National Testing Agency

Question Paper Name :	B Tech 4th Apr 2025 Shift 1 Domestic
Subject Name :	B. Tech
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B. Tech

Group Number :	1
Group Id :	3475773
Group Maximum Duration :	0
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Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300

Mathematics Section A

Section Id :	34757713
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34757713
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 347577151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the sets $A = \{(x, y) \in \mathbb{R} \times \mathbb{R} : x^2 + y^2 = 25\}$, $B = \{(x, y) \in \mathbb{R} \times \mathbb{R} : x^2 + 9y^2 = 144\}$, $C = \{(x, y) \in \mathbb{Z} \times \mathbb{Z} : x^2 + y^2 \leq 4\}$ and $D = A \cap B$. The total number of one-one functions from the set D to the set C is:

Options :

347577511. 15120

347577512. 17160

347577513. 18290

347577514. 19320

Question Number : 1 Question Id : 347577151 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

समुच्चयों $A = \{(x, y) \in \mathbb{R} \times \mathbb{R} : x^2 + y^2 = 25\}$, $B = \{(x, y) \in \mathbb{R} \times \mathbb{R} : x^2 + 9y^2 = 144\}$, $C = \{(x, y) \in \mathbb{Z} \times \mathbb{Z} : x^2 + y^2 \leq 4\}$ और $D = A \cap B$ का विचार कीजिए। समुच्चय D से समुच्चय C के एकैकी फलनों की कुल संख्या है:

Options :

347577511. 15120

347577512. 17160

347577513. 18290

347577514. 19320

Question Number : 2 Question Id : 347577152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f, g : (1, \infty) \to \mathbb{R}$ be defined as $f(x) = \frac{2x+3}{5x+2}$ and $g(x) = \frac{2-3x}{1-x}$. If the range of the function $fog : [2, 4] \to \mathbb{R}$ is $[\alpha, \beta]$, then $\frac{1}{\beta - \alpha}$ is equal to

Options :

347577515. 2

347577516. 29

347577517. 56

347577518. 68

Question Number : 2 Question Id : 347577152 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना $f, g : (1, \infty) \to \mathbb{R}$, $f(x) = \frac{2x+3}{5x+2}$ और $g(x) = \frac{2-3x}{1-x}$ द्वारा परिभाषित हैं। यदि फलन $fog : [2, 4] \to \mathbb{R}$ का परिसर $[\alpha, \beta]$ है, तो $\frac{1}{\beta - \alpha}$ बराबर है

Options :

347577515. 2

347577516. 29

347577517. 56

347577518. 68

Question Number : 3 Question Id : 347577153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider the equation $x^2 + 4x - n = 0$, where $n \in [20, 100]$ is a natural number. Then the number of all distinct values of n, for which the given equation has integral roots, is equal to

Options :

347577519. 5

347577520. 6

347577521. 7

347577522. 8

Question Number : 3 Question Id : 347577153 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

समीकरण $x^2 + 4x - n = 0$, जहाँ $n \in [20, 100]$ एक धनपूर्णांक है, का विचार कीजिए। तो n के सभी भिन्न मानों, जिनके लिए दी गई समीकरण के मूल पूर्णांक हैं, की संख्या है

Options :

347577519. 5

347577520. 6

347577521. 7

347577522. 8

Question Number : 4 Question Id : 347577154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $A = \{1, 6, 11, 16, \ldots\}$ and $B = \{9, 16, 23, 30, \ldots.\}$ be the sets consisting of the first 2025 terms of two arithmetic progressions. Then $n(A \cup B)$ is

Options :

347577523. 3814

347577524. 3761

347577525. 4027

347577526. 4003

Question Number : 4 Question Id : 347577154 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना $A = \{1, 6, 11, 16, \ldots\}$ और $B = \{9, 16, 23, 30, \ldots.\}$ दो समुच्चय हैं, जिनमें दो समांतर श्रेढ़ियों के प्रथम 2025 पद हैं। तो $n(A \cup B)$ है

Options :

347577523. 3814

347577524. 3761

347577525. 4027

347577526. 4003

Question Number : 5 Question Id : 347577155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$1 + 3 + 5^2 + 7 + 9^2 + \ldots$ upto 40 terms is equal to

Options :

347577527. 33980

347577528. 43890

347577529. 40870

347577530. 41880

Question Number : 5 Question Id : 347577155 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$1 + 3 + 5^2 + 7 + 9^2 + \ldots$ का 40 पदों तक योग है

Options :

