Notations:
1. Options shown in green color and with ✔ icon are correct.
2. Options shown in red color and with ✗ icon are incorrect.
In the following statements ________

(i) Relation is a special case of function
(ii) Function is a special case of relation
(iii) Both relation and function are same

సమీప సంఖ్యల సంఖ్యలలో విభాగాలు ________

(i) లేదా రెండు సంఖ్యల సంఖ్యలలో విభాగాలు
(ii) రెండు సంఖ్యల సంఖ్యలలో విభాగాలు
(iii) లేదా రెండు సంఖ్యల సంఖ్యలలో విభాగాలు

Options:

(iii) is true, (i) & (ii) are false

1. **
2. (i) is True, (ii) & (iii) are false
(i) ఇది సత్యం, (ii) మొదటి (iii) మొదటి

(ii) is True, (i) & (iii) are false
(ii) ఇది సత్యం, (i) మొదటి (iii) మొదటి

3. All (i), (ii) & (iii) are true
(i), (ii) & (iii) ఎవరైనయాతి

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Question Number : 2 Question Id : 8135611282 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( \cos(\theta_1) + \cos(\theta_2) + \cos(\theta_3) + \cos(\theta_4) = -4 \), then the value of \( \cot\left(\frac{\theta_1}{2}\right) + \cot\left(\frac{\theta_2}{2}\right) + \cot\left(\frac{\theta_3}{2}\right) + \cot\left(\frac{\theta_4}{2}\right) = \)

\( \cos \theta_1 + \cos \theta_2 + \cos \theta_3 + \cos \theta_4 = -4 \) మొదలుగా, \( \cot\left(\frac{\theta_1}{2}\right) + \cot\left(\frac{\theta_2}{2}\right) + \cot\left(\frac{\theta_3}{2}\right) + \cot\left(\frac{\theta_4}{2}\right) = \)

Options :

1. 4
2. 1
3. 2
4. 0

---

Question Number : 3 Question Id : 8135611283 Question Type : MCQ Display Question AP EAMCET 2020
The tangent to the curve $y = e^{2x}$ at the point $(0, 1)$ meets the $x$-axis at ________

Options:
1. $\left( 2, 0 \right)$
2. $\left( 0, 0 \right)$
3. $\left( -\frac{1}{2}, 0 \right)$
4. $\left( \frac{1}{2}, 0 \right)$

Which of the following is not a root of $f(x) = x^3 - 11x^2 + 36x - 36$?

Options:
1. $2$
2. $4$
3. $3$
4. $6$
Question Number : 5 Question Id : 8135611285 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let \( u \) and \( v \) be two vectors. Then \( |u - v| = |u| - |v| \) if and only if

\[ u \text{ and } v \text{ have the opposite direction} \]

\[ u \text{ and } v \text{ have the same direction} \]

\[ u \text{ and } v \text{ are perpendicular to each other} \]

\[ u \text{ and } v \text{ are collinear} \]

Options :

1. \( |u| = |v| \)

2. \( u \text{ and } v \text{ have the same direction} \)

3. \( u \text{ and } v \text{ are perpendicular to each other} \)

4. \( u \text{ and } v \text{ are collinear} \)

Question Number : 6 Question Id : 8135611286 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

\[ \int_{0}^{\pi/2} \frac{x + \sin x}{1 + \cos x} \, dx = \]

Options :

1. \( \frac{\pi}{4} \)
Question Number : 7 Question Id : 8135611287 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The directrix of the parabola \( 2y^2 + 25x = 0 \) is \( \frac{\pi}{6} \) 

\[
2y^2 + 25x = 0 \Rightarrow \text{directrix is} \quad \frac{25}{2y^2} = \text{some value} \quad \Rightarrow \quad \boxed{\frac{\pi}{6}}
\]

Options :
1. \( 8x - 25 = 0 \)
2. \( 8y - 25 = 0 \)
3. \( 25x - 28 = 0 \)
4. \( 25y - 8 = 0 \)

Question Number : 8 Question Id : 8135611288 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
If \( \frac{x^2 + 5x + 7}{(x-3)^3} = \frac{A}{(x-3)} + \frac{B}{(x-3)^2} + \frac{C}{(x-3)^3} \) then \( 9A - 3B + C = \)

\[
\frac{x^2 + 5x + 7}{(x-3)^3} = \frac{A}{(x-3)} + \frac{B}{(x-3)^2} + \frac{C}{(x-3)^3} \Rightarrow 9A - 3B + C =
\]

Options:
1. \( \checkmark \) 2

2. \( \checkmark \) 5

3. \( \checkmark \) 7

4. \( \checkmark \) 9

Question Number: 9 Question Id: 8135611289 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

\[
\int \frac{3^x}{\sqrt{1 - 9^x}} \, dx =
\]

Options:
1. \( \checkmark \) \( \sin^{-1}(3^x) \cdot \log 3^{-1} + c \)

2. \( \checkmark \) \( -\sin^{-1}(3^x) \cdot \log 3 + c \)

3. \( \frac{1}{3} \sin^{-1}(3^x) + c \)

4. \( \frac{1}{9} \sin^{-1}(3^x) + c \)
Question Number : 10 Question Id : 8135611290 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The point to which the origin should be shifted so that the equation $y^2 - 6y - 4x + 13 = 0$ will not contain term in $y$ and the constant term is ______

$$y^2 - 6y - 4x + 13 = 0$$

Options :
1. ✗ (1, 1)
2. ✗ (1, 2)
3. ✗ (2, 1)
4. ✓ (1, 3)

Question Number : 11 Question Id : 8135611291 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
If on an average 9 mountain climbers out of 10 return safely, what is the probability that with 5 climbers out, at least 4 will return safely?

10 మార్గ పంచి 9 మార్గ పంచి నిషేధించారు 5 మార్గ పంచి నిషేధించి కంటి 4 మార్గ పంచి నిషేధించారు ______

Options :
1. ✗
If $S_1$ and $S_2$ are two straight lines such that the reflection of $S_1$ in $S_2$ and the reflection of $S_2$ in $S_1$ coincide, the angle between $S_1$ and $S_2$ is equal to

\[ \frac{\pi}{3} \]

Options:
1. $\frac{\pi}{3}$
2. $\frac{\pi}{6}$
3. $\frac{\pi}{4}$
4. **Data Insufficient**

**Question Number : 13**  
**Question Id : 8135611293**  
**Question Type : MCQ**  
**Display Question Number : Yes**  
**Is Question Mandatory : No**  
**Single Line Question Option : No**  
**Orientation : Vertical**

The equation of the asymptotes of the hyperbola $2x^2 + 5xy + 2y^2 - 11x - 7y - 4 = 0$ is

$$2x^2 + 5xy + 2y^2 - 11x - 7y - 4 = 0$$

**Options :**

1. $2x^2 + 5xy + 2y^2 - 11x - 7y - 9 = 0$

2. $2x^2 + 5xy + 2y^2 - 11x - 7y + 5 = 0$

3. $2x^2 + 5xy + 2y^2 - 11x - 7y + 4 = 0$

4. $2x^2 + 5xy + 2y^2 - 11x - 7y + 9 = 0$

**Question Number : 14**  
**Question Id : 8135611294**  
**Question Type : MCQ**  
**Display Question Number : Yes**  
**Is Question Mandatory : No**  
**Single Line Question Option : No**  
**Orientation : Vertical**

If $f: R \rightarrow R$ is defined as $f(x) = x - [x] + 3$, $\forall x \in R$, then $f$ is __________

**Options :**

- Not a function

1. Not a function
A periodic function with period $\pi$

$\text{వర్గ ఫంకషను విస్తరణ: మూడు వర్గ ఫంకషను విస్తరణ పి}$

2. 

A periodic function with period 1

$\text{వర్గ ఫంకషను 1 పి విస్తరణ విస్తరణ}$

3. ✔

An invertible function

$\text{ఒకసమీక్రమ ప్రత్యేకించబడిన ఒకసమీక్రమ}$

4. ✗

Question Number : 15 Question Id : 8135611295 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the line $y = 2x + c$ touches the curve $x^2 + 4y^2 = 4$, then $c^2 =$

$x^2 + 4y^2 = 4 \Rightarrow y = 2x + c$ త్యేదా $c^2 =$

Options :

1. ✗ $\sqrt{65}$

2. ✔ 17

3. ✗ 63

4. ✗ 8

Question Number : 16 Question Id : 8135611296 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

The equation of a circle which touches the x-axis and whose centre is (1, 2) is _______

\[ (x - 1)^2 + (y - 2)^2 = 4 \]

Options :
1. \( (x - 2)^2 + (y - 1)^2 = 4 \)
2. \( (x - 1)^2 + (y - 2)^2 = 4 \)
3. \( (x - 1)^2 + (y + 2)^2 = 4 \)
4. \( (x + 2)^2 + (y - 1)^2 = 4 \)

Find the general solution of \( 3 \sin^4(\theta) + \cos^4(\theta) = 1 \)

\( 3 \sin^4(\theta) + \cos^4(\theta) = 1 \) లో కప్పడం సాధ్యం:

Options :

1. \( n\pi \) only
2. \( n\pi + \frac{\pi}{4} \) only
3. \( n\pi + \frac{\pi}{4} \) లేదా అంతయితుంది.
Question Number : 18 Question Id : 8135611298 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Calculate the area enclosed by the curves \( x^2 = 2 - y \), \( x^2 = y \)

\[ x^2 = 2 - y \quad \text{and} \quad x^2 = y \]

Options :

1. \( \frac{2}{3} \)
2. \( \frac{4}{3} \)
3. \( \frac{8}{3} \)
4. \( \frac{11}{3} \)

Question Number : 19 Question Id : 8135611299 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Eliminating \(a\) and \(b\) from the relation \(y = a \log x + b\), we get

\[ y = a \log x + b \]

Options:
1. \(xy_2 + y_1 = 0\)
2. \(xy - y^2 = 0\)
3. \(xy_1 + y^2 = 0\)
4. \(y^2y_2 + x = 0\)

