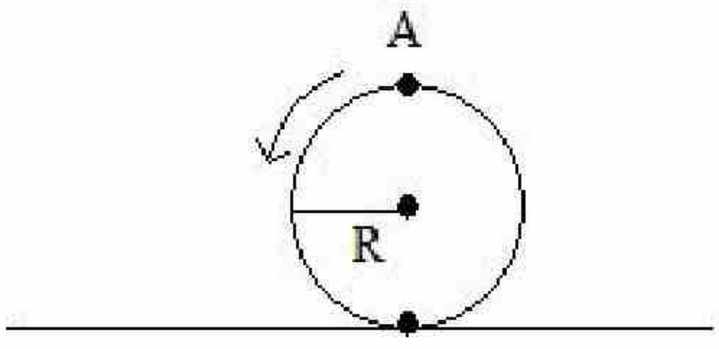
36669422697. 1200 m

36669422698. 2700 m

Question Number : 33 Question Id : 3666947215 Question Type : MCQ Option Shuffling : Yes 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 disc is rolling without slipping on a surface. The radius of the disc is R. At t = 0, the top most point on the disc is A as shown in figure. When the disc completes half of its rotation, the displacement of point A from its initial position is



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Options :

36669422699. $2R\sqrt{\left(1+4\pi^2\right)}$

36669422700. $2\,\mathrm{R}$

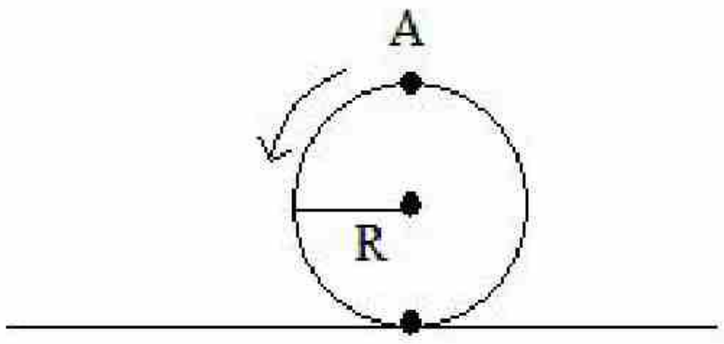
36669422701. $R\sqrt{\left(\pi^2+1\right)}$

36669422702. $R\sqrt{\left(\pi^2+4\right)}$

Question Number : 33 Question Id : 3666947215 Question Type : MCQ Option Shuffling : Yes 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 तल पर एक डिस्क बिना फिसले लुढ़क रही है। डिस्क की त्रिज्या R है। $t=0$ समय पर, डिस्क का सबसे ऊपरी बिन्दु A है, जैसा कि चित्र में दर्शाया गया है। जब डिस्क अपना आधा चक्र पूर्ण कर लेती है, तो बिन्दु A का इसकी प्रारम्भिक स्थिति से विस्थापन है,



Options :

36669422699. $2R\sqrt{\left(1+4\pi^2\right)}$

36669422700. $2\,\mathrm{R}$

36669422701.

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$R\sqrt{(\pi^2+1)}$

$R\sqrt{(\pi^2+4)}$

36669422702.

Question Number : 34 Question Id : 3666947216 Question Type : MCQ Option Shuffling : Yes 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 bodies are having kinetic energies in the ratio 16 : 9. If they have same linear momentum, the ratio of their masses respectively is :

Options :

36669422703. 3 : 4

36669422704. 9 : 16

36669422705. 4 : 3

36669422706. 16 : 9

Question Number : 34 Question Id : 3666947216 Question Type : MCQ Option Shuffling : Yes 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 पिण्डों की गतिज ऊर्जाओं का अनुपात 16 : 9 है। यदि उनका रेखीय संवेग समान है, तो उनके द्रव्यमानों का अनुपात है:

Options :

36669422703. 3 : 4

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36669422704. $9:16$

36669422705. $4:3$

36669422706. $16:9$

Question Number : 35 Question Id : 3666947217 Question Type : MCQ Option Shuffling : Yes 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 bullet of 10 g leaves the barrel of gun with a velocity of 600 m/s. If the barrel of gun is 50 cm long and mass of gun is 3 kg, then value of impulse supplied to the gun will be :

Options :

36669422707. 12 Ns

36669422708. 3 Ns

36669422709. 6 Ns

36669422710. 36 Ns

Question Number : 35 Question Id : 3666947217 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

10 g की एक गोली बंदूक की नली को 600 m/s के वेग से छोडती है। यदि बंदूक की नली 50 cm लम्बी है एवं बंदूक का द्रव्यमान 3 kg है, तो गोली को दिये गये आवेग का मान होगाः

Options :

36669422707. 12 Ns

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36669422708. $3\ Ns$

36669422709. $6\ Ns$

36669422710. $36\ Ns$

Question Number : 36 Question Id : 3666947218 Question Type : MCQ Option Shuffling : Yes 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 planet having mass 9 Me and radius $4R_e$, where Me and Re are mass and radius of earth respectively, has escape velocity in km/s given by:
(Given escape velocity on earth $V_e = 11.2 \times 10^3$ m/s)

Options :

36669422711. 67.2

36669422712. 33.6

36669422713. 16.8

36669422714. 11.2

Question Number : 36 Question Id : 3666947218 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

9 Me द्रव्यमान एवं $4\ R_e$ त्रिज्या वाले एक ग्रह पर km/s में पलायन वेग है: (जहाँ Me एवं Re क्रमशः पृथ्वी के द्रव्यमान एवं त्रिज्या है)

(दिया है, पृथ्वी पर पलायन वेग $V_e = 11.2 \times 10^3$ m/s)

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Options :

36669422711. 67.2

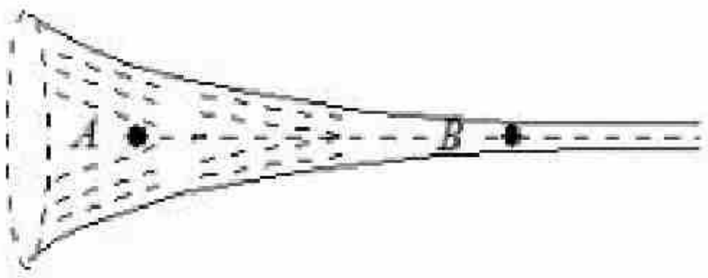
36669422712. 33.6

36669422713. 16.8

36669422714. 11.2

Question Number : 37 Question Id : 3666947219 Question Type : MCQ Option Shuffling : Yes 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 figure shows a liquid of given density flowing steadily in horizontal tube of varying cross - section. Cross sectional areas at A is 1.5 cm^2, and B is 25 mm^2, if the speed of liquid at B is 60 cm/s then $(P_A - P_B)$ is :

(Given P_A and P_B are liquid pressures at A and B points.

density $\rho = 1000\ kg\ m^{-3}$

A and B are on the axis of tube

Options :

36669422715. $27\ Pa$

36669422716. $175\ Pa$

36669422717. $135\ Pa$

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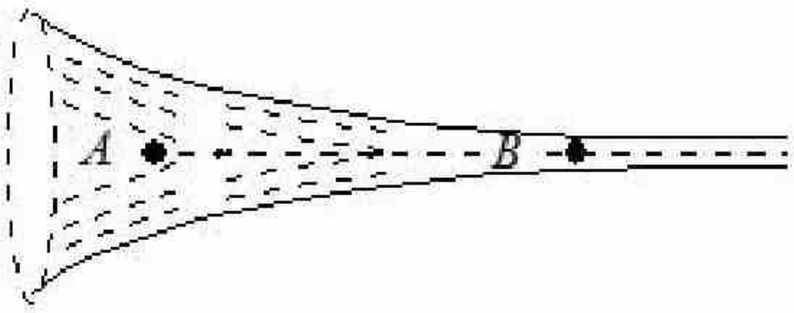
36669422718. $36\ Pa$

Question Number : 37 Question Id : 3666947219 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



चित्र, परिवर्तनशील अनुप्रस्थ काट वाली क्षैतिज नली में दिए हुए घनत्व वाले स्थायी रुप से बहते हुए द्रव को प्रदर्शित करता है। A पर अनुप्रस्थ काट का क्षेत्रफल $1.5\ cm^2$ हैं एवं B पर यह $25\ mm^2$ है। यदि B पर द्रव की चाल $60\ cm/s$ है तो $(P_A - P_B)$ का मान है:

(दिया है, P_A, P_B बिन्दु A, B पर क्रमशः द्रव के दाब है। A एवं B नली के अक्ष पर हैं)
$(\rho = 1000\ kg\ m^{-3})$

Options :

36669422715. $27\ Pa$

36669422716. $175\ Pa$

36669422717. $135\ Pa$

36669422718. $36\ Pa$

Question Number : 38 Question Id : 3666947220 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Under isothermal condition, the pressure of a gas is given by $P = aV^{-3}$, where a is a constant and V is the volume of the gas. The bulk modulus at constant temperature is equal to

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Options :

36669422719. $3\,\mathrm{P}$

36669422720. $2\,\mathrm{P}$

36669422721. P

36669422722. $\frac{\mathrm{P}}{2}$

Question Number : 38 Question Id : 3666947220 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समतापीय परिस्थिति में, किसी गैस का दाब $\mathrm{P} = a\mathrm{V}^{-3}$ है, जहाँ a एक स्थिरांक एवं V गैस का आयतन है। स्थिर ताप पर आयतन गुणांक है:

Options :

36669422719. $3\,\mathrm{P}$

36669422720. $2\,\mathrm{P}$

36669422721. P

36669422722. $\frac{\mathrm{P}}{2}$

Question Number : 39 Question Id : 3666947221 Question Type : MCQ Option Shuffling : Yes 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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The rms speed of oxygen molecule in a vessel at particular temperature is $\left(1+\frac{5}{x}\right)^{\frac{1}{2}}\upsilon$, where υ is the average speed of the molecule. The value of x will be :

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

Options :

36669422723. 4

36669422724. 8

36669422725. 27

36669422726. 28

Question Number : 39 Question Id : 3666947221 Question Type : MCQ Option Shuffling : Yes 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 नियत ताप पर, एक बर्तन में उपस्थित ऑक्सीजन गैस के अणुओं की rms (वर्ग माध्य मूल) चाल $\left(1+\frac{5}{x}\right)^{\frac{1}{2}}\upsilon$ है, जहाँ υ अणु की औसत चाल है। x का मान होगा:

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

Options :

36669422723. 4

36669422724. 8

36669422725. 27

36669422726. 28

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Question Number : 40 Question Id : 3666947222 Question Type : MCQ Option Shuffling : Yes Is

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

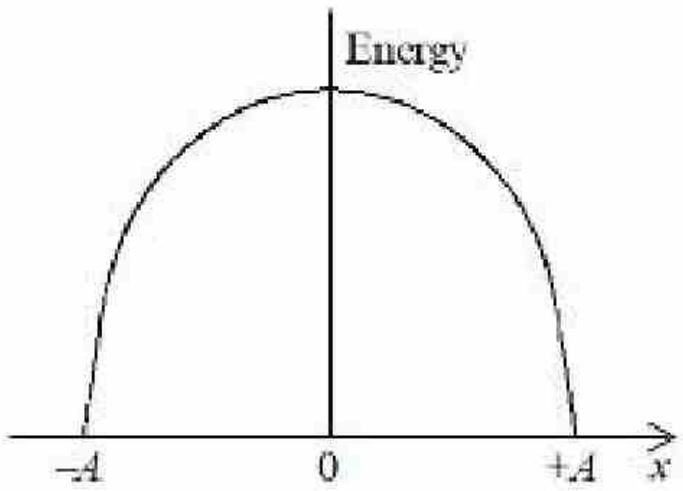
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

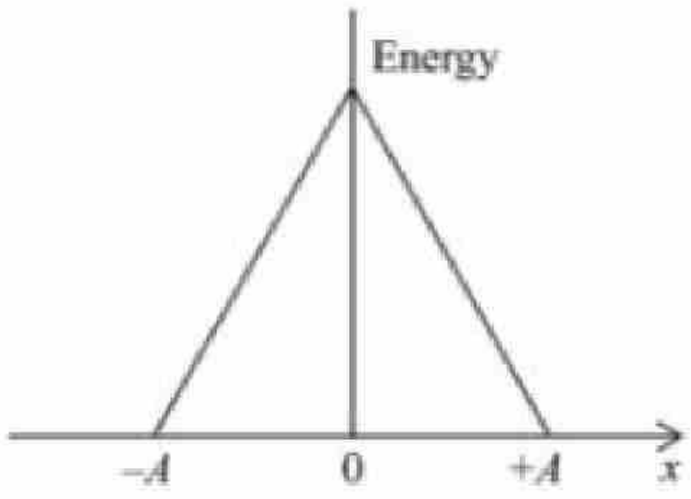
Which graph represents the difference between total energy and potential energy of a particle executing SHM vs it's distance from mean position ?