347577527. 33980

347577528. 43890

347577529. 40870

347577530. 41880

Question Number : 6 Question Id : 347577156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In the expansion of $\left(\sqrt[3]{2}+\frac{1}{\sqrt[3]{3}}\right)^n$, $n \in \mathbb{N}$, if the ratio of 15^{th} term from the beginning to the 15^{th} term from the end is $\frac{1}{6}$, then the value of ${}^nC_3$ is

Options :

347577531. 1040

347577532. 2300

347577533. 4060

347577534. 4960

Question Number : 6 Question Id : 347577156 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\left(\sqrt[3]{2}+\frac{1}{\sqrt[3]{3}}\right)^n$, $n \in \mathrm{N}$ के प्रसार में, यदि आरंभ से $15^{\text{वें}}$ पद का अंत से $15^{\text{वें}}$ पद से अनुपात $\frac{1}{6}$ है, तो ${}^nC_3$ का मान है

Options :

347577531. 1040

347577532. 2300

347577533. 4060

347577534. 4960

Question Number : 7 Question Id : 347577157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

For an integer $n \geq 2$, if the arithmetic mean of all coefficients in the binomial expansion of $(x+y)^{2n-3}$ is 16, then the distance of the point P $(2n-1, n^2-4n)$ from the line $x+y=8$ is

Options :

347577535. $\sqrt{2}$

347577536. $2\sqrt{2}$

347577537. $3\sqrt{2}$

347577538. $5\sqrt{2}$

Question Number : 7 Question Id : 347577157 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

एक पूर्णांक $n \geq 2$ के लिए, यदि $(x+y)^{2n-3}$ के द्विपद प्रसार में सभी गुणांकों का समांतर माध्य 16 है, तो बिंदु P $(2n-1, n^2-4n)$ की रेखा $x+y=8$ से दूरी है

Options :

347577535. $\sqrt{2}$

347577536. $2\sqrt{2}$

347577537. $3\sqrt{2}$

347577538. $5\sqrt{2}$

Question Number : 8 Question Id : 347577158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The probability, of forming a 12 persons committee from 4 engineers, 2 doctors and 10 professors containing at least 3 engineers and at least 1 doctor, is

Options :

347577539. $\frac{129}{182}$

347577540. $\frac{103}{182}$

347577541. $\frac{17}{26}$

347577542. $\frac{19}{26}$

Question Number : 8 Question Id : 347577158 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

4 इंजीनियरों, 2 डॉक्टरों और 10 प्रोफेसरों से 12 व्यक्तियों की एक कमेटी, जिसमें कम से कम 3 इंजीनियर और कम से कम 1 डॉक्टर हों, बनाने की प्रायिकता है

Options :

347577539. $\frac{129}{182}$

347577540. $\frac{103}{182}$

347577541. $\frac{17}{26}$

347577542. $\frac{19}{26}$

Question Number : 9 Question Id : 347577159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A box contains 10 pens of which 3 are defective. A sample of 2 pens is drawn at random and let X denote the number of defective pens. Then the variance of X is

Options :

347577543. $\frac{3}{5}$

347577544. $\frac{11}{15}$

347577545. $\frac{2}{15}$

347577546. $\frac{28}{75}$

Question Number : 9 Question Id : 347577159 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

एक डब्बे में 10 पेन हैं, जिनमें 3 खराब है। 2 पेन का एक सेम्पल यादृच्छया निकाला जाता है और माना इसमें खराब पेन की संख्या X है। तो X का प्रसरण है

Options :

347577543. $\frac{3}{5}$

347577544. $\frac{11}{15}$

347577545. $\frac{2}{15}$

347577546. $\frac{28}{75}$

Question Number : 10 Question Id : 347577160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let the three sides of a triangle are on the lines $4x - 7y + 10 = 0$, $x + y = 5$ and $7x + 4y = 15$. Then the distance of its orthocentre from the orthocentre of the tringle formed by the lines $x = 0$, $y = 0$ and $x + y = 1$ is

Options :

347577547. 20

347577548. 5

347577549. $\sqrt{5}$

347577550. $\sqrt{20}$

Question Number : 10 Question Id : 347577160 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना एक त्रिभुज की तीन भुजाऐं रेखाओं $4x - 7y + 10 = 0$, $x + y = 5$ और $7x + 4y = 15$ पर हैं। तो इसके लंबकेन्द्र की, रेखाओं $x = 0$, $y = 0$ और $x + y = 1$ से बने त्रिभुज के लंबकेन्द्र से दूरी है

Options :

347577547. 20

347577548. 5

347577549. $\sqrt{5}$

347577550. $\sqrt{20}$

Question Number : 11 Question Id : 347577161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The length of the latus-rectum of the ellipse, whose foci are (2, 5) and (2, –3) and eccentricity is $\frac{4}{5}$, is

Options :