If \(\alpha, \beta, \gamma\) are the roots of \(x^3 - 2x^2 + 3x - 4 = 0\) then find \(\sum \alpha \beta (\alpha + \beta)\)

\[ x^3 - 2x^2 + 3x - 4 = 0 \] has the roots \(\alpha, \beta, \gamma\) then \(\sum \alpha \beta (\alpha + \beta) = \]

Options:
1. \(-2\)
2. \(-6\)
3. \(6\)
4. \(2\)
Question Number : 21 Question Id : 8135611301 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Three dice are thrown. Given that they have a sum of 8, the probability that one of them is a four is

మేముగా రెండు రెండు రెండు పాల్సులు వెడతారు. అయితే అంతంటే తాత్క్షం ప్రదానం చేసుకోవచ్చు, అందువల్ల ఒకటి 4 వాసుపభ్యం నిలిచింది

Options:

1. ✗ \[\frac{9}{11}\]
2. ✔ \[\frac{3}{7}\]
3. ✗ \[\frac{4}{9}\]
4. ✗ \[\frac{3}{8}\]

Question Number : 22 Question Id : 8135611302 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The area of the parallelogram, whose diagonals are \(2\mathbf{i} - \mathbf{j} + \mathbf{k}\) and \(\mathbf{i} + 3\mathbf{j} - \mathbf{k}\), is equal to _______ sq. units

\(2\mathbf{i} - \mathbf{j} + \mathbf{k}\) మేము ఉంటాం కాబో దిశాసుముంది పాయించు వస్తుంది __________

ప్రాంతిస్తుంది రేఖాసమాఖ్యాతి వచ్చు రేటుంది ప్రాంతిస్తుంది రేఖాసమాఖ్యాతి వచ్చు రేటుంది_________
The general solution of the differential equation \( \tan(y) \, dx + \sec^2(y) \cdot \tan(x) \, dy = 0 \) is

\[ \tan(y) \, dx + \sec^2(y) \cdot \tan(x) \, dy = 0 \]

Options:

1. \( \sin(y) \cdot \tan(x) = c \)
2. \( \sin(x) \cdot \tan(y) = c \)
3. \( \sin(x) + \tan(y) = c \)
4. \( \sin(x) - \sin(y) = c \)
Question Number : 24 Question Id : 8135611304 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( P(-3, -2, 4), Q(-9, -8, 10) \) and \( R(-5, -4, 6) \) are collinear, then the ratio in which \( R \) divides \( PQ \) is ________

\( P(-3, -2, 4), Q(-9, -8, 10) \) గుండా \( R(-5, -4, 6) \) ను విభిన్న వంటించడానికి \( R \) ను \( PQ \) ను విభిన్న వంటించడానికి?

Options :
1. \( 1 : 2 \)
2. \( 2 : 1 \)
3. \( 3 : 1 \)
4. \( 1 : 3 \)

Question Number : 25 Question Id : 8135611305 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

\[
\frac{1 + \tanh(x/2)}{1 - \tanh(x/2)} = \ldots
\]

Options :
1. \( e^{-x} \)
2. \( e^{x} \)
3. \( 2e^{x/2} \)
4. $2e^{-x/2}$

Question Number: 26 Question Id: 8135611306 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

If a line drawn from a fixed point $M(a, b)$ cuts the circle $x^2 + y^2 = k^2$ at $C$ and $D$, then $MC \times MD$ is equal to ________

$M(a, b)$ లో ఉన్న ఒక సంస్థ నుండి క్రితం కావచ్చు $x^2 + y^2 = k^2$ సంస్థ లో $C$ మరియు $D$ లో ఉన్నాం తో మరియు $MC \times MD = ________$

Options:

1. $a^2 + b^2 + k^2$

2. $a^2 + b^2 - k^2$

3. $a^2 - b^2 - k^2$

4. $k^2$

Question Number: 27 Question Id: 8135611307 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical
The number of ways of choosing a committee from four men and six women so that the committee includes at least two men and exactly twice as many women as men is

The equation of the line passing through the point of intersection of lines $2x - y + 2 = 0$ and $x + y + 4 = 0$ and the point $(5, -2)$ is

**Question Number : 28 Question Id : 8135611308 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The equation of the line passing through the point of intersection of lines $2x - y + 2 = 0$ and $x + y + 4 = 0$ and the point $(5, -2)$ is

**Options :**
1. $y + 2 = 0$
2. $y - 2 = 0$
3. \[4x - 3y - 6 = 0\]

4. \[x - y - 7 = 0\]

Question Number: 29  Question Id: 8135611309  Question Type: MCQ  Display Question Number: Yes  Is Question Mandatory: No  Single Line Question Option: No  Orientation: Vertical

If \( f(x) = \log_{x^2} \log x \), then \( f'(e) \) is equal to _______.

\[ f(x) = \log_{x^2} \log x \quad \text{and} \quad f'(e) = \]

Options:
1. \( e \)
2. \( \frac{1}{e} \)
3. \( \frac{1}{2e} \)
4. \( 2e \)

Question Number: 30  Question Id: 8135611310  Question Type: MCQ  Display Question Number: Yes  Is Question Mandatory: No  Single Line Question Option: No  Orientation: Vertical

The radius of the circle \( 2x^2 + 2y^2 - 3x + 2y - 1 = 0 \) is _____ units.

\[ 2x^2 + 2y^2 - 3x + 2y - 1 = 0 \quad \text{is} \quad \text{_____ units.} \]

Options:
If the value of \( \int_{0}^{\frac{\pi}{2}} \sin^4(x) \cdot \cos^2(x) \, dx = \frac{\pi}{32} \) then the value of \( \int_{0}^{\frac{\pi}{2}} \cos^4(x) \cdot \sin^2(x) \, dx = \)

\[ \int_{0}^{\frac{\pi}{2}} \sin^4(x) \cdot \cos^2(x) \, dx = \frac{\pi}{32} \quad \text{and} \quad \int_{0}^{\frac{\pi}{2}} \cos^4(x) \cdot \sin^2(x) \, dx = \]

Options:

1. \( \frac{\pi}{32} \)  
2. \( \frac{\pi}{64} \)  
3. \( \frac{\pi}{4} \)
Question Number : 32 Question Id : 8135611312 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
If the mean and standard deviation of a binomial distribution are 20 and 4 respectively, then the number of trials is ______

_options: 1. 25 2. 50 3. 200 4. 100

Question Number : 33 Question Id : 8135611313 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The angle between the tangents drawn from the point (1, 4) to the parabola $y^2 = 4x$ is 

_options: 1. $\frac{\pi}{6}$ 2. $\frac{\pi}{4}$ 3. $\frac{\pi}{3}$ 4. $\frac{\pi}{2}$
If \( y = \frac{ax-b}{(x-1)(x-4)} \) has a turning point \( P(2, -1) \), then the values of \( a \) and \( b \) are

\[
y = \frac{ax-b}{(x-1)(x-4)}\text{ at } P(2, -1)\]  

Options:

1. \( a = 0, b = 1 \)
2. \( a = 1, b = 0 \)
3. \( a = -1, b = 0 \)
4. \( a = 0, b = -1 \)
If the bi-quadratic equation \( f(x) = x^4 + 2x^3 - 16x^2 - 22x + 7 = 0 \) has \( 2 + \sqrt{3} \) as one of its roots, then which of the following is not a root of \( f(x) \)?

\[
f(x) = x^4 + 2x^3 - 16x^2 - 22x + 7 = 0 \\
\text{Given, so}\ f(x) = 0 \text{ has roots}\ 2 + \sqrt{3} \text{ as one root.}
\]

**Options:**

1. \( 3 - \sqrt{2} \)
2. \( 2 - \sqrt{3} \)
3. \( -3 + \sqrt{2} \)
4. \( -3 - \sqrt{2} \)

---

If \( f: \mathbb{R} \to \mathbb{R} \) is defined as \( f(x) = (2020 - x^{2019})^{1/2019} \), \( \forall x \in \mathbb{R} \), find \( (f \circ f \circ f)(\frac{2019}{2020}) \)

\[
f: \mathbb{R} \to \mathbb{R},\ f(x) = (2020 - x^{2019})^{1/2019}, \forall x \in \mathbb{R} \text{ we get, } (f \circ f \circ f)(\frac{2019}{2020}) =
\]

**Options:**

1. \( 1 \)
2. \( 0 \)
Question Number : 37 Question Id : 8135611317 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( f'(x) = a \sin x + b \cos x \), \( f'(0) = 4 \), \( f(0) = 3 \) and \( f(\pi/2) = 5 \), then \( f(x) = \)

\[ f'(x) = a \sin x + b \cos x, \quad f'(0) = 4, \quad f(0) = 3 \quad \text{and} \quad f(\pi/2) = 5 \quad \text{then} \quad f(x) = \]

Options :

1. \( -2 \cos x - 4 \sin x + 1 \)
2. \( 2 \cos x + 4 \sin x + 1 \)
3. \( 2 \sin x - 4 \cos x + 1 \)
4. \( 2 \sin x + 4 \cos x + 1 \)

Question Number : 38 Question Id : 8135611318 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

From 5 consonants and 5 vowels, how many words can be formed using 3 consonants and 2 vowels?

విందిసి పదాలు ఎన్ని?
Question Number : 39 Question Id : 8135611319 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

The length of the perpendicular from \((1, -2)\) to the line \(12x + 5y + 63 = 0\) is ______

\((1, -2)\) నుండి \(12x + 5y + 63 = 0\) సమీకరణ యొక్క వేరుసాధనము = ______

Options :
1. 4
2. 5
3. 6
4. \(\frac{85}{13}\)

Question Number : 40 Question Id : 8135611320 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
If one end of the diameter of \( x^2 + y^2 - 2x - 6y - 15 = 0 \) is (4, 1), then the coordinates of the other end is

\[ x^2 + y^2 - 2x - 6y - 15 = 0 \quad \text{co-ordinates} \quad (4, 1) \quad \text{are, which is} \quad \text{coordinate} \]

Options:
1. \( (5, -2) \)
2. \( (-2, 5) \)
3. \( (1, 3) \)
4. \( (-2, -5) \)

If the lengths of the sides of a triangle are 15, 20, 25 units. Find the circumradius of the triangle.