Options :

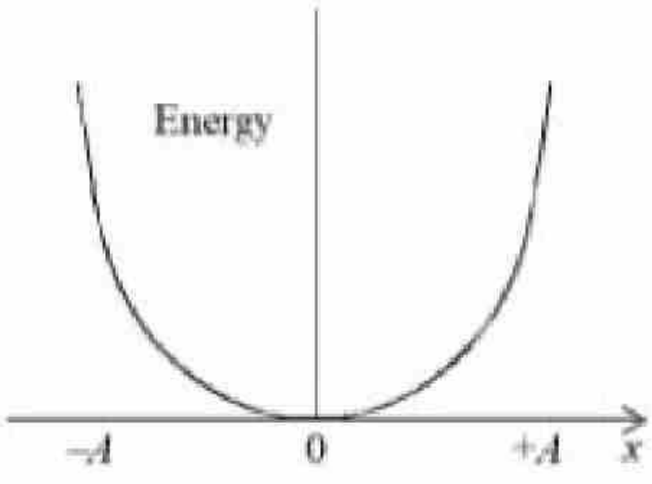
36669422727.



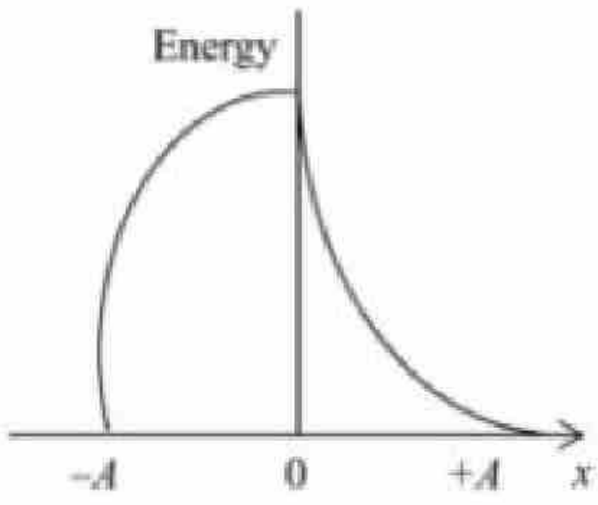
36669422728.



36669422729.



36669422730.



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Question Number : 40 Question Id : 3666947222 Question Type : MCQ Option Shuffling : Yes Is

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

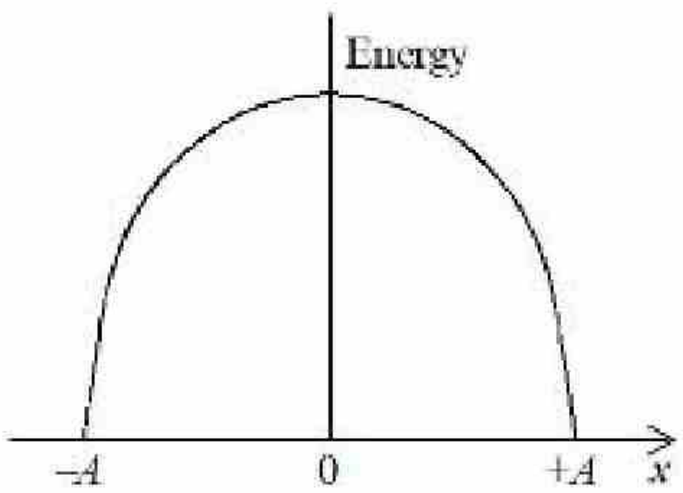
Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

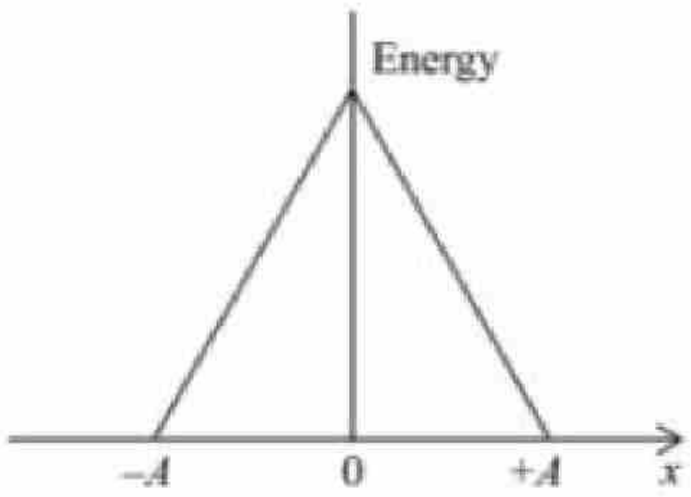
सरल आवर्त गति करते हुए किसी कण की कुल ऊर्जा एवं स्थितिज ऊर्जा के अंतर का
इसकी माध्य स्थिति से विस्थापन के साथ (बनाम) ग्राफ (अभिरेख) कौन सा है:

Options :

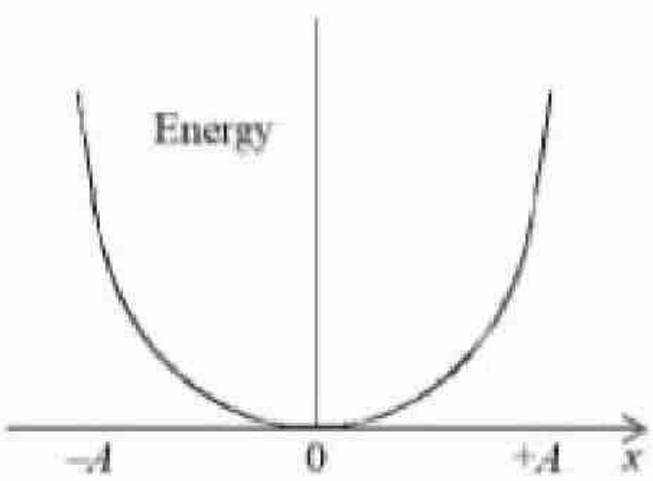
36669422727.



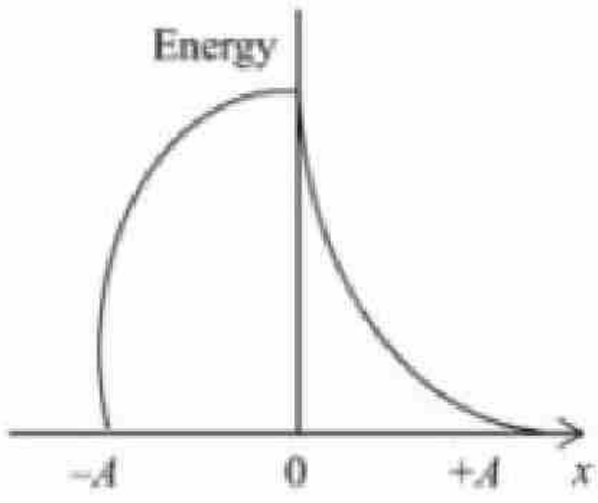
36669422728.



36669422729.



36669422730.



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Question Number : 41 Question Id : 3666947223 Question Type : MCQ Option Shuffling : Yes 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 powers of two motors is $\frac{3\sqrt{x}}{\sqrt{x}+1}$, that are capable of raising 300 kg water in 5 minutes and 50 kg water in 2 minutes respectively from a well of 100 m deep. The value of x will be

Options :

36669422731. 2

36669422732. 4

36669422733. 16

36669422734. 2·4

Question Number : 41 Question Id : 3666947223 Question Type : MCQ Option Shuffling : Yes 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 मोटरों की शक्तियों का अनुपात $\frac{3\sqrt{x}}{\sqrt{x}+1}$ है, जो कि क्रमशः 5 मिनट एवं 2 मिनट में क्रमशः 300 kg एवं 50 kg पानी को 100 मीटर गहरे कुऐं से उठाने में सक्षम हैं। x का मान होगा

Options :

36669422731. 2

36669422732. 4

36669422733. 16

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36669422734. $2 \cdot 4$

Question Number : 42 Question Id : 3666947224 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following Maxwell's equation is valid for time varying conditions but not valid for static conditions :

Options :

36669422735. $\oint \vec{B} \cdot \vec{dl} = \mu_0 I$

36669422736. $\oint \vec{E} \cdot \vec{dl} = -\frac{\partial \Phi_B}{\partial t}$

36669422737. $\oint \vec{D} \cdot \vec{dA} = Q$

36669422738. $\oint \vec{\mathrm{E}} \cdot \vec{dl} = 0$

Question Number : 42 Question Id : 3666947224 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्न में से कौन सा मैक्सवैल समीकरण, समय-परिवर्ती परिस्थितियों के लिए तो वैध है किन्तु स्थैतिक परिस्थितियों के लिए वैध नहीं हैं:

Options :

36669422735. $\oint \vec{B} \cdot \vec{dl} = \mu_0 I$

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36669422736. $\oint \vec{E} \cdot \vec{dl} = -\frac{\partial \Phi_B}{\partial t}$

36669422737. $\oint \vec{D} \cdot \vec{dA} = Q$

36669422738. $\oint \vec{E} \cdot \vec{dl} = 0$

Question Number : 43 Question Id : 3666947225 Question Type : MCQ Option Shuffling : Yes 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 source of time varying magnetic field may be

(A) a permanent magnet

(B) an electric field changing linearly with time

(C) direct current

(D) a decelerating charge particle

(E) an antenna fed with a digital signal

Choose the correct answer from the options given below:

Options :

36669422739. (A) only

36669422740. (D) only

36669422741. (C) and (E) only

36669422742. (B) and (D) only

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Question Number : 43 Question Id : 3666947225 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

समय परिवर्ती चुम्बकीय क्षेत्र का स्रोत हो सकता हैः

(A) एक स्थायी चुम्बक

(B) समय के साथ रेखीय रुप से परिवर्तित होता एक विधुत क्षेत्र

(C) दिष्ट धारा

(D) मंदन करता हुआ एक आवेशित कण

(E) एक ऐंटिना, डिजिटल सिग्नल निवेश के साथ

नीचे दिए गए विकल्पों में से सही उत्तर चुनेः

Options :

36669422739. केवल (A)

36669422740. केवल (D)

36669422741. केवल (C) एवं (E)

36669422742. केवल (B) एवं (D)

Question Number : 44 Question Id : 3666947226 Question Type : MCQ Option Shuffling : Yes 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 vessel of depth 'd' is half filled with oil of refractive index n_1 and the other half is filled with water of refractive index n_2. The apparent depth of this vessel when viewed from above will be-

Options :

36669422743. $\frac{d n_1 n_2}{2(n_1 + n_2)}$

36669422744

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$\frac{d n_1 n_2}{(n_1 + n_2)}$

36669422745. $\frac{2d(n_1 + n_2)}{n_1 n_2}$

$\frac{d(n_1 + n_2)}{2n_1 n_2}$

36669422746.

Question Number : 44 Question Id : 3666947226 Question Type : MCQ Option Shuffling : Yes 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 'd' गहराई वाला बर्तन, n_1 अपवर्तनांक वाले तेल से आधा भरा है, एवं बाकी का आधा n_2 अपवर्तनांक वाले पानी से भरा है। जब इस बर्तन को ऊपर से देखा जाता है, तो इसकी आभासी गहराई होगी

Options :

36669422743. $\frac{d n_1 n_2}{2(n_1 + n_2)}$

36669422744. $\frac{d n_1 n_2}{(n_1 + n_2)}$

36669422745. $\frac{2d(n_1 + n_2)}{n_1 n_2}$

36669422746. $\frac{d(n_1 + n_2)}{2n_1 n_2}$

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Question Number : 45 Question Id : 3666947227 Question Type : MCQ Option Shuffling : Yes 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 difference between threshold wavelengths for two metal surfaces A and B having work function $\Phi_A = 9\ eV$ and $\Phi_B = 4{\cdot}5\ eV$ in nm is :

{Given, hc = 1242 eV nm}

Options :

36669422747. 264

36669422748. 540

36669422749. 276

36669422750. 138

Question Number : 45 Question Id : 3666947227 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$\Phi_A = 9\ eV$ एवं $\Phi_B = 4{\cdot}5\ eV$ कार्यफलन वाले दो धात्विक तलों A एवं B के देहली तरंगदैर्ध्यों का अंतर nm में है:

(दिया है hc = 1242 eV nm)

Options :

36669422747. 264

36669422748. 540

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36669422750. 138

Question Number : 46 Question Id : 3666947228 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$^{238}_{92}A \rightarrow {}^{234}_{90}B + {}^{4}_{2}D + Q$$

In the given nuclear reaction, the approximate amount of energy released will be:

[Given, mass of $^{238}_{92}A = 238{\cdot}05079 \times 931.5\ \text{MeV/c}^2$,

mass of $^{234}_{90}B = 234{\cdot}04363 \times 931{\cdot}5\ \text{MeV/c}^2$,

mass of $^{4}_{2}D = 4{\cdot}00260 \times 931{\cdot}5\ \text{MeV/c}^2$]

Options :

36669422751. 3·82 MeV

36669422752. 4·25 MeV

36669422753. 5·9 MeV

36669422754. 2·12 MeV

Question Number : 46 Question Id : 3666947228 Question Type : MCQ Option Shuffling : Yes 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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$^{238}_{92}A \rightarrow ^{234}_{90}B + ^{4}_{2}D + Q$