\( \text{The sides lengths are} \quad 15, 20, 25 \quad \text{units. Find the} \quad \text{circumradius} \quad \text{of the triangle} \quad \text{are} \quad \text{radius} \)

Options:
1. 30 units
2. 7.5 units
3. 12.5 units

4. 12.5 సంఖ్యలు

20 units

4. 20 సంఖ్యలు

Question Number : 42 Question Id : 8135611322 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the line \( y = mx \) is one of the bisectors of \( x^2 + 4xy - y^2 = 0 \), then value of \( 2m = \)

\( x^2 + 4xy - y^2 = 0 \) సంఖ్యలు మూతి కేసిన దిశకు విభాగమిచే తో యెమ్ అంటే, \( 2m = \)

Options :
1. \( -1 + \sqrt{5} \)

2. \( 1 + \sqrt{5} \)

3. \( -1 - \sqrt{51} \)

4. \( 1 - \sqrt{51} \)

Question Number : 43 Question Id : 8135611323 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Number of unit vectors of the form \( a \hat{i} + b \hat{j} + c \hat{k} \), where \( a, b, c \in W \) is ____

\( a \hat{i} + b \hat{j} + c \hat{k}, \ a, b, c \in W \) సంఖ్యలు మూతి కేసిన దిశకు విభాగమిచే తో యెమ్____

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Options:
1. 
2. 
3. 
4. 

Question Number: 44 Question Id: 8135611324 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

Statement-I: Two lines which pass through a given fixed point and are equally inclined to two other lines passing through the same point, are always perpendicular to each other.

Statement-II: Angle bisectors of two intersecting lines are always perpendicular to each other.

Options:
Both the statements are true and statement-II is the correct explanation of the statement-I.
1. ✔

Both the statements are true but statement-II is not the correct explanation of the statement-I.
2. ✗
Statement-I is true and statement-II is false

Statement-I is false and statement-II is true

Question Number : 45 Question Id : 8135611325 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let \( R = (5\sqrt{5} + 11)^{2n+1} \) and \( f = R - [R] \), where \([x]\) denotes the greatest integer less than or equal to \(x\), then \( Rf = \)

\([x] \leq x < [x] + 1.\) \( R = (5\sqrt{5} + 11)^{2n+1} ; f = R - [R] \) \( \Rightarrow \) \( Rf = \)

Options :
1. \(2^{n+1}\)
2. \(2^{2n+1}\)
3. \(4^{n+1}\)
4. \(4^{2n+1}\)

Question Number : 46 Question Id : 8135611326 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

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If \( a = 1 + 2 + 4 + \ldots \) upto \( n \) terms, \( b = 1 + 3 + 9 + \ldots \) upto \( n \) terms and \( c = 1 + 5 + \ldots \) upto \( n \) terms then \( \Delta = \begin{vmatrix} a & 2b & 4c \\ 2 & 2 & 2 \\ 2^n & 3^n & 5^n \end{vmatrix} = \)

\( a = 1 + 2 + 4 + \ldots \) \( n \) \text{ terms}, \( b = 1 + 3 + 9 + \ldots \) \( n \) \text{ terms}, \( c = 1 + 5 + 25 + \ldots \) \( n \) \text{ terms. Then, } \Delta = \begin{vmatrix} a & 2b & 4c \\ 2 & 2 & 2 \\ 2^n & 3^n & 5^n \end{vmatrix} = \) ______

Options:
1. \( (30)^n \)
2. \( (10)^n \)
3. \( 0 \)
4. \( 2^n + 3^n + 5^n \)

Question Number : 47 Question Id : 8135611327 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the term independent of \( x \) in the expansion of \( \left( \sqrt{x} - \frac{k}{x^2} \right)^{10} \) is 405, then \( k = \)

\( \left( \sqrt{x} - \frac{k}{x^2} \right)^{10} \) నుండి \( x \) లో అంశం 405 కలిగి, \( k = \) ______

Options:
1. \( 3 \) only
2. \( 3 \) మరు వంతుండా ఉంటుంది

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3. ±3

4. 0

Question Number : 48 Question Id : 8135611328 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

\[ \lim_{x \to \infty} \left( 1 + \frac{2}{x} \right)^{3x} = \]

Options :
1. \( e^6 \)
2. \( e^3 \)
3. \( e^2 \)
4. \( e \)

Question Number : 49 Question Id : 8135611329 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The angle between the pair of tangents drawn from (1, 3) to the circle \( x^2 + y^2 - 2x + 4y - 11 = 0 \) is ______

\((1, 3)\) డీన్ను రేఖలు రెండు స్ఫూర్తి రేఖలను నిర్మించిన సమీపం స్ఫూర్తి స్ఫూర్తి రెండు స్ఫూర్తి  రెండు స్ఫూర్తి, రెండు స్ఫూర్తి రెండు స్ఫూర్తి

Options:

1. \(\sin^{-1}\left(\frac{24}{25}\right)\)

2. \(\sin^{-1}\left(\frac{7}{25}\right)\)

3. \(\cos^{-1}\left(\frac{24}{25}\right)\)

4. \(\tan^{-1}\left(\frac{7}{24}\right)\)

---

**Question Number : 50 Question Id : 8135611330 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

Find the number of marked points on the plane, if when connected pairwise by line segments, the total number of line segments formed is 15.

వస్తుగా ఉన్నది మూడు పట్టులు యొక్క స్ఫూర్తి స్ఫూర్తి స్ఫూర్తి రెండు స్ఫూర్తి, రెండు స్ఫూర్తి రెండు స్ఫూర్తి

15 విచిత్రాలు విచిత్రాలు విచిత్రాలు విచిత్రాలు

Options:

1. 5

2. 4
Question Number : 51 Question Id : 8135611331 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
\[
\left( \frac{1 + \cos(3\theta) + i \sin(3\theta)}{1 + \cos(3\theta) - i \sin(3\theta)} \right)^{20} = ?
\]
Options :
1. \( \cos(60\theta) + i \sin(60\theta) \)
2. \( \cos(60\theta) - i \sin(60\theta) \)
3. \( \cos(20\theta) + i \sin(20\theta) \)
4. \( \cos(20\theta) - i \sin(20\theta) \)

Question Number : 52 Question Id : 8135611332 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
The angle between the lines with direction ratios \((2, -2, 1)\) and \((1, -2, 2)\) is ______
\((2, -2, 1)\) యొక్క రెండు కోణల అంశాలానికి భిన్న రెండు రెండు రెండు రెండు రెండు రెండు ______
Options :
1. ______
\[ \cos^{-1}\left(\frac{4}{9}\right) \]

\[ \cos^{-1}\left(\frac{8}{9}\right) \]

2. ✓

\[ \frac{\pi}{6} \]

3. ★★

\[ \frac{\pi}{2} \]

4. ★★

Question Number : 53 Question Id : 8135611333 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( f \) is a continuous real valued function, then the range of the function is ______

ఎందుకు మాట్లాడు ఫంక్షన్‌తో ఫంక్షన్‌ ఎంచుకునేది, తెలా రిగి______

Options:

1. ★★ \([0, 1]\]

\[ \text{[Minimum}(f), \text{Maximum}(f)] \]

2. ✓

\[ \text{[Minimum}(f), \text{Maximum}(f)] \]

3. ★★ \([0, \infty)\]

4. ★★ \((-\infty, 0]\)
Question Number : 54 Question Id : 8135611334 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

If \( \cosec \theta + \cot \theta = \frac{1}{3} \), then \( \theta \) lies in the

\[
\cosec \theta + \cot \theta = \frac{1}{3} \quad \text{సమాధానం: ఈ మాధ్యమం యొక్క సాధనం}
\]

Options :

1. 
   1. ప్రవేశం
2. 
   2. దండి
3. 
   3. గోడ
4. 
   4. ప్రత్యేకం

Question Number : 55 Question Id : 8135611335 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

If \( lx^2 + 3xy - 2y^2 - 5x + 5y + k = 0 \) represents a pair of perpendicular lines, then

\[
lx^2 + 3xy - 2y^2 - 5x + 5y + k = 0 \quad \text{విస్త్రాంశం: ఈ రేఖలు సంకేతాలు అవుతాయి।}
\]

Options :

1. 
   1. \( k = \pm 3, \quad l = \pm 2 \)
2. \( k = -22, \ l = -12 \)

3. \( k = -3, \ l = 2 \)

4. \( k = -16, \ l = 9 \)

Question Number : 56 Question Id : 8135611336 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If the curved surface area of right circular cylinder inscribed in a sphere of radius 22 cm is maximum then height of the cylinder will be

22 cm యొక్క శ్రేణి గింజలు ఎండ్డికి అయితే క్యాండిల్స్కు శ్రేణి శ్రేణి మాత్రమే ఉంది ___.

Options :

1. \( \frac{11}{\sqrt{2}} \) cm

2. \( 11\sqrt{2} \) cm

3. \( (0.22)\sqrt{2} \) m

4. \( (0.11)\sqrt{2} \) m

Question Number : 57 Question Id : 8135611337 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The index of the power of \( x \) occurring in the 5\(^{th} \) term from the end in the expansion of 
\[
\left( \frac{x^2 - 2}{x^2} \right)^{12}
\]
is
\[
\left( \frac{x^3 - 2}{x^2} \right)^{12}
\]

Options:
1. \( \boxed{3} \)
2. \( \boxed{-3} \)
3. \( \boxed{4} \)
4. \( \boxed{-4} \)

\[
\text{Question Number : 58 Question Id : 8135611338 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical}
\]

If \( \frac{d}{dx} \left( \frac{x^4 + x^2 + 1}{x^2 + x + 1} \right) = ax + b \), then \( a - b = \)
\[
\frac{d}{dx} \left( \frac{x^4 + x^2 + 1}{x^2 + x + 1} \right) = ax + b \text{ 选项，} a - b =
\]

Options:
1. \( \boxed{3} \)
2. \( \boxed{4} \)
3. \( \boxed{1} \)
Question Number : 59 Question Id : 8135611339 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
\[ \int \frac{x^{n-1}}{x^{2n} + 4} \, dx = \]
Options :
1. \[ \frac{1}{2n} \tan^{-1} \left( \frac{x^n}{2} \right) + c \]
2. \[ \frac{n}{2} \tan^{-1} \left( \frac{x^n}{2} \right) + c \]
3. \[ \frac{n}{2} \sin^{-1} \left( \frac{x^n}{2} \right) + c \]
4. \[ \frac{1}{n} \tan^{-1} \left( \frac{x^n}{2} \right) + c \]

Question Number : 60 Question Id : 8135611340 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
\[ \int_{-a}^{a} \sqrt{\frac{a-x}{a+x}} \, dx = \]
Options :
1. \[ \frac{a\pi}{2} \]
Question Number : 61 Question Id : 8135611341 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A bag contains 5 blue and an unknown number $x$ of red balls. Two balls are drawn at random. If the probability of both of them being blue is $\frac{5}{14}$, then the value of $x$ is equal to

సాగించిన 5 గూడు మరియు, $x$ ఎంతో వంటి వంటి మిశ్రం. దోహదింటాం 2 వంటిని తెలిస్తుందని
చేయడానికి పెద్ద దిగుమతి తయారు చేసి $\frac{5}{14}$ అంటే, $x =$

Options :
1. ✗ 8
2. ✗ 5
3. ✔ 3
4. ✗ 6

Question Number : 62 Question Id : 8135611342 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

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For which value of \( n \in \mathbb{N} \), \( n! \) has 13 trailing zeros?

\[ n \in \mathbb{N}, \quad n! \text{ has 13 trailing zeros} \quad \Rightarrow \quad n = \]

**Options:**
1. 51
2. 54
3. 57
4. 60

Evaluate \( A^2 + 2I \) if \( A = \begin{bmatrix} 1 & 0 \\ 1 & 2 \end{bmatrix} \)

\[ A = \begin{bmatrix} 1 & 0 \\ 1 & 2 \end{bmatrix} \quad \Rightarrow \quad A^2 + 2I = \]

**Options:**
1. 2A
2. 3A
3. 4A
4. 5A
Question Number : 64 Question Id : 8135611344 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The difference between the greatest and least values of the function \( f(x) = -x + \sin 2x \) on \( \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right] \) is

\[
f(x) = -x + \sin 2x, \quad x \in \left[ -\frac{\pi}{2}, \frac{\pi}{2} \right]
\]

Options :

1. \( \frac{\sqrt{3} + \sqrt{2}}{2} \)

2. \( \frac{\sqrt{3} + \sqrt{2}}{2} + \frac{\pi}{6} \)

3. \( \frac{\sqrt{3}}{2} + \frac{\pi}{3} \)

4. \( \frac{\sqrt{3}}{2} - \frac{\pi}{6} \)

Question Number : 65 Question Id : 8135611345 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( y = \tan^{-1} \left( \frac{4x}{1+5x^2} \right) + \tan^{-1} \left( \frac{2+3x}{3-2x} \right) \), then \( \frac{dy}{dx} = \)

\[
y = \tan^{-1} \left( \frac{4x}{1+5x^2} \right) + \tan^{-1} \left( \frac{2+3x}{3-2x} \right), \quad \text{then} \quad \frac{dy}{dx} =
\]
Question Number : 66 Question Id : 8135611346 Question Type : MCQ Display Question
Number : Yes Is Question Mandatory : No Single Line Question Option : No Option 
Orientation : Vertical

Two point $A$ and $B$ with co-ordinates $(1, 1)$ and $(-2, 3)$ respectively are given. Then the locus of a point $P$ so that the area of $\triangle PAB$ is 9 sq. units is given by ________.

$A$ మరియు $B$ రెంటెల్మై బిందువులు విలువల్లో $(1, 1)$, $(-2, 3)$ ఆయమాలు. $PAB$ ఉంటుంది 9 చదివ మాత్రమే అనంతర విస్తారం $P$ రెంటెల్మై నియమం ________

Options:

1. $2x + 3y + 13 = 0$ & $2x + 3y - 23 = 0$
2. $2x + 3y - 23 = 0$ & $2x + 3y - 13 = 0$
3. $2x + 3y - 13 = 0$ & $2x - 3y + 23 = 0$
4. $2x - 3y + 23 = 0$ & $2x + 3y + 13 = 0$
Question Number : 67 Question Id : 8135611347 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Let \( a, b \) and \( c \) be the lengths of the sides of a triangle with its opposite angles \( A, B \) and \( C \) respectively. If \( a = 3, \ b = 4 \) and \( A = \sin^{-1} \left( \frac{3}{4} \right) \), then the angle \( B \) is

\[ A, B, C \text{ మేము } a = 3, b = 4, A = \sin^{-1} \left( \frac{3}{4} \right) \text{ మేము, తేలుగు బీ } = \]

Options :

1. ✗ 30°

2. ✗ 45°

3. ✔ 90°

4. ✗ 60°

---

Question Number : 68 Question Id : 8135611348 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The scalar product of the vector \( \vec{a} = \hat{i} + \hat{j} + \hat{k} \) with a unit vector along the sum of the vectors \( \vec{b} = 2\hat{i} + 4\hat{j} - 5\hat{k} \) and \( \vec{c} = \lambda\hat{i} + 2\hat{j} + 3\hat{k} \) is equal to one. Then, \( \lambda = \)

\[ \overrightarrow{b} = 2\hat{i} + 4\hat{j} - 5\hat{k}, \overrightarrow{c} = \lambda\hat{i} + 2\hat{j} + 3\hat{k} \text{ మేము యొక్క వాక్షము పెంచుతుంది } \]

\[ \text{మిస్తుడు } \overrightarrow{a} = \hat{i} + \hat{j} + \hat{k} \text{ మరియు అది చెన్నించిన పేరు 1 మేము, } \lambda = \]

Options :
Question Number : 69 Question Id : 8135611349 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \( PQRST \) is a pentagon, then the resultant of forces \( \overrightarrow{PQ}, \overrightarrow{PT}, \overrightarrow{QR}, \overrightarrow{SR}, \overrightarrow{TS} \) and \( \overrightarrow{PS} \) is \( \overrightarrow{PS} \).

Options:
1. \( \overrightarrow{3PT} \)
2. \( \overrightarrow{3PQ} \)
3. \( \overrightarrow{3PS} \)
4. \( \overrightarrow{0} \)

Question Number : 70 Question Id : 8135611350 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
\[ \int \frac{1 + \tan^2 x}{1 - \tan^2 x} \, dx = \] 

Options:

1. \( \log \left( \frac{1 - \tan x}{1 + \tan x} \right) + c \) 

2. \( \log \left( \frac{1 + \tan x}{1 - \tan x} \right) + c \) 

3. \( \frac{1}{2} \log \left( \frac{1 - \tan x}{1 + \tan x} \right) + c \) 

4. \( \frac{1}{2} \log \left( \frac{1 + \tan x}{1 - \tan x} \right) + c \) 

---

**Question:** 
Suppose \( z \in \mathbb{C} \) has argument \( \theta \) such that \( 0 < \theta < \frac{\pi}{2} \) and satisfy the equation \( |z - 3i| = 3 \).

Then what is the value of \( \cot \theta - \frac{6}{z} \)?

\( z \in \mathbb{C}, \, z \) మొత్తం సమస్య నుండి \( 0 < \theta < \frac{\pi}{2} \), \( |z - 3i| = 3 \) ఏముందే \( \cot \theta - \frac{6}{z} \) ఉంటే?

**Options:**

1. \( 2i \) 

2. \( i \) 

3. \( -i \) 

---
4. \(-2i\)

Question Number : 72 Question Id : 8135611352 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

If \((a_1, b_1, c_1), (a_2, b_2, c_2)\) are the direction cosines of two lines making an angle \(\theta\) with each other, then \(\cos \theta = \frac{(a_1 b_1 + b_1 c_2 + c_1 c_2)}{\sqrt{a_1^2 + b_1^2 + c_1^2}}\)

Options :
1. \(a_1 a_2 + b_1 b_2 + c_1 c_2\)
2. \(|a_1 a_2 + b_1 b_2 + c_1 c_2|\)
3. \(\frac{(a_1 a_2 + b_1 b_2 + c_1 c_2)}{(\sqrt{a_1^2 + b_1^2 + c_1^2})}\)
4. \(\frac{4}{3}\)

Question Number : 73 Question Id : 8135611353 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Solve \(i x^2 - 3x - 2i = 0\)

\(i x^2 - 3x - 2i = 0\) সমীকরণটি তীব্র হয়েছে।

Options :
1. \(\ldots\)
2. 

3. 

4. 

Question Number : 74 Question Id : 8135611354 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Find the least positive value of $k$, if the range of 15, 14, $k$, 25, 30, 35 is 23.

15, 14, $k$, 25, 30, 35 రింగు సరిహద్దు సరి యొక్క అంకిత ఎంచుకునే $k$ ని లభించిన సరిహద్దు పిడా లేదా 23 అంకిత ఎంచుకునే $k$ ని లభించిన సరిహద్దు పిడా లేదా 23

Options :

1. 11

2. 13

3. 12

4. 14

Question Number : 75 Question Id : 8135611355 Question Type : MCQ Display Question

AP EAMCET 2020
If \([x] \) represents the greatest integer not greater than \(x\), then \(\left[ 1 + \frac{1}{100000} \right]^{100000} = \)

Options:
1. \(1\)
2. \(3\)
3. \(2\)
4. \(4\)

The range of the observations 20, 28, 40, 12, 30, 15, 50 is _____

20, 28, 40, 12, 30, 15, 50 అంశాల ఆంశిక మాధ్యమిక విశాలము ఆంశిక విశాలము. 