दी गई नाभिकीय अभिक्रिया में, मुक्त हुई ऊर्जा का लगभग मान होगाः

(दिया है, $^{238}_{92}A$ का द्रव्यमान = 238·05079 × 931.5 MeV/c^2,

$^{234}_{90}B$ का द्रव्यमान = 234·04363 × 931·5 MeV/c^2,

$^{4}_{2}D$ का द्रव्यमान = 4·00260 × 931·5 MeV/c^2)

Options :

36669422751. 3·82 MeV

36669422752. 4·25 MeV

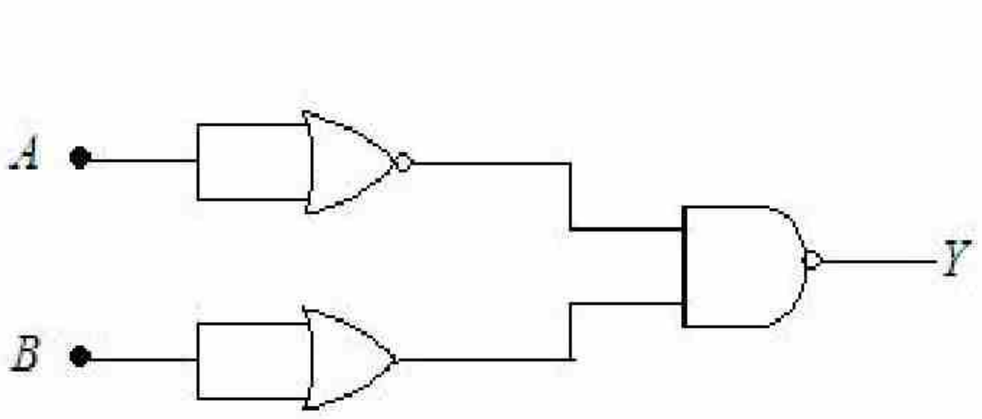
36669422753. 5·9 MeV

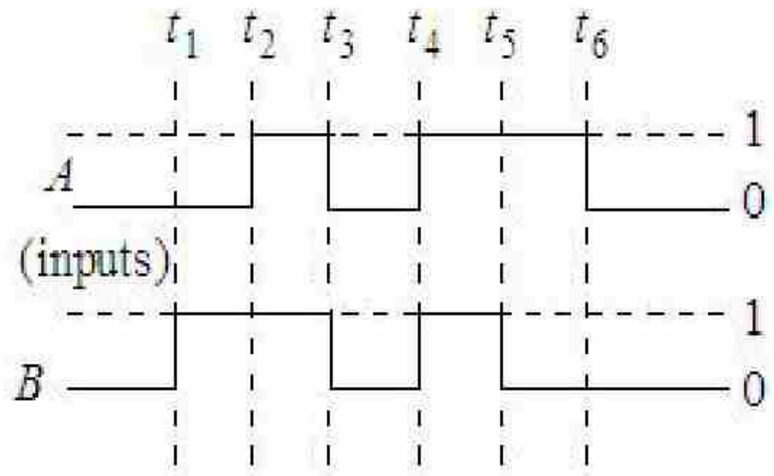
36669422754. 2·12 MeV

Question Number : 47 Question Id : 3666947229 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

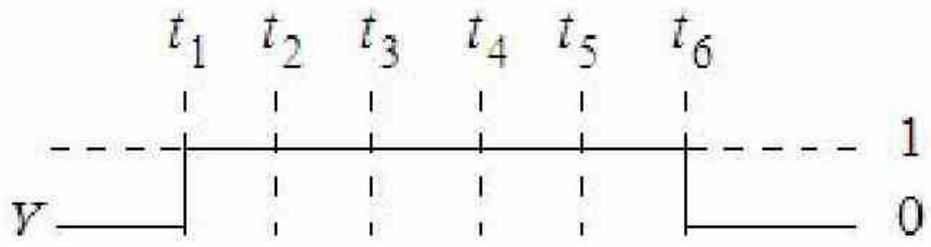
Correct Marks : 4 Wrong Marks : 1

For the following circuit and given inputs A and B, choose the correct option for output 'Y'





Options :



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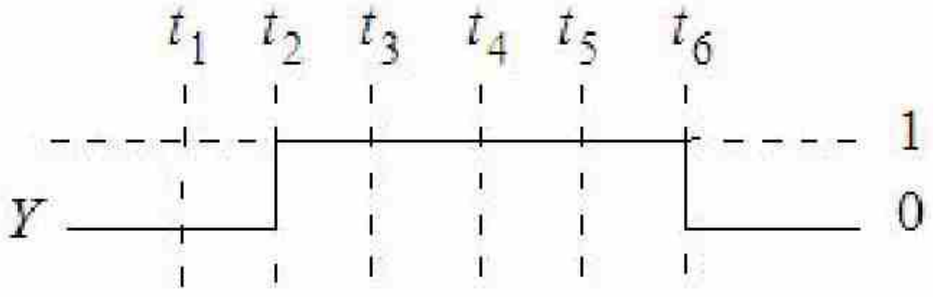
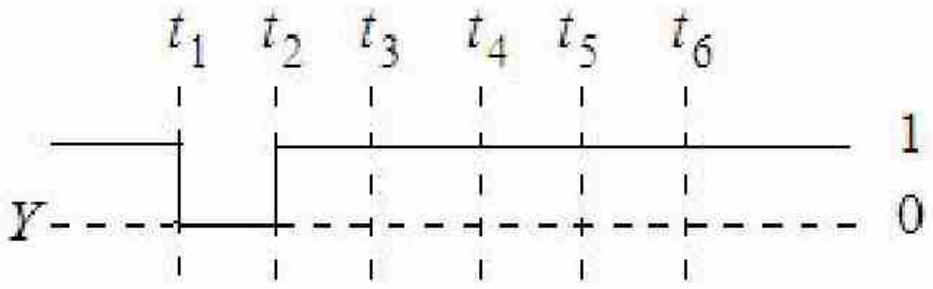
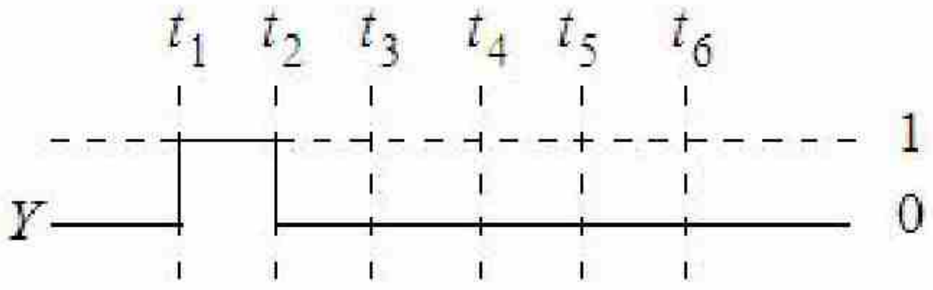
36669422756. 

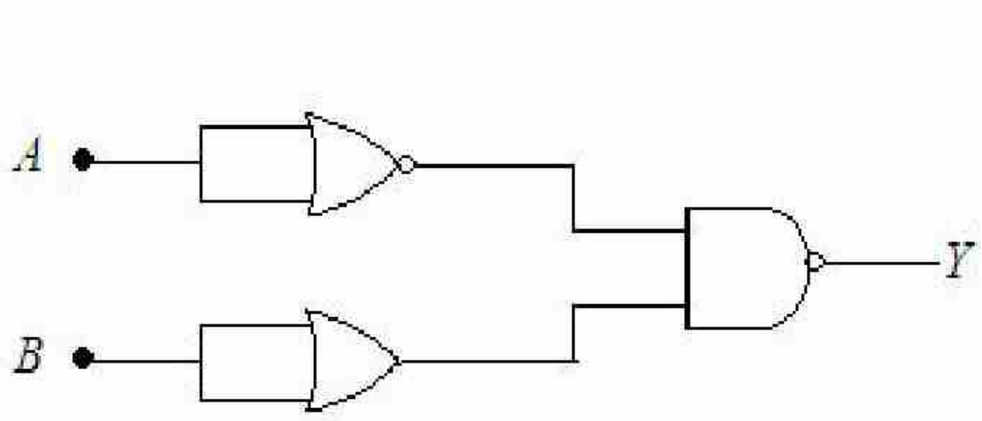
36669422757. 

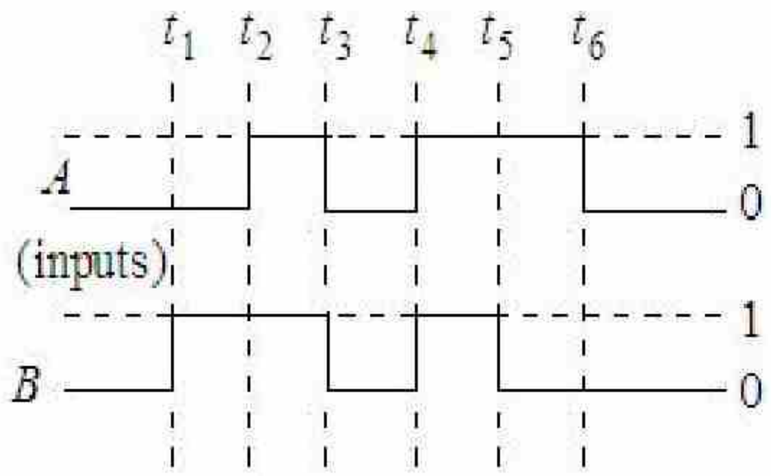
36669422758. 

Question Number : 47 Question Id : 3666947229 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

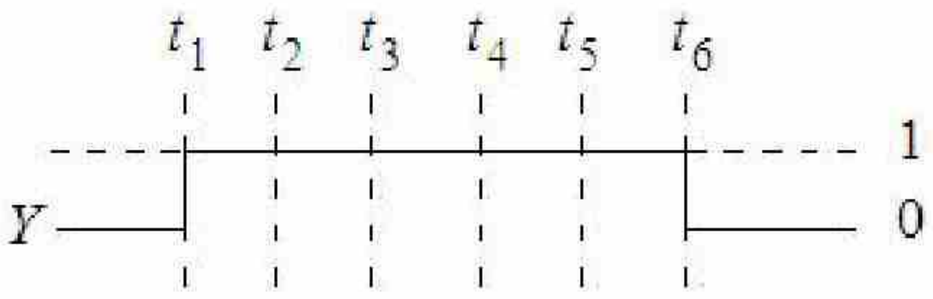
Correct Marks : 4 Wrong Marks : 1

नीचे दिए गए परिपथ एवं निवेशो (इनपुट) A एवं B के लिए, निर्गत (आउटपुट) 'Y' के लिए सही विकल्प चुनें:





Options :

36669422755. 

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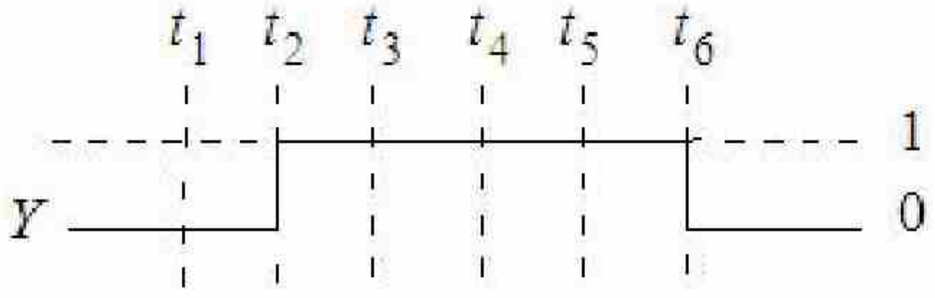
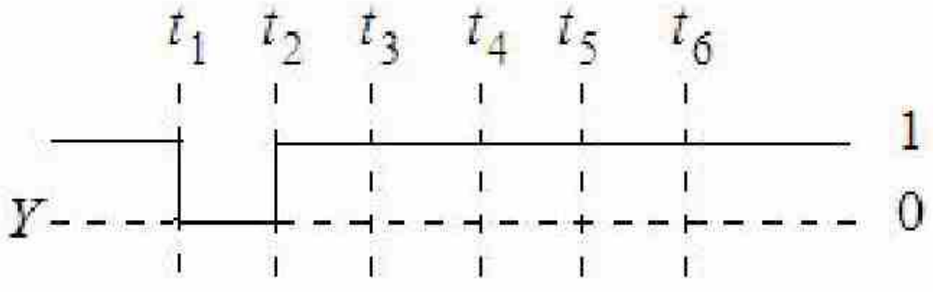
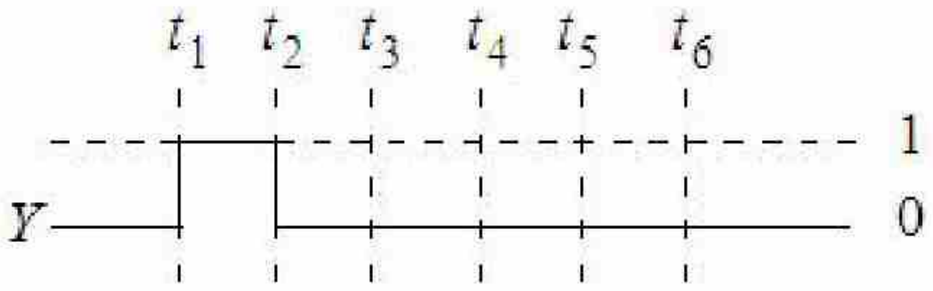




36669422757.



36669422758.

Question Number : 48 Question Id : 3666947230 Question Type : MCQ Option Shuffling : Yes 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 **(Layer of atmosphere)**	**List - II** **(Approximate height over earth's surface)**
(A) F_1 - Layer	(I) 10 km
(B) D - Layer	(II) 170 - 190 km
(C) Troposphere	(III) 100 km
(D) E - layer	(IV) 65 - 75 km

Choose the correct answer from the options given below:

Options :

36669422759. A – II, B – IV, C – III, D – I

36669422760. A – III, B – IV, C – I, D – II

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36669422761. A – II, B – IV, C – I, D – III

36669422762. A – II, B – I, C – IV, D – III

Question Number : 48 Question Id : 3666947230 Question Type : MCQ Option Shuffling : Yes 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 करो-

सूची - I (वातावरण की परतें)	सूची - II (पृथ्वी के तल के ऊपर लगभग ऊँचाई)
(A) F_1 - परत	(I) 10 km
(B) D - परत	(II) 170 - 190 km
(C) क्षोभमण्डल (ट्रोपोस्फीयर)	(III) 100 km
(D) E - परत	(IV) 65 - 75 km

नीचे दिए गए विकल्पों में से सही उत्तर चुनेः

Options :

36669422759. A – II, B – IV, C – III, D – I

36669422760. A – III, B – IV, C – I, D – II

36669422761. A – II, B – IV, C – I, D – III

36669422762. A – II, B – I, C – IV, D – III

Question Number : 49 Question Id : 3666947231 Question Type : MCQ Option Shuffling : Yes 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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Two charges each of magnitude 0.01 C and separated by a distance of 0·4 mm constitute an electric dipole. If the dipole is placed in an uniform electric field '$\vec{E}$' of 10 dyne/C making 30° angle with $\vec{E}$, the magnitude of torque acting on dipole is:

Options :

36669422763. $1{\cdot}0 \times 10^{-8}$ Nm

36669422764. $2{\cdot}0 \times 10^{-10}$ Nm

36669422765. $4{\cdot}0 \times 10^{-10}$ Nm

36669422766. $1{\cdot}5 \times 10^{-9}$ Nm

Question Number : 49 Question Id : 3666947231 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

0.01 C परिणाम वाले दो आवेश जो कि एक-दूसरे से 0.4 mm की दूरी पर हैं, एक विधुत द्विध्रुव बना रहे हैं। यदि इस द्विध्रुव को 10 डाइन/कूलाम्ब वाले किसी एकसमान विधुत क्षेत्र में $\vec{E}$ से 30° का कोण बनाते हुए रखा जाता है, तो द्विध्रुव पर कार्यरत बलाघूर्ण के परिमाण का मान है:

Options :

36669422763. $1{\cdot}0 \times 10^{-8}$ Nm

36669422764. $2{\cdot}0 \times 10^{-10}$ Nm

36669422765. $4{\cdot}0 \times 10^{-10}$ Nm

36669422766. $1{\cdot}5 \times 10^{-9}$ Nm

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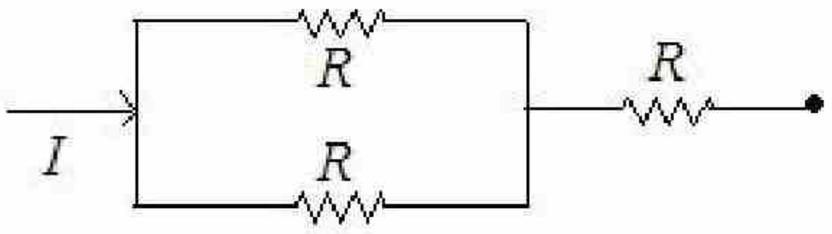
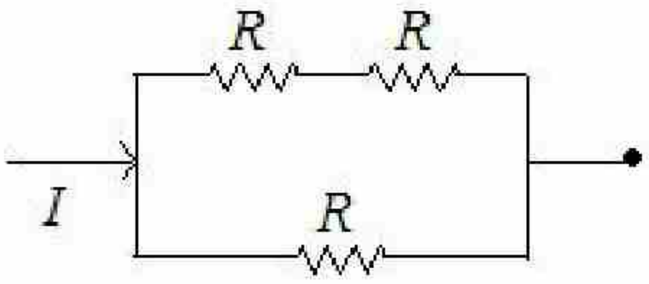
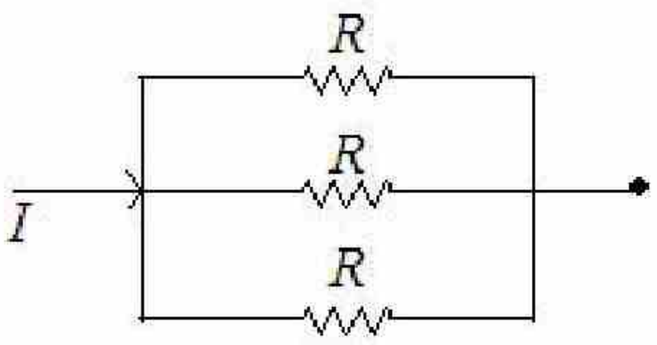
Question Number : 50 Question Id : 3666947232 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

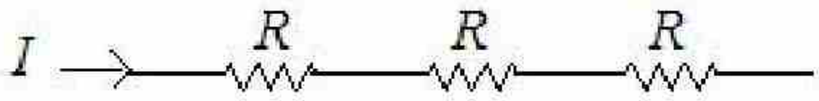
Correct Marks : 4 Wrong Marks : 1

Different combination of 3 resistors of equal resistance R are shown in the figures.
The increasing order for power dissipation is:

(A) 

(B) 

(C) 

(D) 

Options :

36669422767. $P_A < P_B < P_C < P_D$

36669422768. $P_C < P_B < P_A < P_D$

36669422769. $P_C < P_D < P_A < P_B$

36669422770. $P_B < P_C < P_D < P_A$

Question Number : 50 Question Id : 3666947232 Question Type : MCQ Option Shuffling : Yes 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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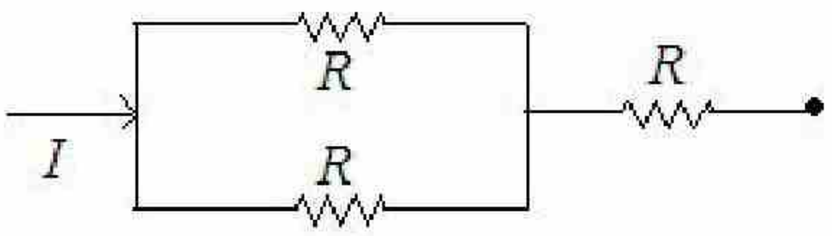
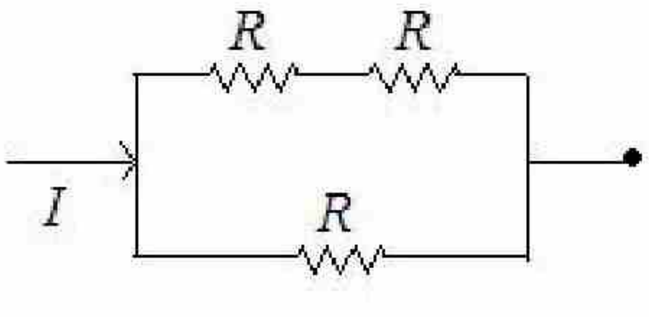
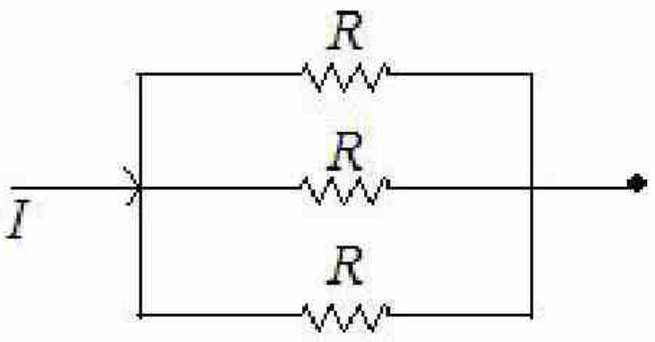
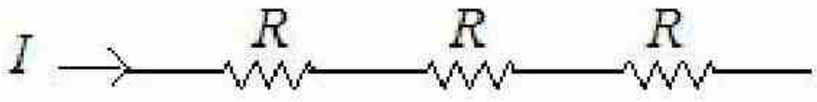
चित्रों में समान प्रतिरोधकता R वाले 3 प्रतिरोधों के अलग-अलग संयोजन प्रदर्शित हैं। शक्ति क्षय के लिए बढता हुआ क्रम है:

(A) 

(B) 

(C) 

(D) 

Options :

36669422767. $P_A < P_B < P_C < P_D$

36669422768. $P_C < P_B < P_A < P_D$

36669422769. $P_C < P_D < P_A < P_B$

36669422770. $P_B < P_C < P_D < P_A$

Physics Section B

Section Id :	366694419
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10

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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 :	366694419
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 51 Question Id : 3666947233 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The radius of 2nd orbit of He^+ of Bohr's model is r_1 and that of fourth orbit of Be^{3+} is represented as r_2. Now the ratio $\frac{r_2}{r_1}$ is $x : 1$. 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 : 51 Question Id : 3666947233 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

बोहर मॉडल के He^+ की द्वितीय कक्षा की त्रिज्या r_1 है, एवं इसके Be^{3+} की चतुर्थ कक्षा की त्रिज्या r_2 है। यदि अनुपात $\frac{r_2}{r_1}$ है $x : 1$ । तो x का मान _____ 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 : 52 Question Id : 3666947234 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A fish rising vertically upward with a uniform velocity of 8 ms^{-1}, observes that a bird is diving vertically downward towards the fish with the velocity of 12 ms^{-1}. If the refractive index of water is $\frac{4}{3}$, then the actual velocity of the diving bird to pick the fish, will be _____ ms^{-1}.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 52 Question Id : 3666947234 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

8 ms^{-1} के एकसमान वेग से ऊर्ध्वाधर ऊपर उठती हुई एक मछली देखती है कि एक चिडिया, मछली की तरफ उर्ध्वाधर नीचे की ओर 12 ms^{-1} के वेग से आ रही है। यदि पानी का अपवर्तनांक $\frac{4}{3}$ है, तो मछली को पकडने (उठाने) के लिए चिडिया का वास्तविक वेग _____ ms^{-1} होगा।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

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Text Areas : PlainText

Possible Answers :

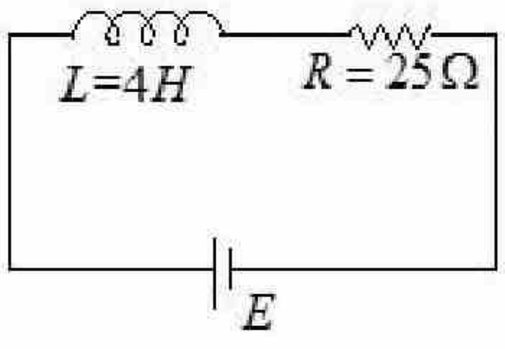
10

Question Number : 53 Question Id : 3666947235 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

In the given figure, an inductor and a resistor are connected in series with a battery of emf E volt. $\frac{E^a}{2b}$ J / s represents the maximum rate at which the energy is stored in the magnetic field (inductor). The numerical value of $\frac{b}{a}$ will be _____



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 : 3666947235 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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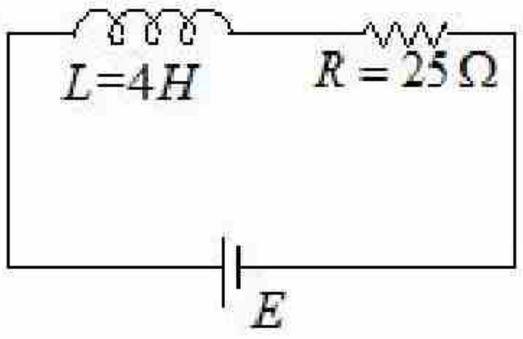
दिए हुए चित्र में, एक प्रेरक एवं एक प्रतिरोध E volt विद्युत वाहक बल (emf) वाली एक बैट्री के साथ श्रेणी क्रम में जुडे हैं। $\frac{E^a}{2b}$ J / s उस अधिकतम दर को प्रदर्शित करता है, जिस पर चुम्बकीय क्षेत्र में ऊर्जा संचित होती है। $\frac{b}{a}$ का आंकिक मान _____ होगा।



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 : 3666947236 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A thin infinite sheet charge and an infinite line charge of respective charge densities + σ and + λ are placed parallel at 5 m distance from each other. Points 'P' and 'Q' are at $\frac{3}{\pi}$ m and $\frac{4}{\pi}$ m perpendicular distances from line charge towards sheet charge, respectively. 'E_P' and 'E_Q' are the magnitudes of resultant electric field intensities at point 'P' and 'Q', respectively. If $\frac{E_P}{E_Q}=\frac{4}{a}$ for $2|\sigma| = |\lambda|$, then the value of a is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

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Question Number : 54 Question Id : 3666947236 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक अनन्त आवेशित तल एवं एक अनन्त रेखीय आवेश के आवेश घनत्व क्रमशः $+\sigma$ एवं $+\lambda$ हैं, जो कि एक-दूसरे से $5\ \text{m}$ की दूरी पर एक-दूसरे के समानान्तर रखे हैं। रेखीय आवेश से आवेशित तल की तरफ क्रमशः $\frac{3}{\pi}\ \text{m}$ एवं $\frac{4}{\pi}\ \text{m}$ की लम्बवत दूरियों पर बिन्दु 'P' एवं 'Q' हैं। E_P एवं E_Q क्रमशः बिन्दु 'P' एवं 'Q' पर परिणामी विद्युत क्षेत्र की तीव्रताओं के परिमाण हैं। यदि $2|\sigma| = |\lambda|$ के लिए $\frac{E_P}{E_Q} = \frac{4}{a}$ है तो a 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 : 3666947237 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

The elastic potential energy stored in a steel wire of length 20 m stretched through 2 cm is 80 J. The cross sectional area of the wire is _____ mm^2.