Options:
1. \(18\)
2. \(38\)
3. \(28\)
In \( \triangle ABC \), \( \angle A = 30^\circ + \angle C \) and \( R - (\sqrt{3} + 1)r = 0 \) where \( r \) is the inradius and \( R \) is the circumradius, then ________

\[ ABC \text{ is an equilateral triangle} \]

1. \( ABC \) is a right-angled triangle
2. \( ABC \) is a right-angled triangle
3. \( ABC \) is acute angled
4. \( \angle A = 75^\circ \angle B = 60^\circ \angle C = 45^\circ \)
Find the solution of the differential equation given below

\[ \frac{dy}{dx} + y \cdot \csc^2(x) = \csc^2(x) \cdot \cot(x) \]

Options:
1. \[ ye^{\cot x} = (1 + \cot x) e^{-\cot x} + c \]
2. \[ ye^{-\cot x} = (1 - \cot x) e^{-\cot x} + c \]
3. \[ ye^{\cot x} = (1 + \cot x) e^{\cot x} + c \]
4. \[ ye^{-\cot x} = (1 + \cot x) e^{-\cot x} + c \]

Find the rank of the matrix
\[
\begin{bmatrix}
1 & 4 & -1 \\
2 & 3 & 0 \\
0 & 1 & 2
\end{bmatrix}
\]

Options:
1. 1
2. 2
Question Number : 80 Question Id : 8135611360 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Suppose the number of accidents occurring on a highway in each day follows a Poisson random variable with parameter $3$. Then, what is the probability that no accidents occur today?

Options :
1. $\frac{1}{e^3}$ ✓
2. $\frac{-1}{e^3}$ ❌
3. $\frac{1}{e^9}$ ❌
4. $\frac{-1}{e^9}$ ❌

Physics

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Question Number : 81 Question Id : 8135611361 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical
The magnetic flux through a circuit of resistance $R$ changes by an amount $\Delta \Phi$ in time $\Delta t$. Then the total quantity of electric charge $Q$, which is passing during this time through any point of the circuit is given by ________

Options :

1. $Q = \frac{\Delta \Phi}{\Delta t}$

2. $Q = \frac{\Delta \Phi}{\Delta t} \times R$

3. $Q = -\frac{\Delta \Phi}{\Delta t} + R$

4. $Q = \frac{\Delta \Phi}{R}$

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Question Number : 82 Question Id : 8135611362 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Which of the following is not a unit of time?

1. Lunar month
2. Light year
3. Leap year
4. Microsecond

Question Number : 83 Question Id : 8135611363 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
A thin rod of length $L$ is magnetized and has magnetic moment $M$. The rod is then bent in a semicircular arc. The magnetic moment in the new shape is

Two wires of equal diameters, lengths $l_1$, $l_2$ and having resistivities $S_1$, $S_2$ respectively are joined in series. The equivalent resistivity of the combination is ______.

Options:

1. \( \frac{S_1 l_1 + S_2 l_2}{l_1 + l_2} \)
2. \( \frac{S_1 l_2 + S_2 l_1}{l_1 - l_2} \)
3. \( \frac{S_1 l_2 + S_2 l_1}{l_1 + l_2} \)

Question Number: 84 Question Id: 8135611364 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

Two wires of equal diameters, lengths $l_1$, $l_2$ and having resistivities $S_1$, $S_2$ respectively are joined in series. The equivalent resistivity of the combination is ______.

Options:

1. \( \frac{S_1 l_1 + S_2 l_2}{l_1 + l_2} \)
2. \( \frac{S_1 l_2 + S_2 l_1}{l_1 - l_2} \)
3. \( \frac{S_1 l_2 + S_2 l_1}{l_1 + l_2} \)
4. \[ \frac{s_1 l_1 - s_2 l_2}{l_1 - l_2} \]

Question Number : 85  Question Id : 8135611365  Question Type : MCQ  Display Question Number : Yes  Is Question Mandatory : No  Single Line Question Option : No  Option Orientation : Vertical

The first law of thermodynamics confirms the law of ________

Options:

1. Conservation of momentum of molecules

2. Conservation of energy

3. Flow of heat in a particular direction

4. Conservation of heat energy and mechanical energy
In an A.C. circuit, the current flowing is \( I = 5 \sin \left(100t - \frac{\pi}{2}\right) \) A and the potential difference is \( e = 200 \sin(100t) \). The power consumption is equal to ______

Options:
1. 1000 W
2. 40 W
3. 20 W
4. 0 W

For television broadcasting, the frequency employed is normally in range ______

Options:
1. 30 – 300 MHz
2. 30 – 300 GHz
3. 30 – 300 kHz
4. 30 – 300 Hz
Question Number : 88 Question Id : 8135611368 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The displacement of a particle moving with uniform acceleration in time ‘t’ is given by 
\[ S = 30t + 5t^2 \], its initial velocity is ________

‘t’ ల రేఖాప్రభుత్వంలో పంచిత్ర చేసిన అంశం నిర్మాణ సమయం ఇంటి ప్రారంభ విచిత్రం, నిర్మాణ నిర్మాణం
\[ S = 30t + 5t^2 \] ని చేసిన అంశం ________

Options :

1. ✗ 35 \text{ m.s}^{-1}

2. ✔ 30 \text{ m.s}^{-1}

3. ✗ 40 \text{ m.s}^{-1}

4. ✗ 45 \text{ m.s}^{-1}

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Question Number : 89 Question Id : 8135611369 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A uniform chain of mass ‘M’ and length ‘L’ is lying on a smooth horizontal table, with half of its length hanging down. The work done is pulling the entire chain up the table is

\[ M \text{ ప్రధానం, } L \text{ ప్రధానం అనే కంప్యూటర్ కన్నా, అంత కంప్యూటర్ మాధ్యమం లేయే, మామూలు ప్రధానం ఏడా కంప్యూటర్ నిర్మాణం కంప్యూటర్ ని చేయాలేనా? కంప్యూటర్ నిర్మాణం కంప్యూటర్ ను చేయవచ్చు కంప్యూటర్ నిర్మాణం కంప్యూటర్ ని చేయాలేనా?

Options :

1. ✗
When two identical capacitors are charged individually to different potentials and then connected in parallel, after disconnecting from the source, ______

When two identical capacitors are charged individually to different potentials and then connected in parallel, after disconnecting from the source, ______

Options:

Net charge = sum of initial charges

Net potential difference ≠ sum of individual initial potential difference

Net energy stored < sum of individual initial energy
4. All of these

Question Number : 91 Question Id : 8135611371 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The acceleration at the end of 2 s. of a particle whose motion is represented by the equation \[ S = 4t^3 - 8t^2 + 5t + 4 \] is ______

\[ S = 4t^3 - 8t^2 + 5t + 4 \] యొక్క మోతాడకం యొక్క మోతాడకం 2 సెకండపు రెండు

చరిత్ర చెందడానికి ______

Options :
1. \( 32 \text{ m/s}^{-2} \)
2. \( 40 \text{ m/s}^{-2} \)
3. \( 37 \text{ m/s}^{-2} \)
4. \( 35 \text{ m/s}^{-2} \)

Question Number : 92 Question Id : 8135611372 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
\( {^{232}_{90}}\text{Th} \) emits 6\( \alpha \) and 4\( \beta \) particles and gets converted into a lead. The mass number and atomic number of lead is ________

\( {^{232}_{90}}\text{Th} \), 6\( \alpha \) అందులో 4\( \beta \) రోగ తెశించాయందుంది ఈస్టీటు పెట్టాలి. అంటే ఈస్టీటు వంటి, తండ్రికి లేదు, వారు నాణు లేదు?

Options:
1. 208, 82
2. 82, 208
3. 210, 82
4. 210, 84

Question Number : 93 Question Id : 8135611373 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Magnetic field \( dB \) to a current element at any point on its axis is ______

వాణియం వాణియం సమాంతరంగా ఎత్తు అందం ఇద్దరు తీసుకుని అందుడు లేదు \( dB \)

Options:
1. zero
2. 1

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If the radius of a sphere is doubled by keeping its mass constant, compare the moment of inertia of the old sphere with that of the new sphere, about any diameter.

Options:
1. $I_1 : I_2 = 1 : 4$
2. $I_1 : I_2 = 1 : 2$
3. $I_1 : I_2 = 4 : 1$
4. $I_1 : I_2 = 2 : 1$
A wire of length 1 m and radius 2 mm is vertically clamped. The lower end is twisted through an angle of 45°. The angle of shear is ____

1 m లతో, 2 mm వ్యాసం ఉన్న లోహం విరుద్ధ స్థిరంపడింది. కొండ యొక్క దృఢ్ఢాన్ని 45° సందేశంగా విరుద్ధ స్థిరంపడింది ఉంటే స్థిరంపడింది ఉంటే వయుద్ధం ఉంటే ____

Options:
1. ✔️ 0.09°
2. ✗ 0.9°
3. ✗ 9°
4. ✗ 90°

Question Number : 96 Question Id : 8135611376 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which among the following has dimensions of charge?

డీ తిమీలో వైభావం ఉంటే మాత్రమే ఎది కంటే దండం ఉంటా?
A coil of area 10 m² is placed in a uniform magnetic field of 0.3 k lb. m⁻², with its plane perpendicular to the field. The coil rotates at a uniform rate to complete the revolution in 8 s. Find the average e.m.f. in the coil during intervals when the coil rotates from

i. 0° to 90° position
ii. 90° to 180° position
iii. 180° to 270° position
iv. 270° to 360° position

Options:
1. \(\frac{3}{2}V; \frac{3}{2}V; -\frac{3}{2}V; -\frac{3}{2}V\)
2. \(\frac{3}{2}V; -\frac{3}{2}V; \frac{3}{2}V; -\frac{3}{2}V\)
3. \(0V; 0V; 0V; 0V\)
4. \( -\frac{3}{2} V; -\frac{3}{2} V; \frac{3}{2} V; \frac{3}{2} V \)

Question Number : 98 Question Id : 8135611378 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The time taken by a force of 2 \( N \) to produce a change of momentum of 0.4 \( kg.m.s^{-1} \) in a body is ________

అంకులు మీద 2 \( N \) అనే సమస్య పెంటుకు చ 0.4 \( kg.m.s^{-1} \) సంచాలనడం మాత్రమే ఎంత సారి?

Options :
1. ✅ 0.2 s
2. ✗ 0.02 s
3. ✗ 0.5 s
4. ✗ 0.05 s

Question Number : 99 Question Id : 8135611379 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
An imaginary equilateral triangle \( ABC \) of side length 2 m is placed in a uniform electric field \( \vec{E} = 10 \text{ N.C}^{-1} \) as shown. Then, \( V_A - V_B = \)

\[ V_A - V_B = \]

Options:
1. \( -5 \text{ V} \)
2. \( +5 \text{ V} \)
3. \( -10 \text{ V} \)
4. \( +10 \text{ V} \)

Question Number : 100 Question Id : 8135611380 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
When will a body of mass 20 kg moving at 15 m/s\(^{-1}\), subjected to a retarding force of 100 N, come to rest?

**Options:**
1. ✓ 3 s
2. ✗ 6 s
3. ✗ 1.5 s
4. ✗ 9 s

**Question Number:** 101  
**Question Id:** 8135611381  
**Question Type:** MCQ  
**Display Question Number:** Yes  
**Is Question Mandatory:** No  
**Single Line Question Option:** No  
**Orientation:** Vertical
As shown in the figure below, a point charge ‘q’ moves from point ‘P’ to a point ‘S’ traversing a path PQRS in a uniform \( \vec{E} \). The electric field is directed along a direction parallel to x-axis. The coordinates of, \( P, Q, R \) and \( S \) are \((a, b, 0)\), \((2a, 0, 0)\), \((-b, 0)\) and \((0,0,0)\) respectively. What is the work done by the field in the process?

\[ \text{Options:} \]
1. \( qEa \)
2. \( -qEa \)
3. \( 0 \)
4. \( qEb \)

**Question Number : 102 Question Id : 8135611382 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**
The photoelectric threshold for a certain metal surface is 360 Å. If the metal surface is irradiated by a wavelength of 1100 Å, the kinetic energy of the emitted photoelectrons is

Options:
1. 1.1 eV
2. 2 eV
3. 2.3 eV
4. 0

Question Number: 103 Question Id: 8135611383 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

A closed organ pipe and an open organ pipe of same length produce 2 beats/sec when they are set into vibrations together in fundamental mode. The length of open pipe is now halved and that of closed pipe is doubled. The number of beats produced will be

Options:
1. 7
2. 4

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Question Number : 104 Question Id : 8135611384 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The number of electric lines that emerge from a finite charge \( +q \) is ______

\( \text{విధించిన వీణాసాయుక్తి} +q \text{ నంది ప్రదర్శిస్తుందనే విధించిన వీణ అంశం} \)

Options:
1.  \( \text{అంశం} \)
   \( \text{ముగ్ధం} \)
   any finite number but not equal to zero
   \( \text{విధించిన వీణాసాయుక్తి} +q \text{ నంది ప్రదర్శిస్తుందనే విధించిన వీణ అంశం} \)

2.  \( \text{అంశం} \)
   \( \text{ప్రాంతం పెట్టడం} \)
   proportional to the charge
   \( \text{విధించిన వీణాసాయుక్తి} +q \text{ నంది ప్రదర్శిస్తుందనే విధించిన వీణ అంశం} \)

3.  \( \text{అంశం} \)
   \( \text{శాఖా} \)
   zero
   \( \text{విధించిన వీణాసాయుక్తి} +q \text{ నంది ప్రదర్శిస్తుందనే విధించిన వీణ అంశం} \)

4.  \( \text{అంశం} \)
   \( \text{చిహ్నం} \)

Question Number : 105 Question Id : 8135611385 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
In the following circuit, the equivalent resistance between A and B is

\[ \begin{align*}
\text{Options:} \\
1. & \quad (20/3) \, \Omega \\
2. & \quad 10 \, \Omega \\
3. & \quad 16 \, \Omega \\
4. & \quad 20 \, \Omega
\end{align*} \]

An electron having charge \( 1.6 \times 10^{-19} \, C \) and mass \( 9 \times 10^{-31} \, kg \) is moving with \( 4 \times 10^{6} \, m. \, s^{-1} \) speed in a magnetic field \( 2 \times 10^{-1} \, T \) in a circular orbit. The force acting on electron and the radius of the circular orbit is _______

\[ \begin{align*}
1.6 \times 10^{-19} \, C \text{ అంశంతో, } 9 \times 10^{-31} \, kg \text{ భారంతో, } 4 \times 10^{6} \, m. \, s^{-1} \text{ వేగంతో, } 2 \times 10^{-1} \, T \\
\text{మేధా స్పీడు అత్యంత చురుక్తితో చేరుకుందాం. ప్రత్యేకంగా ఇది వేగం సమాధానం చేసేది.} \\
\text{Options:}
\end{align*} \]
The colour code for a resistance of $22 \, \Omega \pm 5\%$ is _______

$22 \, \Omega \pm 5\%$ విరుద్ధ ఘటన చక్రం _______

Options:

1. Brown - brown - black - gold
   గోలు - గోలు - క్రింది - భరణమ

2. Red - red - brown - silver
   మిశ్రమ - మిశ్రమ - గోలు - విలంబ

3. Red - red - black - gold
   మిశ్రమ - మిశ్రమ - మిశ్రమ - భరణమ

4. Red - red - orange - silver
   మిశ్రమ - మిశ్రమ - కోటం - విలంబ
Question Number : 108 Question Id : 8135611388 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Kinetic energy of rotation of a flywheel of radius 2 m, mass 8 kg and angular speed 4 rad. s\(^{-1}\) about an axis perpendicular to its plane and passing through its center is

\[ 2 \times 8 \times 4 \times 4 \times 2 = 128 \text{ J} \]

Options :
1. \(128 \text{ J}\) (Correct)
2. \(196 \text{ J}\)
3. \(256 \text{ J}\)
4. \(392 \text{ J}\)

Question Number : 109 Question Id : 8135611389 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the pressure required to reduce the given volume of water by 1% ? (Bulk modulus \(K\) = 2 \(\times\) \(10^8\) \(N.\text{ m}^{-2}\))

\[ \text{1% वाले मध्यमांक वाला वेट वाला, 1% तक घटाया जाये, तो} \]

\[ \text{स्पष्ट त्रुटि} \quad (K) = 2 \times 10^8 \text{ N. m}^{-2} \]

Options :
1. \(2 \times 10^5 \text{ N. m}^{-2}\)
2. \(2 \times 10^6 \text{ N. m}^{-2}\) (Correct)
3. \(2 \times 10^7 \text{ N.m}^{-2}\)

4. \(2 \times 10^8 \text{ N.m}^{-2}\)

Question Number : 110

Question Id : 8135611390

Question Type : MCQ

Display Question Number : Yes

Is Question Mandatory : No

Single Line Question Option : No

Orientation : Vertical

A particle executes simple harmonic motion between \(x = -A\) and \(x = +A\). If it takes a time \(T_1\) to go from \(x = 0\) to \(x = A/2\) and \(T_2\) to go from \(x = A/2\) to \(x = A\). Then,

\[x = -A \text{ when } x = +A \text{ and } x = 0 \text{ when } x = A/2\]

Which of the following statements is true?

Options:

1. \(T_1 < T_2\)
2. \(T_1 > T_2\)
3. \(T_1 = T_2\)
4. \(T_1 = 2T_2\)

Question Number : 111

Question Id : 8135611391

Question Type : MCQ

Display Question Number : Yes

Is Question Mandatory : No

Single Line Question Option : No

Orientation : Vertical
A mixture of Yellow light of wavelength 580 nm and blue light of wave length 450 nm is incident normally on an air film of thickness 2.9 \times 10^{-4} \text{ mm}. The colour of reflected light is

580 nm ఒడ్డిలో ప్రస్తుతి చేస్తుంది గాలి వేలుగా అరుదు 450 nm వేలు ప్రస్తుతి చేస్తుంది గాలి అరుదు 2.9 \times 10^{-4} \text{ mm} మాత్రమే ఆ తరికి ఉండాలి నానారులుబడుతుంది. నానారులుబడుతుంది ఆ తరికి ఉండాలి.

Options:
1. Red
2. Blue
3. Violet
4. Yellow

Question Number : 112 Question Id : 8135611392 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
One mole of an ideal diatomic gas undergoes a transition from A to B along a path AB as shown in figure. The change in internal energy of the gas during the transition is

Options:
1. $-20 \text{ kJ}$
2. $20 \text{ J}$
3. $-12 \text{ kJ}$
4. $20 \text{ kJ}$

Question Number: 113  Question Id: 813561393  Question Type: MCQ  Display Question Number: Yes  Is Question Mandatory: No  Single Line Question Option: No  Option Orientation: Vertical

W K Roentgen discovered ________

W K రోంట్సెన్ పండితయ్య ఉద్స్థలం ఉద్స్థలం

Options:
- Short radio waves
  1. $X$-rays
  2. $X$- ఎంటర్మ్‌లు
Electrons

Laws of electromagnetic induction

Question Number : 114 Question Id : 8135611394 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A source is stationary and the observer is in motion along a line joining the source and the observer. If the frequency heard by the observer is 1% higher than the true frequency, the ratio of velocity of the observer and that of sound in air is:

Options :
1. 1 : 100
2. 2 : 100
3. 3 : 100
4. 1 : 10

Question Number : 115 Question Id : 8135611395 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Four projectiles are fired with the same velocities at angles 25°, 40°, 55° and 70° with the horizontal. The range of projectile will be largest for the one projected at angle _____.

Options:
1. 25°
2. ✓ 40°
3. ✗ 55°
4. ✗ 70°

Question Number : 116  Question Id : 8135611396  Question Type : MCQ  Display Question Number : Yes  Is Question Mandatory : No  Single Line Question Option : No Option
Orientation : Vertical

A train is moving towards north. At one place it turns towards north-east. Here, we observe that:

Options:
The radius of curvature of outer rail will be greater than that of the inner rail
1. ✓

The radius of curvature of inner rail will be greater than that of the outer rail
2. ✗
3. ✗
The radius of curvature of the outer and inner rails will be the same.

The radius of curvature of inner rail will be infinite.