(Given, $y = 2.0 \times 10^{11}\ \text{Nm}^{-2}$)

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 : 55 Question Id : 3666947237 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक 20 m लम्बे तार को 2 cm तक खींचे जाने पर इसमें संचित प्रत्यास्थ स्थितिज ऊर्जा 80 J है। तार की अनुप्रस्थ काट का क्षेत्रफल _____ mm^2 है।

(दिया है, $y = 2.0 \times 10^{11}\ Nm^{-2}$)

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 : 3666947238 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A solid sphere is rolling on a horizontal plane without slipping. If the ratio of angular momentum about axis of rotation of the sphere to the total energy of moving sphere is $\pi : 22$ then, the value of its angular speed will be _____ rad/s.

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 : 3666947238 Question Type : SA Calculator : None

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

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किसी क्षैतिज तल पर, एक ठोस गोला बिना फिसले लुढ़क रहा है। यदि गोले के घूर्णन के अक्ष के परितः इसके कोणीय संवेग का, घूमते हुए गोले की कुल ऊर्जा से अनुपात $\pi : 22$ है, तो इसकी कोणीय चाल का मान _____ rad/s है।

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 : 3666947239 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

At a given point of time the value of displacement of a simple harmonic oscillator is given as $y = A\cos(30°)$.
If amplitude is 40 cm and kinetic energy at that time is 200 J, the value of force constant is $1.0 \times 10^{x}\ \mathrm{Nm}^{-1}$. 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 : 57 Question Id : 3666947239 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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किसी दिए हुए समय पर एक सरल लोलक के विस्थापन का मान किसी बिन्दु पर निम्नवत दिया गया है $y = A\cos(30°)$

यदि उस समय पर गतिज ऊर्जा 200 J एवं आयाम 40 cm है, तो बल नियतांक $1.0 \times 10^{x}\ \mathrm{Nm}^{-1}$ 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 : 58 Question Id : 3666947240 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

When a resistance of 5 Ω is shunted with a moving coil galvanometer, it shows a full scale deflection for a current of 250 mA, however when 1050 Ω resistance is connected with it in series, it gives full scale deflection for 25 volt. The resistance of galvanometer is _____ Ω.

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 : 3666947240 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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जब किसी चल कुंडली धारामापी के साथ 5 Ω का प्रतिरोध पार्श्व क्रम में लगाया जाता है तो 250 mA धारा के लिए पूर्ण विक्षेप (फुल स्केल विक्षेप) प्रदर्शित होता है, हालांकि जब इसके साथ 1050 Ω का प्रतिरोध श्रेणी क्रम में लगाया जाता है तो यह 25 volt के लिए पूर्ण विक्षेप देता है। धारामापी का प्रतिरोध _____ Ω है।

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

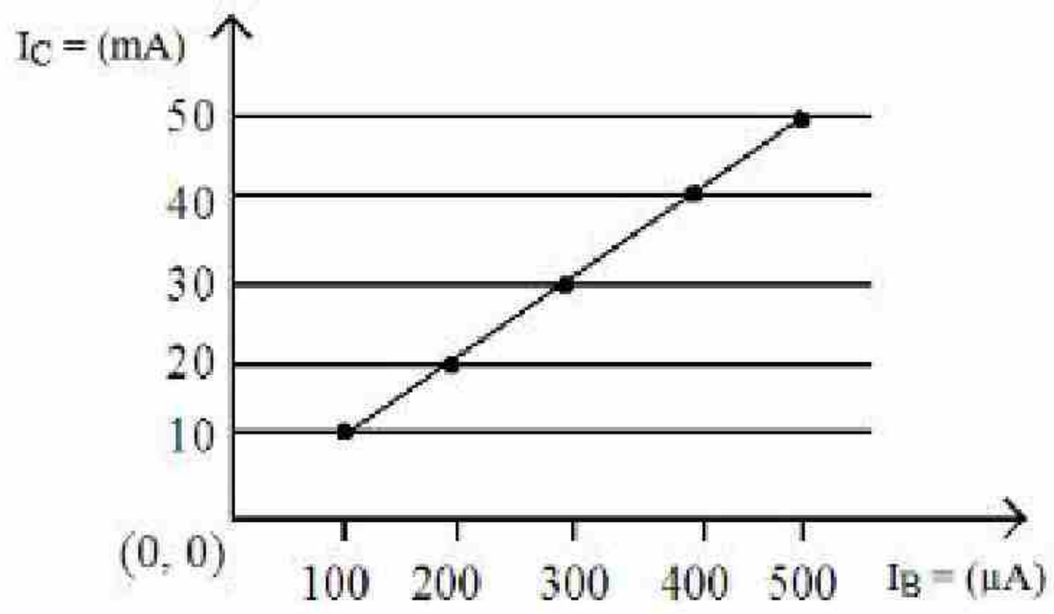
10

Question Number : 59 Question Id : 3666947241 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

From the given transfer characteristic of a transistor in CE configuration, the value of power gain of this configuration is 10^x, for $R_B = 10\ k\ \Omega$, and $R_C = 1\ k\ \Omega$. 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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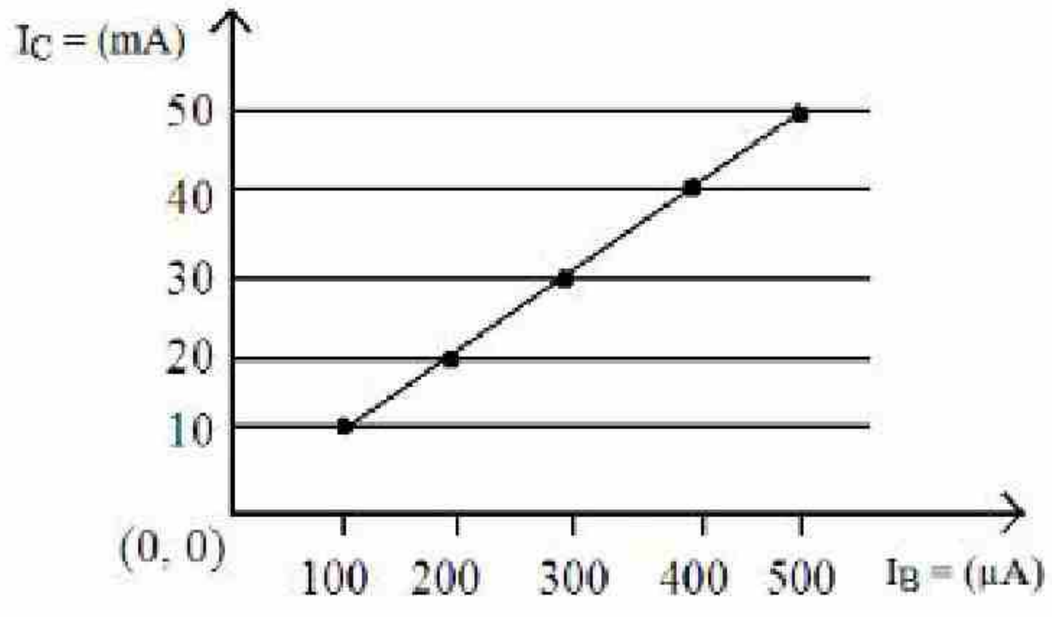
Question Number : 59 Question Id : 3666947241 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

उभयनिष्ठ उत्सर्जक (CE) अभिविन्यास में, एक ट्रान्जिस्टर के दिए हुए अंतरण अभिलक्षण से $R_B = 10\ k\Omega$ एवं $R_C = 1\ k\Omega$ के लिए, इस अभिविन्यास की शक्ति लब्धि 10^x प्राप्त होती 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 : 60 Question Id : 3666947242 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A potential V_o is applied across a uniform wire of resistance R. The power dissipation is P_1. The wire is then cut into two equal halves and a potential of V_o is applied across the length of each half. The total power dissipation across two wires is P_2. The ratio $P_2 : P_1$ is $\sqrt{x} : 1$. The value of x is _____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

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Possible Answers :

10

Question Number : 60 Question Id : 3666947242 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

R प्रतिरोध वाले किसी एकसमान तार के सिरों पर V_0 विभव आरोपित किया जाता है। यहाँ शक्ति क्षय P_1 है। अब तार को दो बराबर भागों में काटा जाता है एवं प्रत्येक आधे भाग के सिरों पर V_0 विभव आरोपित किया जाता है। दोनों तारों के सिरों पर कुल शक्ति क्षयित P_2 है। अनुपात $P_2 : P_1$ का मान $\sqrt{x} : 1$ 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

Chemistry Section A

Section Id :	366694420
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0

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Sub-Section Number : 1

Sub-Section Id : 366694420

Question Shuffling Allowed : Yes

Is Section Default? : null

Question Number : 61 Question Id : 3666947243 Question Type : MCQ Option Shuffling : Yes 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 energy of an electron in the first Bohr orbit of hydrogen atom is -2.18×10^{-18} J. Its energy in the third Bohr orbit is_____.

Options :

36669422781. One third of this value

36669422782. $\frac{1}{9}$ th of this value

36669422783. Three times of this value

36669422784. $\frac{1}{27}$ of this value

Question Number : 61 Question Id : 3666947243 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

हाइड्रोजन परमाणु की प्रथम बोर कक्षा में इलेक्ट्रान की ऊर्जा -2.18×10^{-18}J है। तृतीय बोर कक्षा में इसकी ऊर्जा है:

Options :

36669422781. इस मान का एक तिहाई

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36669422782. इस मान का $\frac{1}{9}$

36669422783. इस मान का तीन गुना

36669422784. इस मान का $\frac{1}{27}$

Question Number : 62 Question Id : 3666947244 Question Type : MCQ Option Shuffling : Yes 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 which of the following processes, the bond order increases and paramagnetic character changes to diamagnetic one ?

Options :

36669422785. $NO \rightarrow NO^{+}$

36669422786. $O_2 \rightarrow O_2^{+}$

36669422787. $O_2 \rightarrow O_2^{2-}$

36669422788. $N_2 \rightarrow N_2^{+}$

Question Number : 62 Question Id : 3666947244 Question Type : MCQ Option Shuffling : Yes Is

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

Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से किस प्रक्रम में आबन्ध क्रम बढ़ता है और अनुचुम्बकीय गुण का प्रति चुम्बकीय गुण में परिवर्तन हो जाता है ?

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Options :

36669422785. $NO \rightarrow NO^{+}$

36669422786. $O_2 \rightarrow O_2^{+}$

36669422787. $O_2 \rightarrow O_2^{2-}$

36669422788. $N_2 \rightarrow N_2^{+}$

Question Number : 63 Question Id : 3666947245 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

What happens when a lyophilic sol is added to a lyophobic sol?

Options :

36669422789. Lyophilic sol is dispersed in lyophobic sol.

36669422790. Lyophobic sol is coagulated

36669422791. Film of lyophilic sol is formed over lyophobic sol.

36669422792. Film of lyophobic sol is formed over lyophilic sol.

Question Number : 63 Question Id : 3666947245 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

क्या होता है जब एक द्रवरागी सॉल को द्रवविरागी सॉल में मिला देते हैं ?

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Options :

36669422789. द्रवविरागी सॉल में द्रवरागी सॉल विसर्जित हो जाता है।

36669422790. द्रवविरागी सॉल का स्कंदन हो जाता है।

36669422791. द्रवविरागी सॉल पर द्रवरागी सॉल की एक फिल्म बन जाती है।

36669422792. द्रवरागी सॉल पर द्रवविरागी सॉल की एक फिल्म बन जाती है।

Question Number : 64 Question Id : 3666947246 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which of the following statements are **not** correct ?

A. The electron gain enthalpy of F is more negative than that of Cl.

B. Ionization enthalpy decreases in a group of periodic table.

C. The electronegativity of an atom depends upon the atoms bonded to it.

D. Al_2O_3 and NO are examples of amphoteric oxides.

Choose the most appropriate answer from the options given below :

Options :

36669422793. A, B and D Only

36669422794. A, B, C and D

36669422795. B and D Only

36669422796. A, C and D Only

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Question Number : 64 Question Id : 3666947246 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन से कथन सही नहीं हैं ?

A. Cl की अपेक्षा F की इलेक्ट्रान लब्धि एन्थैल्पी अधिक ऋणात्मक हैं ।
B. आवर्त सारणी के ग्रुप में आयनन एन्थैलेपियाँ घटती हैं।
C. एक परमाणु की विद्युत् ऋणात्मकता उससे आबन्धित दूसरे परमाणुओं पर निर्भर करती हैं।
D. Al_2O_3 तथा NO उभयधर्मी ऑक्साइडो के उदाहरण हैं।

नीचे दी गए विकल्पों में से सर्वाधिक उचित उत्तर चुनिए:

Options :

36669422793. केवल A, B तथा D

36669422794. A, B, C तथा D

36669422795. केवल B तथा D

36669422796. केवल A, C तथा D

Question Number : 65 Question Id : 3666947247 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Which one of the following is most likely a mismatch ?

Options :

36669422797. Titanium - van Arkel Method

36669422798. Nickel - Mond process

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36669422799. Zinc - Liquation

36669422800. Copper - Electrolysis

Question Number : 65 Question Id : 3666947247 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित में से कौन सा एक अधिकतम संभावित बेमेल है:

Options :

36669422797. टाइटेनियम - वानआरकेल विधि

36669422798. निकैल - मॉन्ड प्रक्रम

36669422799. जिंक - द्रावगलन

36669422800. कॉपर - वैद्युत अपघटन

Question Number : 66 Question Id : 3666947248 Question Type : MCQ Option Shuffling : Yes 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: Permutit process is more efficient compared to the synthetic resin method for the softening of water.
Statement II: Synthetic resin method results in the formation of soluble sodium salts.

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

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Options :

36669422801. Both the Statements I and II are correct

36669422802. Both the Statements I and II are incorrect

36669422803. Statement I is correct but Statement II is incorrect

36669422804. Statement I is incorrect but Statement II is correct

Question Number : 66 Question Id : 3666947248 Question Type : MCQ Option Shuffling : Yes 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 है

कथन I - संश्लेषित रेजिन विधि की अपेक्षा परम्यूटिट प्रक्रम जल को मृदु करने में अधिक सक्षम है।

कथन II - संश्लेषित रेजिन विधि में घुलनशील सोडियम साल्ट बनते है।

उपरोक्त कथनों के लिए नीचे दिए गये विकल्पों में से सर्वाधिक उचित उत्तर चुनिए

Options :

36669422801. कथन I तथा कथन II दोनों सही है।

36669422802. कथन I तथा कथन II दोनों सही नहीं है।

36669422803. कथन I सही है परन्तु कथन II सही नहीं है।

36669422804. कथन I सही नहीं है परन्तु कथन II सही है।

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Question Number : 67 Question Id : 3666947249 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$Be(OH)_2$ reacts with $Sr(OH)_2$ to yield an ionic salt. Choose the incorrect option related to this reaction from the following :

Options :

36669422805. Both Sr and Be elements are present in the ionic salt.

36669422806. The reaction is an example of acid - base neutralization reaction.

36669422807. The element Be is present in the cationic part of the ionic salt.

36669422808. Be is tetrahedrally coordinated in the ionic salt.

Question Number : 67 Question Id : 3666947249 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$Sr(OH)_2$ से $Be(OH)_2$ अभिक्रिया करके एक आयनिक साल्ट देता है। निम्नलिखित में से इस अभिक्रिया के लिए जो विकल्प सही नहीं है, उसको चुनिए:

Options :

36669422805. दोनों तत्व Sr तथा Be आयनिक साल्ट में उपस्थित होते है।

36669422806. अभिक्रिया अम्ल-क्षार उदासीनीकरण अभिक्रिया का एक उदाहरण है।

36669422807. तत्व Be आयनिक साल्ट के धनायनिक भाग में उपस्थित होता है।

36669422808. आयनिक साल्ट में Be चतुष्फलकीय उपसहसंयोजित होता है।

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Question Number : 68 Question Id : 3666947250 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

ClF_5 at room temperature is a:

Options :

36669422809. Colourless liquid with trigonal bipyramidal geometry

36669422810. Colourless liquid with square pyramidal geometry

36669422811. Colourless gas with square pyramidal geometry

36669422812. Colourless gas with trigonal bipyramidal geometry.

Question Number : 68 Question Id : 3666947250 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

ClF_5 कमरे के तापमान पर है एक :

Options :

36669422809. रंगहीन द्रव जिसकी त्रिकोणी द्विपिरामिडी ज्यामिति है।

36669422810. रंगहीन द्रव जिसकी वर्ग पिरामिडी ज्यामिति है।

36669422811. रंगहीन गैस जिसकी वर्ग पिरामिडी ज्यामिति है।

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रंगहीन गैस जिसकी त्रिकोणीय द्विपिरामिडी ज्यामिति है।

Question Number : 69 Question Id : 3666947251 Question Type : MCQ Option Shuffling : Yes 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 from the following for borazine is:

Options :

36669422813. It is a cyclic compound.

36669422814. It contains banana bonds.

36669422815. It can react with water.

36669422816. It has electronic delocalization.

Question Number : 69 Question Id : 3666947251 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

बोरैजीन के लिए निम्नलिखित में से कौन सा कथन सही नही है।

Options :

36669422813. यह चक्रीय यौगिक हैं।

36669422814. इसमें केला बन्ध होते हैं।

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36669422815. यह जल से अभिक्रिया कर सकती हैं।

36669422816. इसमें इलेक्ट्रॉनिक अतिव्यापन होता हैं।

Question Number : 70 Question Id : 3666947252 Question Type : MCQ Option Shuffling : Yes 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 pair of lanthanides in which both elements have high third - ionization energy is:

Options :

36669422817. Eu, Gd

36669422818. Eu, Yb

36669422819. Dy, Gd

36669422820. Lu, Yb

Question Number : 70 Question Id : 3666947252 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

लैन्थेनायड़ों का वह युग्म जिसमे दोनों तत्वों की तृतीय आयनन ऊर्जा उच्च है

Options :

36669422817. Eu, Gd

36669422818. Eu, Yb

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36669422819. Dy, Gd

36669422820. Lu, Yb

Question Number : 71 Question Id : 3666947253 Question Type : MCQ Option Shuffling : Yes 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 mismatched combinations are

A. Chlorophyll - Co

B. Water hardness - EDTA

C. Photography - $[Ag(CN)_2]^-$

D. Wilkinson catalyst - $[(Ph_3P)_3RhCl]$

E. Chelating ligand - D-Penicillamine

Choose the correct answer from the options given below :

Options :

36669422821. A, C, and E Only

36669422822. A and C Only

36669422823. A and E Only

36669422824. D and E Only

Question Number : 71 Question Id : 3666947253 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

बेमेल संयोजन है

A. क्लोरोफिल - Co
B. जल की कठोरता - EDTA
C. फोटोग्राफी - $[Ag(CN)_2]^-$
D. विल्किन्सन उत्प्रेरक -$[(Ph_3P)_3RhCl]$
E. कीलेटिंग लिगन्ड - D-पेनिसिलऐमीन

नीचे दिए विकल्पों में से सही उत्तर चुनिए

Options :

36669422821. केवल A, C, और E

36669422822. केवल A और C

36669422823. केवल A और E

36669422824. केवल D और E

Question Number : 72 Question Id : 3666947254 Question Type : MCQ Option Shuffling : Yes 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 radical which mainly causes ozone depletion in the presence of UV radiations is :

Options :

36669422825. $NO^{\bullet}$

36669422826. $\dot{O}H$

36669422827. $Cl^{\bullet}$

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$CH_3^{\bullet}$

Question Number : 72 Question Id : 3666947254 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

मूलक जो मुख्य रूप से पराबैंगनी विकिरणों की उपस्थिति में ओजोन क्षय करता है, वह है -

Options :

36669422825. $NO^{\bullet}$

36669422826. $\dot{O}H$

36669422827. $Cl^{\bullet}$

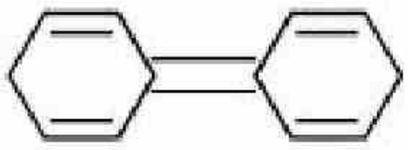
36669422828. $CH_3^{\bullet}$

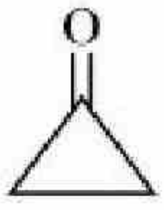
Question Number : 73 Question Id : 3666947255 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

Among the following compounds, the one which shows highest dipole moment is

Options :

36669422829. 

36669422830. 

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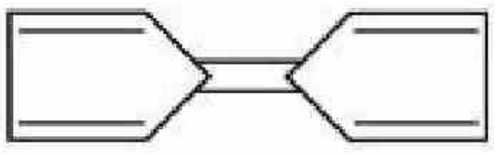
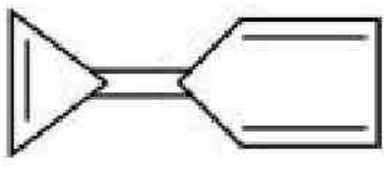


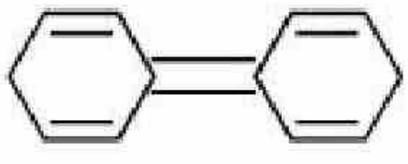
36669422832. 

Question Number : 73 Question Id : 3666947255 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

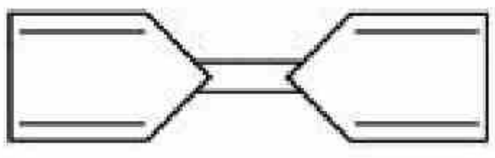
Correct Marks : 4 Wrong Marks : 1

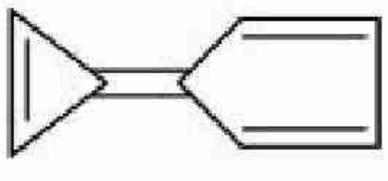
निम्नलिखित यौगिकों में से जो उच्चतम द्विध्रुव आघूर्ण दर्शाता है, वह है -

Options :

36669422829. 

36669422830. 

36669422831. 

36669422832. 

Question Number : 74 Question Id : 3666947256 Question Type : MCQ Option Shuffling : Yes 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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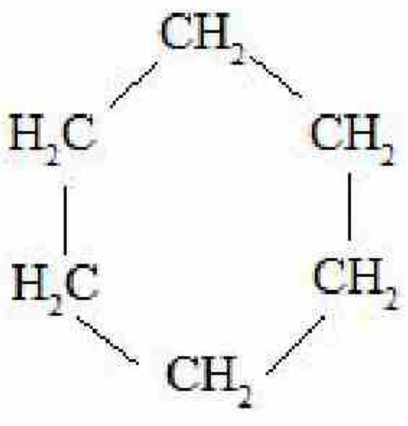
In the following reaction 'X' is

$$CH_3(CH_2)_4CH_3 \xrightarrow[\Delta]{\text{Anhy.}AlCl_3,\ HCl} \text{'X'}$$
major product

Options :

36669422833. $CH_3(CH_2)_4CH_2Cl$

36669422834. $Cl\text{-}CH_2\text{-}(CH_2)_4\text{-}CH_2\text{-}Cl$

36669422835. 

36669422836. $CH_3CH(CH_3)-(CH_2)_2CH_3$

Question Number : 74 Question Id : 3666947256 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

निम्नलिखित अभिक्रिया में 'X' है

$$CH_3(CH_2)_4CH_3 \xrightarrow[\Delta]{\text{Anhy.}AlCl_3,\ HCl} \text{'X'}$$
मुख्य उत्पाद

Options :

36669422833. $CH_3(CH_2)_4CH_2Cl$

36669422834. $Cl\text{-}CH_2\text{-}(CH_2)_4\text{-}CH_2\text{-}Cl$

36669422835.