4. **X**

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**Question Number : 117**

**Question Id : 8135611397**

**Question Type : MCQ**

**Display Question Number : Yes**

**Is Question Mandatory : No**

**Single Line Question Option : No**

**Orientation : Vertical**

Minimum excitation potential of Bohr’s first orbit of Hydrogen atom is ________

4. **X**

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**Options :**

1. 3.6 V

2. ✓ 10.2 V

3. 13.6 V

4. 3.4 V

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**Question Number : 118**

**Question Id : 8135611398**

**Question Type : MCQ**

**Display Question Number : Yes**

**Is Question Mandatory : No**

**Single Line Question Option : No**

**Orientation : Vertical**

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A system goes from A to B via two processes I and II as shown in the figure. If $\Delta U_1$ and $\Delta U_2$ are the changes in internal energies in the processes I and II respectively, then

Options:
1. $\Delta U_1 = \Delta U_2$
2. $\Delta U_1 > \Delta U_2$
3. $\Delta U_1 < \Delta U_2$
4. $\Delta U_1 \neq \Delta U_2$

Question Number : 119 Question Id : 8135611399 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A uniform solid sphere of radius ‘$R$’ and radius of gyration ‘$K$’ about an axis passing through the centre of mass, is rolling without slipping. Then the fraction of total energy associated with its rotation will be ______

Options:
1. $\frac{K^2}{R^2}$

Two thin circular discs $A$ and $B$ of radii 2 cm and 4 cm are in a liquid at the same depth. $T_A$ is the thrust on $A$ and $T_B$ thrust on $B$. Then $T_A : T_B =$

Options:
1. $2 : 1$
2. $1 : 2$
3. $4 : 1$
4. $1 : 4$
For the reaction, \(2H_2(g) + O_2(g) \rightarrow 2H_2O(g)\). At 300 K, \(\Delta G\) and \(\Delta H\) of water are \(-228.4\) kJ mol\(^{-1}\) and \(-241.60\) kJ mol\(^{-1}\) respectively. The, calculate the value of change in entropy for the given reaction.

\[300\, K \quad \Delta S = \frac{\Delta H - \Delta G}{T} = \frac{-228.4\, kJ\, mol^{-1} - (-241.60\, kJ\, mol^{-1})}{300}\]

**Options:**

1. \(\bullet\) \(+88\, J\)

2. \(\bullet\) \(+4.4\, kJ\)

3. \(\bullet\) \(-88\, J\)

4. \(\checkmark\) \(-44\, J\)
Which of the following represents the structure of inorganic benzene?

Options:

1. ✓

2. ✗

3. ✗
Which of the following conclusions could not be derived from Rutherford’s α -particle scattering experiment?

Options:

1. Most of the space in the atom is empty.

2. Radius of the atom is about $10^{-10}$ m while that of nucleus is $10^{-15}$ m.

3. Electrons move in circular paths of fixed energy, called orbits.

4. Electrons and the nucleus are held together by electrostatic forces of attraction.
Question Number : 124 Question Id : 8135611404 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following metal ions is colorless?

ైపి మాల్టీటి పిడిస్తుందు కెనడి కలిసుకునేది?

Options :
1. ✗ $Ti^{3+}$
2. ✓ $Sc^{3+}$
3. ✗ $V^{4+}$
4. ✗ $Cr^{4+}$

Question Number : 125 Question Id : 8135611405 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following arrangements is correct regarding the three types of radii of an atom?

నాయిపి మాల్టీటుకునే మాల్టీటుకునే కలిసి కెనడి కలిసుకునేది?

Options :

1. ✗ మిత్రియా ద్రాష్ట్రియా ద్రాష్ట్రియా ద్రాష్ట్రియా

2. ✓ $\text{Covalent radius} < \text{Metallic radius} < \text{Vander wall’s radius}$

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Vander wall’s radius < Metallic radius < Covalent radius

3. 

Metallic radius < Covalent radius > Vander wall’s radius

4. 

Question Number : 126 Question Id : 8135611406 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Options :
1. 
2. 
3. 
4. 

Which of the following statements is not true for hydrogen?

1) It exists as a diatomic molecule
2) It has one electron in the outermost shell
3) It can lose an electron to form a cation which can freely exist
4) It cannot form ionic compounds

హోం మాటలు కలుపబడిన మార్యాడంలో వచ్చిన విషయం వినా ఎదుటక ఉంది?

1) యే హోంతెనిచే ప్రపంచానికి కొనివులు
2) వే యే తెలిగిన నిషేధాన్ని వాటి కలిగి కొనివులు
3) అంటెనే ప్రాధిపతి ప్రపంచంలో అసాడుడి విషయం ఉండాడానికి
4) యే అయితే వాటి కలిగి విస్తైన విషయం

Options :
1. 
2. 
3. 

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Question Number : 127 Question Id : 8135611407
Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When an iron rod is subjected towards an atmosphere having very high content of moisture, which of the process is predominant?

Options:
1. Chemisorption
2. Physisorption
3. Sorption
4. Luminescence

Question Number : 128 Question Id : 8135611408
Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The correct statement among the following, regarding defects in solids is

1) Frenkel defect is favored by small difference in the sizes of cation and anion
2) Frenkel defect is a metal excess defect
3) Trapping of electron in the lattice leads to formation of F-CENTRE
4) Schottky defect has no effect on the physical property of solids

Which of the following metal is used as a catalyst in Haber’s process of ammonia synthesis?

Options:
1. 
2. 
3. ✓
4. 

Question Number : 129 Question Id : 8135611409 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following metal is used as a catalyst in Haber’s process of ammonia synthesis?

Options:
1. 
2. 
3. ✓
4. 

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Cobalt
1. ☑

Copper
2. ☑

Zinc
3. ☑

Iron
4. ☑

Question Number : 130 Question Id : 8135611410 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Options :

1. ☑
2. 
3. 
4. 

Find ‘A’ in the reaction “\( R - OH + A \rightarrow \) Schiff’s Base”

“\( R - OH + A \rightarrow \) స్ఫిట్ట్ బేస్” మూలం కంప్యూటింగు”, ‘A’ ను తెలుసు?

Options :

1. ☑
2. 
3. 
4. 

Aldehyde

Acid

Alcohol
Grignard’s Reagent

Question Number : 131 Question Id : 8135611411 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

Match the following elements, given as hints to their first, second ionisation enthalpies and electron gain enthalpies.

<table>
<thead>
<tr>
<th>Elements / మాతృగామాలు</th>
<th>$\Delta H_1$</th>
<th>$\Delta H_2$</th>
<th>$\Delta_{eg}H$</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Most reactive non metal స్ఫుంక్షన్ యుద్ధ శరణారు</td>
<td>A. 419</td>
<td>3051</td>
<td>- 48</td>
</tr>
<tr>
<td>ii. Most reactive metal ఆహృత స్ఫుంక్షన్ నానామాను</td>
<td>B. 1681</td>
<td>3374</td>
<td>- 328</td>
</tr>
<tr>
<td>iii. Least reactive element తప్ప స్ఫుంక్షన్ నానామాను</td>
<td>C. 738</td>
<td>1451</td>
<td>- 40</td>
</tr>
<tr>
<td>iv. Metal forming binary halide గుడి వ్యర్థ స్ఫుంక్షన్ నానామాను</td>
<td>D. 2372</td>
<td>5251</td>
<td>+ 48</td>
</tr>
</tbody>
</table>

Options :
1. ✔️ (i – B), (ii – A), (iii – D), (iv – C)

2. ✗ (i – A), (ii – B), (iii – D), (iv – C)
3. \( (i - B), \ (ii - A), \ (iii - C), \ (iv - D) \)

4. \( (i - B), \ (ii - D), \ (iii - A), \ (iv - C) \)

Question Number : 132 Question Id : 8135611412 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option

Orientation : Vertical

One mole of an organic compound 'A' with the formula \( C_3H_6O \) reacts completely with two moles of \( HI \) to form \( X \) and \( Y \). When \( Y \) is boiled with aqueous alkali it forms \( Z \). \( Z \) answers the iodoform test. Then the compound 'A' is

\[ C_3H_6O \]

One mole of an organic compound 'A' with the formula \( C_3H_6O \) reacts completely with two moles of \( HI \) to form \( X \) and \( Y \). When \( Y \) is boiled with aqueous alkali it forms \( Z \). \( Z \) answers the iodoform test. Then the compound 'A' is

Options :

1. Propan-1-ol
2. Propan-2-ol
3. Ethoxy ethane
4. Methoxy ethane
Question Number : 133 Question Id : 8135611413 Question Type : MCQ Display Question
Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

Calculate the mass of AgCl precipitated, when 25 ml of 35 % solution of AgNO₃ and
25 ml of 11.6 % solution of NaCl are mixed is ________

\[25 \text{ ml of } 35 \% \text{ AgNO}_3 \text{ और } 25 \text{ ml of } 11.6 \% \text{ NaCl से मिलने पर } \text{ AgCl ज्यादा होता है?}\]

Options :
1. ✔️ 7 g
2. ✗ 17 g
3. ✗ 20 g
4. ✗ 15 g

Question Number : 134 Question Id : 8135611414 Question Type : MCQ Display Question
Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical

The pressure exerted by a mixture of 3.2 g of methane and 4.4 g of CO₂ contained in a 9 dm³
flask at 27 °C is ________

\[27 \degree C \text{ में } 9 \text{ dm}^3 \text{ में } 3.2 \text{ g मीथाइल और } 4.4 \text{ g CO}_2 \text{ के मिश्रण का दबाव } \text{ क्या होता है?}\]

Options :
1. ✗ 1.62 atm
2. ✔️ 8.00 atm
The increasing order of acidic strength among the following compounds

I. Benzoic acid  
II. 4-Nitrobenzoic acid  
III. 3,4-Dinitrobenzoic acid  
IV. 4-Methoxybenzoic acid

Options:
1. ✗ I < II < III < IV  
2. ✗ I < IV < II < III  
3. ✓ IV < I < II < III  
4. ✗ IV < I < III < II
Question Number : 136 Question Id : 8135611416 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
\[ O_3 + 2Kl_{(aq)} \rightarrow ? \]
\[ O_3 + 2Kl_{(aq)} \rightarrow ? \]
Options :
1. \( IO_3 \)
2. \( Cl_3 \)
3. \( I_2 \)
4. \( HI \)

Question Number : 137 Question Id : 8135611417 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option
Orientation : Vertical
During electro-osmosis of \( Fe(OH)_3 \) sol, which of the following occurs?
\( Fe(OH)_3 \) మిశ్ర మీద విద్యుత్ ఆస్మనె ఉండండానే అంశం ఉంటే, కొదని ఇలా ఉండాలి?
Options :
Sol particle move towards anode
సల పారాడి అనిడి పెద్ది వస్తారు
1. ✗

Sol particles move towards cathode
సల పారాడి కాట్డి పెద్ది వస్తారు
2. ✗
The dispersion medium moves towards anode

3. ✓

The dispersion medium moves towards cathode

4. ✗

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**Question Number : 138 Question Id : 8135611418 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

The geometry of $SF_6$ molecule is _______

$SF_6$ మరియు మేయిన యుగ్మం ఉంటాయి _______

**Options:**

1. Tetrahedral
   - నాట్యంలైను

2. Planar
   - రేఖాశాయం

3. Octahedral
   - అన్యం

4. Trigonal bipyramidal
   - లేక అంతాయం

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**Question Number : 139 Question Id : 8135611419 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

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Which among the following is a bactericidal antibiotic?