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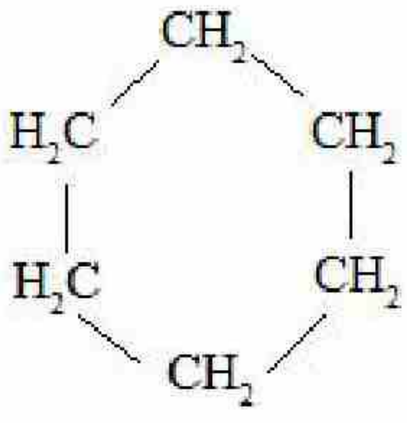

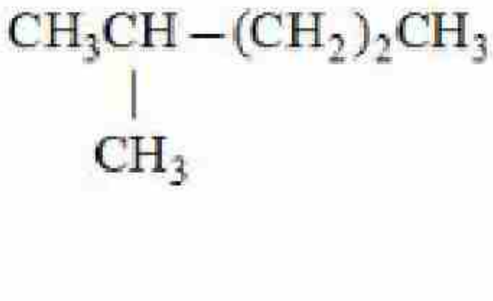

36669422836.

Question Number : 75 Question Id : 3666947257 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

2-Methyl propyl bromide reacts with $C_2H_5O^-$ and gives 'A' whereas on reaction with C_2H_5OH it gives 'B'. The mechanism followed in these reactions and the products 'A' and 'B' respectively are :

Options :

36669422837. S_N2, A = iso-butyl ethyl ether; S_N1, B = tert-butyl ethyl ether

36669422838. S_N1, A = tert-butyl ethyl ether; S_N2, B = iso-butyl ethyl ether

36669422839. S_N1, A = tert-butyl ethyl ether; S_N1, B = 2-butyl ethyl ether

36669422840. S_N2, A= 2-butyl ethyl ether; S_N2, B = iso-butyl ethyl ether

Question Number : 75 Question Id : 3666947257 Question Type : MCQ Option Shuffling : Yes 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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2- मेथिल प्रोपिल ब्रोमाइड $C_2H_5O^-$ से अभिक्रिया करके 'A' देता है जबकी यह C_2H_5OH से अभिक्रिया करके 'B' देता है

इन अभिक्रियाओं द्वारा अनुसरित क्रिया विधि तथा उत्पाद 'A' और 'B' क्रमश: हैं

Options :

36669422837. S_N2, A = आइसो-ब्यूटिल एथिल ईथर; S_N1, B = tert- ब्यूटिल एथिल ईथर

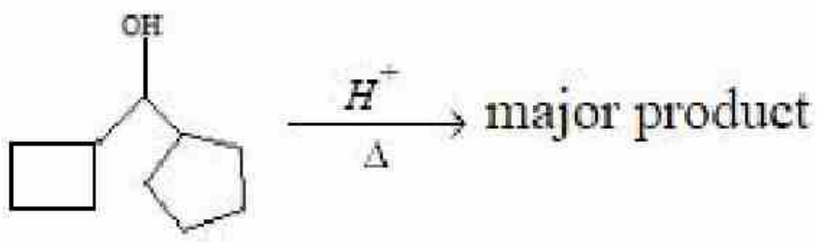
36669422838. S_N1, A = tert ब्यूटिल एथिल ईथर; S_N2, B = आइसो-ब्यूटिल एथिल ईथर

36669422839. S_N1, A = tert-ब्यूटिल एथिल ईथर; S_N1, B = 2 ब्यूटिल एथिल ईथर

36669422840. S_N2, A = 2-ब्यूटिल एथिल ईथर; S_N2, B = आइसो-ब्यूटिल एथिल ईथर

Question Number : 76 Question Id : 3666947258 Question Type : MCQ Option Shuffling : Yes 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 above reaction, left hand side and right hand side rings are named as 'A' and 'B' respectively. They undergo ring expansion. The correct statement for this process is:

Options :

36669422841. Finally both rings will become six membered each.

36669422842. Finally both rings will become five membered each.

36669422843. Ring expansion can go upto seven membered rings

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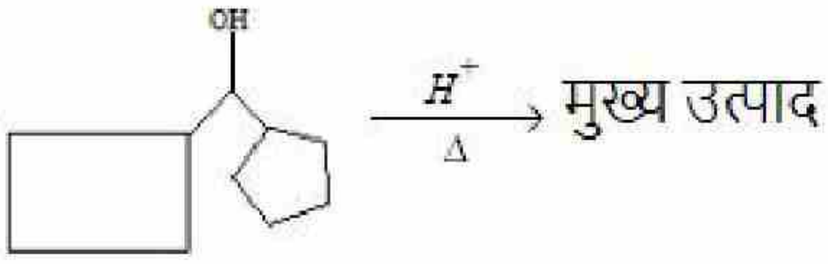
36669422844. Only A will become 6 membered.

Question Number : 76 Question Id : 3666947258 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1



उपरोक्त अभिक्रिया में बायीं ओर तथा दायीं ओर के वलयों कों क्रमश: 'A' तथा 'B' नाम दिया गया हैI इस अभिक्रिया में इन वलयों का विस्तार होता हैI इस प्रक्रम के लिए सही कथन है :

Options :

36669422841. अंत में दोनों वलयों में से प्रत्येक छः सदस्यीय हो जाएगा।

36669422842. अंत में दोनों वलयों में से प्रत्येक पांच सदस्यीय हो जाएगा।

36669422843. सात सदस्यीय वलय बनने तक वलय विस्तार हो सकता है।

36669422844. केवल A छः सदस्यीय हो जायेगा।

Question Number : 77 Question Id : 3666947259 Question Type : MCQ Option Shuffling : Yes 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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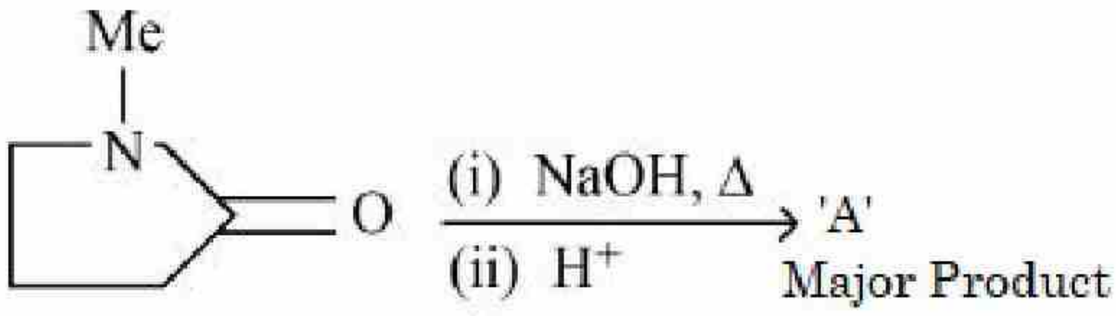
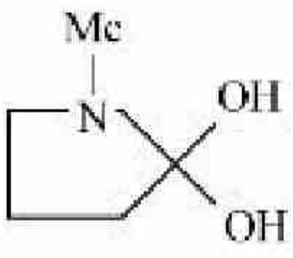
In the reaction given below

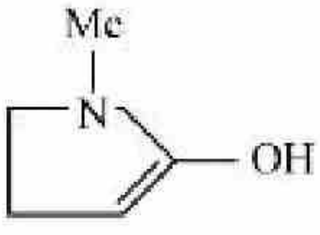


'A' is

Options :

36669422845. 

36669422846. 

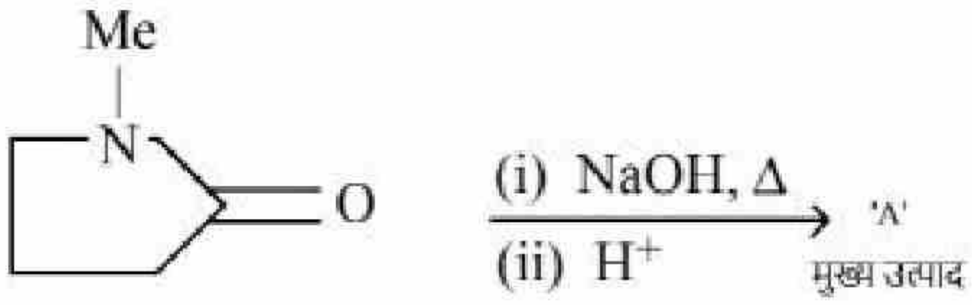
36669422847. 

36669422848. 

Question Number : 77 Question Id : 3666947259 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

नीचे दी गयी अभिक्रियाओं में



'A' है

Options :

36669422845. 

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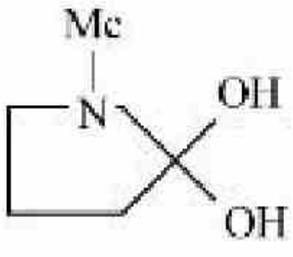
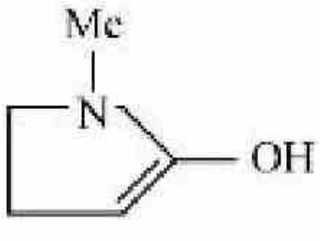
36669422846. 

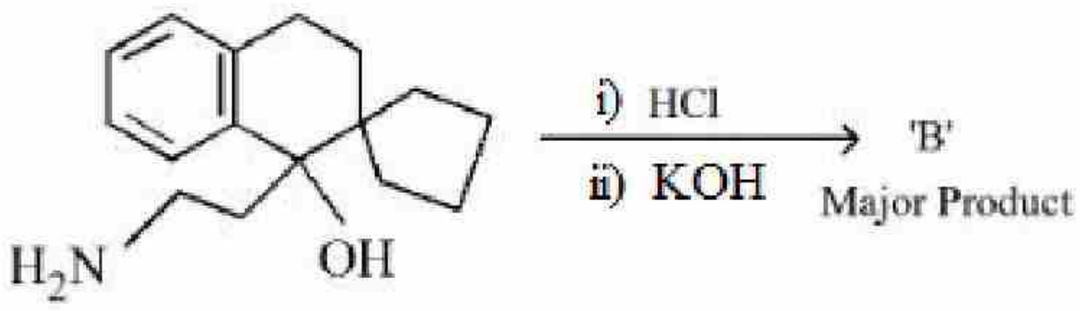
36669422847. 

36669422848. 

Question Number : 78 Question Id : 3666947260 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

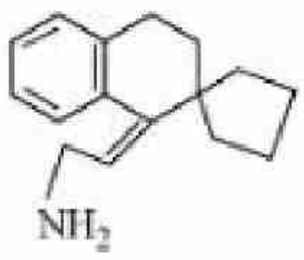
Correct Marks : 4 Wrong Marks : 1

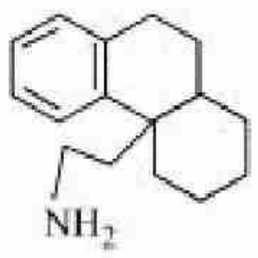
In the reaction given below



'B' is :

Options :

36669422849. 

36669422850. 

36669422851.

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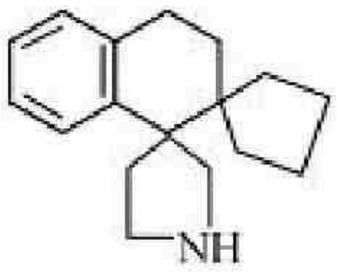
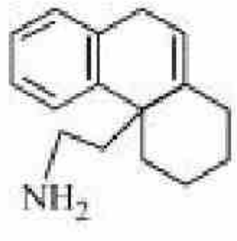
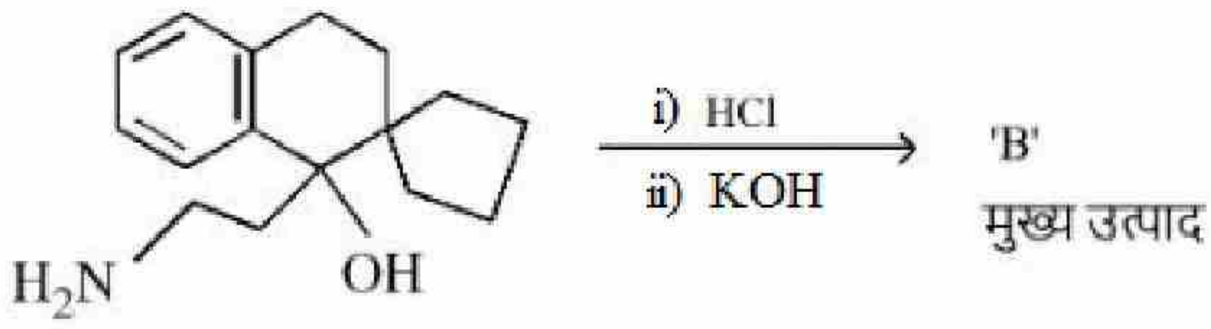


36669422852. 

Question Number : 78 Question Id : 3666947260 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

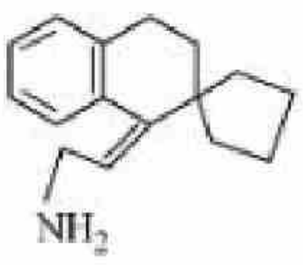
Correct Marks : 4 Wrong Marks : 1

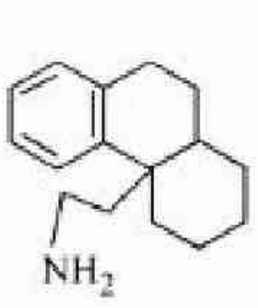
नीचे दी गयी अभिक्रिया में

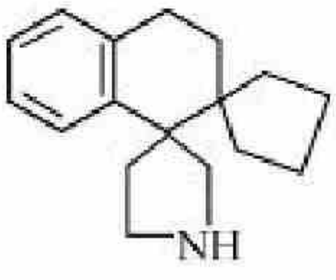


'B' है

Options :

36669422849. 