Options:
1. Penicillin
2. Erythromycin
3. Tetracycline
4. Chloramphenicol

Question Number : 140 Question Id : 8135611420 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The rate constant is same for 3 reactions of order I, II and III respectively, the unit of concentration being in moles/litre. If the concentration of reactant is unity, rates of reaction $R_1, R_2, R_3$ will be ________

Options:
1. $R_1 = R_2 = R_3$
2. \( R_1 < R_2 < R_3 \)

3. \( R_1 > R_2 > R_3 \)

4. \( R_1 = R_2 \neq R_3 \)

Question Number : 141 Question Id : 8135611421 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When soap is dissolved in hard water, its cleaning ability comes down. This is due to the formation of:

Options:

1. \((C_{17}H_{35}COO)_2Sn\)

2. \((C_{17}H_{35}COO)_2Ca\)

3. \(C_{17}H_{35}COOLi\)

4. \(C_{17}H_{35}COOH\)

Question Number : 142 Question Id : 8135611422 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Find the non-semiconductor element among the following.

strarvastrum 3c - hitamara 4i 3pamhale u 3vithale.

Options:
1. Ge
2. Pb
3. Si
4. As

Question Number: 143 Question Id: 8135611423 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical

10 g of a gas at STP occupies a volume of 2 L. At what temperature will the volume be doubled, if pressure & amount of gas remain constant?

STP 3c 10 g 3s 2 L 3mamhale 3c 3k 4i 3vithale. 3c 3k 4i 3vithale 3c 3k 4i 3vithale

Options:
1. 273 K
2. 546 K
3. -273 K
4. 546 °C
Question Number : 144 Question Id : 8135611424 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Increasing order of boiling points in the following compounds is:

\[ \text{CH}_3\text{COOH} \quad \text{CH}_3\text{CH}_2\text{CHO} \quad \text{CH}_3\text{CH}_2\text{CH}_2\text{OH} \quad \text{CH}_3\text{COCH}_3 \]

Options :

1. ✓ (ii) < (iv) < (iii) < (i)
2. ✗ (ii) < (iv) > (iii) < (i)
3. ✗ (iv) < (ii) > (i) < (iii)
4. ✗ (iv) < (iii) > (ii) < (i)

Question Number : 145 Question Id : 8135611425 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Predict the correct order of rate of diffusion of the following molecules.

\[ \text{SO}_2 > \text{SO}_3 > \text{PCl}_3 > \text{CO}_2 \]

Options :

1. ✗ \[ \text{SO}_2 > \text{SO}_3 > \text{PCl}_3 > \text{CO}_2 \]
2. ✗ \[ \text{PCl}_3 > \text{SO}_3 > \text{SO}_2 > \text{CO}_2 \]
3. \( CO_2 > SO_2 > SO_3 > PCl_3 \)

4. \( CO_2 > SO_2 > PCl_3 > SO_3 \)

**Question Number : 146 Question Id : 8135611426 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

For a first order reaction \( A_5 \rightarrow 5B_2 \), the concentrations vs time plot is as shown. The half-life of the reaction is

![Concentration vs Time Plot](image)

Which of the following is the correct half-life?

**Options :**

1. 120 minutes
2. 109.75 minutes
3. 112.5 minutes

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Question Number : 147 Question Id : 8135611427 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Calculate the mass percentage of 3 g of solute A dissolved in 18 g of water?

3 g రేచితా A, 18 g విషులుగా కపపచ్చ ద్రవం నుండి సమస్య సమయం?

Options :

1. 15.28 %
2. 14.28 %
3. 16.28 %
4. 17.28 %

Question Number : 148 Question Id : 8135611428 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
Which of the following statements is true?

1) 200 ml of 0.2M NaOH has same number of moles of solute as 1000 ml of 1M NaOH
2) 200 ml of 1M NaOH has same number of moles as 1000 ml of 0.2M NaOH
3) 100 ml of 0.2M NaOH has same number of moles as 1000 ml of 1M NaOH
4) 2000 ml of 0.2M NaOH has same number of moles as 1000 ml of 1M NaOH

Which of the following statements is true?

1) 200 ml 0.2M NaOH has same number of moles as 1000 ml 1M NaOH
2) 200 ml 1M NaOH has same number of moles as 1000 ml 0.2M NaOH
3) 100 ml 0.2M NaOH has same number of moles as 1000 ml 1M NaOH
4) 2000 ml 0.2M NaOH has same number of moles as 1000 ml 1M NaOH

Options:
1. 
2. 
3. 
4. 

Question Number: 149 Question Id: 8135611429 Question Type: MCQ Display Question Number: Yes Is Question Mandatory: No Single Line Question Option: No Option Orientation: Vertical
Which of the following metals cannot be obtained by auto-reduction of their compounds?

Which of the following is called “Lunar Caustic”?

Options:

1. **Lead**
2. **Mercury**
3. **Titanium**
4. **Copper**

Options:

1. **NaOH**
2. **AgCl**
3. **AgOH**
4. ✔️ $\text{AgNO}_3$

**Question Number : 151 Question Id : 8135611431 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical**

Which of the following statements is true?

1) Tertiary amines react with acid chlorides
2) N-Ethyl benzene sulphonamide is soluble in alkali
3) N, N-Diethyl benzene sulphonamide is soluble in alkali
4) Tertiary amines react with Hindberg’s reagent

**Question Number : 152 Question Id : 8135611432 Question Type : MCQ Display Question AP EAMCET 2020**

Options :

1. ✔️
2. ✔️
3. ✔️
4. ✔️
The total number of $\sigma$ and $\pi$ bonds present in the following compound respectively are

Options:
1. $\sigma 18$, $\pi 3$
2. $\sigma 21$, $\pi 4$
3. $\sigma 23$, $\pi 5$
4. $\sigma 16$, $\pi 4$
Which among the following is a correct statement based on Heisenberg’s uncertainty principle?

1. It is impossible to determine exact position and exact momentum of an electron simultaneously
2. It is applicable to even macroscopic objects
3. It is possible to determine the exact position and momentum of an electron simultaneously
4. It is impossible to determine the exact position and momentum of macroscopic object simultaneously

Options:
1. ✓
2. 
3. 
4. 

Question Number : 154 Question Id : 8135611434 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical
The product Q and R in the following reactions respectively are

\[ \text{H}_2 + \text{CH}_3\text{C} \equiv \text{CH} \xrightarrow{\text{lindlar's catalyst}} \text{P} \xrightarrow{\text{O}_3} \text{Q} + \text{R} \]

Q, R ఉండగా 3, 4 ఎంత

\[ \text{H}_2 + \text{CH}_3\text{C} \equiv \text{CH} \xrightarrow{\text{Zn + H}_2\text{O}} \text{P} \xrightarrow{\text{O}_3} \text{Q} + \text{R} \]

Options:

1. Ethanol, Methanoic Acid
2. Ethanoic acid, Methanol
3. Ethanal, Methanal
4. Ethanoic acid, Methanoic acid

Question Number : 155 Question Id : 8135611435 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The fraction of voids occupied in inverse spinel compounds are __________

ఉండి 3 నుండి 4 లో యొక్క అంశాలు (అంతర్ధారం) ఉండగా వచ్చాయి __________

Options:

1. ✔
Question Number : 156  Question Id : 8135611436  Question Type : MCQ  Display Question Number : Yes  Is Question Mandatory : No  Single Line Question Option : No Option  Orientation : Vertical  

Which among the following oxides is the most basic?

Which among the following oxides is the most basic?

Options :

1. \( CO \)

2. \( Al_2O_3 \)

3. \( Cl_2O_7 \)

4. \( Na_2O \)
Question Number : 157  Question Id : 8135611437  Question Type : MCQ  Display Question Number : Yes  Is Question Mandatory : No  Single Line Question Option : No Option  Orientation : Vertical

Total number of hydroxyls (−OH) groups in saccharic acid are:

1. 3
2. 2
3. 4
4. 5

Question Number : 158  Question Id : 8135611438  Question Type : MCQ  Display Question Number : Yes  Is Question Mandatory : No  Single Line Question Option : No Option  Orientation : Vertical

The formation of molecular orbitals can be described by the linear combination of atomic orbitals. Which one of the following correctly represents the formation of bonding molecular orbital from the atomic orbitals having wave functions \( \psi_A \) and \( \psi_B \)?

1. \( \psi_A \times \psi_B \)
2. \( \psi_A / \psi_B \)
3. $\psi_A + \psi_B$

4. $\psi_A - \psi_B$

Question Number : 159 Question Id : 8135611439 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The number of isomers of $C_5H_{12}$ is:

$C_5H_{12}$ యొక్క ఇసోమర్ల ఎంతవున్నాయి?

Options :

1. ✓ 3
2. ✗ 4
3. ✗ 5
4. ✗ 2

Question Number : 160 Question Id : 8135611440 Question Type : MCQ Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following does not exist?

అప్పుడు నీటి ఎలాంటిద్దులు ఉంది?

Options :
1. $XeO_3$
2. $XeOF_4$
3. $XeF_6$
4. $NeF_2$