36669422850. 

36669422851. 

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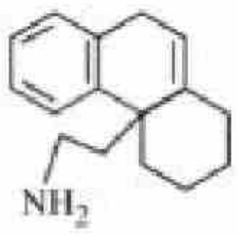
36669422852. 

Question Number : 79 Question Id : 3666947261 Question Type : MCQ Option Shuffling : Yes 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 the following

Column-A	Column-B
a) Nylon 6	I. Natural Rubber
b) Vulcanized Rubber	II. Cross Linked
c) cis-1, 4-polyisoprene	III. Caprolactam
d) Polychloroprene	IV. Neoprene

Choose the correct answer from options given below :

Options :

36669422853. a→II, b→III, c→IV, d→I

36669422854. a→III, b→II, c→I, d→IV

36669422855. a→III, b→IV, c→I, d→II

36669422856. a→IV, b→III, c→II, d→I

Question Number : 79 Question Id : 3666947261 Question Type : MCQ Option Shuffling : Yes 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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निम्नलिखित कालमों A तथा B का मिलान कीजिए -

कॉलम -A	**कॉलम -B**
a) नायलान 6	I. प्राकृतिक रबर
b) वल्कनीकृत रबर	II. तिर्यक बन्धित
c) cis-1, 4 पालीआइसोप्रीन	III. कैप्रोलैकटम
d) पालीक्लोरोप्रीन	IV. नीओप्रीन

नीचे दिए विकल्पों में से सही उत्तर चुनिए :

Options :

36669422853. a→II, b→III, c→IV, d→I

36669422854. a→III, b→II, c→I, d→IV

36669422855. a→III, b→IV, c→I, d→II

36669422856. a→IV, b→III, c→II, d→I

Question Number : 80 Question Id : 3666947262 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

$$\text{D -(+)- Glyceraldehyde} \xrightarrow[\text{ii) } H_2O / H^+]{\text{i) HCN}}{\text{iii) } HNO_3}$$

The products formed in the above reaction are

Options :

36669422857. Two optically active products

36669422858. One optically active and one meso product

36669422859. Two optically inactive products

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36669422860. One optically inactive and one meso product.

Question Number : 80 Question Id : 3666947262 Question Type : MCQ Option Shuffling : Yes Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Wrong Marks : 1

D (+) ग्लिसरैल्डिहाइड $\xrightarrow[\text{iii) } HNO_3]{\text{i) } HCN \quad \text{ii) } H_2O / H^+}$

उपरोक्त अभिक्रिया में उत्पन्न उत्पाद :

Options :

36669422857. दो ध्रुवण घूर्णक उत्पाद है।

36669422858. एक ध्रुवण घूर्णक उत्पाद है तथा एक मेसो (meso) उत्पाद है ।

36669422859. दो ध्रुवण आघूर्णक उत्पाद है।

36669422860. एक ध्रुवण आघूर्णक है और एक मेसो (meso) उत्पाद है ।

Chemistry Section B

Section Id :	366694421
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	10
Number of Questions to be attempted :	5
Section Marks :	20

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Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	366694421
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 81 Question Id : 3666947263 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$KMnO_4$ is titrated with ferrous ammonium sulphate hexahydrate in presence of dilute H_2SO_4. Number of water molecules produced for 2 molecules of $KMnO_4$ is_____

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 81 Question Id : 3666947263 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

तनु H_2SO_4 की उपस्थिति में $KMnO_4$ का फेरस अमोनियम सल्फेट हेक्साहाइड्रेट से जब अनुमापन करते हैं तब $KMnO_4$ के 2 अणु के लिए उत्पन्न जल के अणुओं की संख्या_____ है

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

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Text Areas : PlainText

Possible Answers :

10

Question Number : 82 Question Id : 3666947264 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

A certain quantity of real gas occupies a volume of 0.15 dm^3 at 100 atm and 500 K when its compressibility factor is 1.07. Its volume at 300 atm and 300 K (When its compressibility factor is 1.4) is _____ $\times 10^{-4}$ dm^3 (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 : 82 Question Id : 3666947264 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

वास्तविक गैस की एक निश्चित मात्रा 100 atm तथा 500 K पर 0.15 dm^3 आयतन घेरती है, जब इसका संपीडयता गुणांक 1.07 हैI 300 atm तथा 300 K पर इसका आयतन (जब इसका संपीडयता गुणांक 1.4 है) होगा _____ $\times 10^{-4}$ dm^3 (निकटतम पूर्णांक मे)

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 : 83 Question Id : 3666947265 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$A_2+B_2 \rightarrow 2AB.\ \Delta H_f^0 = -200\ \text{kJ mol}^{-1}$

AB, A_2 and B_2 are diatomic molecules. If the bond enthalpies of A_2, B_2 and AB are in the ratio 1:0.5:1, then the bond enthalpy of A_2 is _____ kJ 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 : 83 Question Id : 3666947265 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$A_2+B_2 \rightarrow 2AB.\ \Delta H_f^0 = -200\text{kJ mol}^{-1}$

AB, A_2 तथा B_2 द्विपरमाण्विक अणु है I यदि A_2, B_2 तथा AB की आबन्ध एन्थैल्पीयाँ 1:0.5:1 अनुपात में हैं तो A_2 की आबन्ध एन्थैल्पी _____ kJ mol^{-1} होगी (निकटतम पूर्णांक में)

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 : 84 Question Id : 3666947266 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

Solution of 12 g of non-electrolyte (A) prepared by dissolving it in 1000 mL of water exerts the same osmotic pressure as that of 0.05 M glucose solution at the same temperature. The empirical formula of A is CH_2O. The molecular mass of A is _____ g. (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 : 84 Question Id : 3666947266 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

12 g वैद्युत-अनपघट्य को 1000 mL जल में घोल कर बनाया गया विलयन उतना ही परासरण दाब उत्पन्न करता है जितना उसी ताप पर ग्लूकोस का 0.05 M विलयन। A का मूलानुपाती सूत्र CH_2O हैI A का आणविक द्रव्यमान _____g 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 : 85 Question Id : 3666947267 Question Type : SA Calculator : None

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

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Correct Marks : 4 Wrong Marks : 1

25.0 mL of 0.050 M $Ba(NO_3)_2$ is mixed with 25.0 mL of 0.020 M NaF. K_{sp} of BaF_2 is 0.5×10^{-6} at 298 K. The ratio of $[Ba^{2+}]\,[F^-]^2$ and K_{sp} is _____.
(Nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 85 Question Id : 3666947267 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$0.050\ M\ Ba(NO_3)2$ के 25.0 mL को 0.020 M. NaF के 25.0 mL के साथ मिश्रित किया गया है। BaF_2 का 298 K पर Ksp 0.5×10^{-6} है, $[Ba^{2+}]\,[F^-]^2$ तथा Ksp का अनुपात _____ है।

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 : 3666947268 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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A metal surface of 100 cm^2 area has to be coated with nickel layer of thickness 0.001 mm. A current of 2A was passed through a solution of $Ni(NO_3)_2$ for 'x' seconds to coat the desired layer. The value of x is _____. (Nearest integer)
(ρ_{Ni} (density of Nickel) is 10 g mL^{-1}, Molar mass of Nickel is 60 g mol^{-1}
F=96500 C mol^{-1})

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 86 Question Id : 3666947268 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

$100\ cm^2$ क्षेत्रफल की एक धातु की सतह को 0.001 mm मोटाई की निकैल परत से ढकना है। इस परत के लिए $Ni(NO_3)_2$ के विलयन में 2A की विद्युत धारा 'x' सेकन्ड तक प्रवाहित की गयी है। x का मान_____ है (निकटतम पूर्णांक में)

(ρ_{Ni} (निकैल का घनत्व) है 10 g mL^{-1} निकैल का मोलर द्रव्यमान 60 g mol^{-1})
(F=96500 C 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 : 87 Question Id : 3666947269 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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$t_{87.5}$ is the time required for the reaction to undergo 87.5% completion and t_{50} is the time required for the reaction to undergo 50% completion.The relation between $t_{87.5}$ and t_{50} for a first order reaction is $t_{87.5} = x \times t_{50}$
The value of x is _____.(Nearest integer)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 87 Question Id : 3666947269 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक अभिक्रिया 87.5% पूर्ण होने के लिए आवश्यक समय है $t_{87.5}$ तथा 50% पूर्ण होने के लिए आवश्यक समय t_{50} है। $t_{87.5}$ तथा t_{50} के मध्य संबंध $t_{87.5} = x \times t_{50}$ हो, तो x का मान _____ होगा। (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 : 88 Question Id : 3666947270 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

An organic compound gives 0.220 g of CO_2 and 0.126 g of H_2O on complete combustion. If the % of carbon is 24 then the % of hydrogen is _____ $\times 10^{-1}$. (Nearest integer)

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Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

10

Question Number : 88 Question Id : 3666947270 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

एक कार्बनिक यौगिक पूर्णदहन पर $0.220\text{g}\ CO_2$ तथा $0.126\text{g}\ H_2O$ देता है। यदि उसमें कार्बन की %, 24 हो तो H की प्रतिशत होगी _____ $\times 10^{-1}$. (निकटतम पूर्णांक में)

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

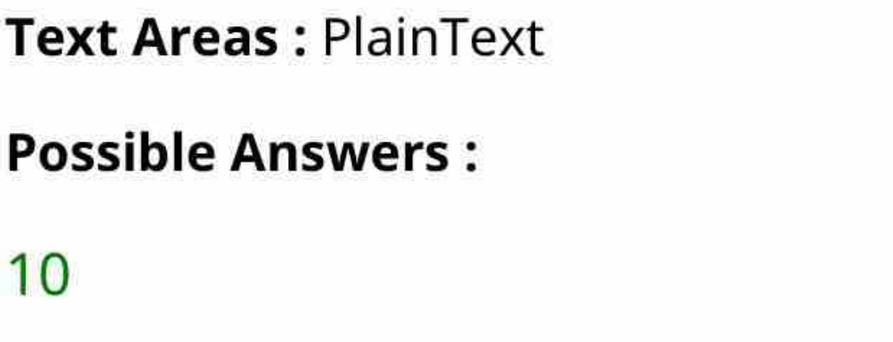
10

Question Number : 89 Question Id : 3666947271 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

For the given reaction



'A'

The total number of possible products formed by tertiary carbocation of A is _____.

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Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

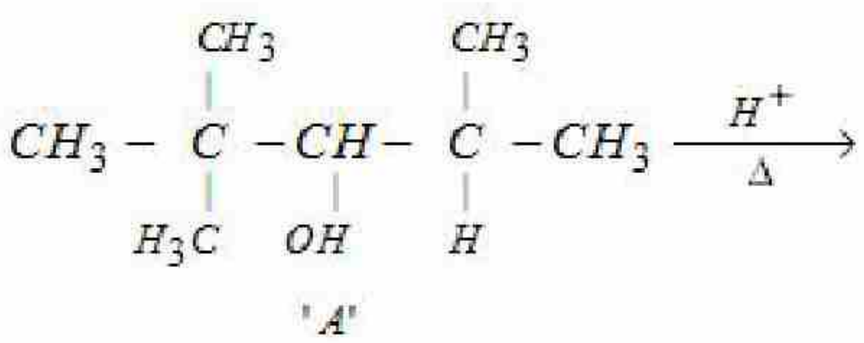
10

Question Number : 89 Question Id : 3666947271 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

नीचे दी गयी अभिक्रिया



के लिए A के तृतीयक कार्बोधनायन से संभव कुल उत्पादों 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 : 3666947272 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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20 mL of calcium hydroxide was consumed when it was reacted with 10 mL of unknown solution of H_2SO_4. Also 20 mL standard solution of 0.5 M HCl containing 2 drops of phenolphthalein was titrated with calcium hydroxide, the mixture showed pink colour when burette displayed the value of 35.5 mL whereas the burette showed 25.5 mL initially. The concentration of H_2SO_4 is _____M.(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 : 90 Question Id : 3666947272 Question Type : SA Calculator : None

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

Correct Marks : 4 Wrong Marks : 1

H_2SO_4 के एक अज्ञात विलयन से अभिक्रिया करने पर कैल्शियम हाइड्राक्साइड के 20 mL उपयोग में आते हैI 0.5 M HCl के मानक विलयन में 2 बूँद फीनालफ्थेलिन डालकर कैल्शियम हाइड्राक्साइड से अनुमापन करने पर मिश्रण गुलाबी रंग दर्शाता है जब ब्यूरेट मात्रा 35.5 mL प्रदर्शित करता है। प्रारंभ में ब्यूरेट 25.5 mL मात्रा दिखा रहा था । H_2SO_4 की सांद्रता_____M 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

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