347577551. $\frac{18}{5}$

347577552. $\frac{10}{3}$

347577553. $\frac{6}{5}$

347577554. $\frac{50}{3}$

Question Number : 11 Question Id : 347577161 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

उस दीर्घवृत्त, जिसकी नाभियाँ (2, 5) और (2, -3) हैं और उत्केन्द्रता $\frac{4}{5}$ है, की नाभिलंब जीवा की लंबाई है

Options :

347577551. $\frac{18}{5}$

347577552. $\frac{10}{3}$

347577553. $\frac{6}{5}$

347577554. $\frac{50}{3}$

Question Number : 12 Question Id : 347577162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $10\sin^4\theta + 15\cos^4\theta = 6$, then the value of $\frac{27\,\text{cosec}^6\theta + 8\sec^6\theta}{16\sec^8\theta}$ is

Options :

347577555. $\frac{1}{5}$

347577556. $\frac{3}{4}$

347577557. $\frac{2}{5}$

347577558. $\frac{3}{5}$

Question Number : 12 Question Id : 347577162 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

यदि $10\sin^4\theta + 15\cos^4\theta = 6$ है, तो $\frac{27\,\text{cosec}^6\theta + 8\sec^6\theta}{16\sec^8\theta}$ का मान है

Options :

347577555. $\frac{1}{5}$

347577556. $\frac{3}{4}$

347577557. $\frac{2}{5}$

347577558. $\frac{3}{5}$

Question Number : 13 Question Id : 347577163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Considering the principal values of the inverse trigonometric functions,

$\sin^{-1}\left(\frac{\sqrt{3}}{2}x + \frac{1}{2}\sqrt{1-x^2}\right), -\frac{1}{2} < x < \frac{1}{\sqrt{2}}$, is equal to

Options :

347577559. $\frac{\pi}{4}+\sin^{-1}x$

347577560. $\frac{\pi}{6}+\sin^{-1}x$

347577561. $\frac{5\pi}{6}-\sin^{-1}x$

347577562. $\frac{-5\pi}{6}-\sin^{-1}x$

Question Number : 13 Question Id : 347577163 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

प्रतिलोम त्रिकोणमितीय फलनों के मुख्य मान लेने पर, $\sin^{-1}\left(\frac{\sqrt{3}}{2}x+\frac{1}{2}\sqrt{1-x^2}\right), -\frac{1}{2}<x<\frac{1}{\sqrt{2}}$, का मान है

Options :

347577559. $\frac{\pi}{4}+\sin^{-1}x$

347577560. $\frac{\pi}{6}+\sin^{-1}x$

347577561. $\frac{5\pi}{6}-\sin^{-1}x$

347577562. $\frac{-5\pi}{6}-\sin^{-1}x$

Question Number : 14 Question Id : 347577164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let the shortest distance between the lines $\frac{x-3}{3}=\frac{y-\alpha}{-1}=\frac{z-3}{1}$ and $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-\beta}{4}$ be $3\sqrt{30}$. Then the positive value of $5\alpha+\beta$ is

Options :

347577563. 40

347577564. 42

347577565. 46

347577566. 48

Question Number : 14 Question Id : 347577164 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना रेखाओं $\frac{x-3}{3}=\frac{y-\alpha}{-1}=\frac{z-3}{1}$ और $\frac{x+3}{-3}=\frac{y+7}{2}=\frac{z-\beta}{4}$

के बीच न्यूनतम दूरी $3\sqrt{30}$ है। तो $5\alpha+\beta$ का धनात्मक मान है

Options :

347577563. 40

347577564. 42

347577565. 46

347577566. 48

Question Number : 15 Question Id : 347577165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let A and B be two distinct points on the line $L:\frac{x-6}{3}=\frac{y-7}{2}=\frac{z-7}{-2}$. Both A and B are at a distance $2\sqrt{17}$ from the foot of perpendicular drawn from the point $(1, 2, 3)$ on the line L. If O is the origin, then $\overrightarrow{OA}\cdot\overrightarrow{OB}$ is equal to

Options :

347577567. 21

347577568. 47

347577569. 49

347577570. 62

Question Number : 15 Question Id : 347577165 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना रेखा $L:\frac{x-6}{3}=\frac{y-7}{2}=\frac{z-7}{-2}$ पर दो भिन्न बिंदु A और B हैं। बिंदु $(1, 2, 3)$ से रेखा L पर डाले गए लंब के पाद से A और B दोनों $2\sqrt{17}$ की दूरी पर हैं। यदि O मूलबिंदु है, तो $\overrightarrow{OA}\cdot\overrightarrow{OB}$ बराबर है

Options :

347577567. 21

347577568. 47

347577569. 49

347577570. 62

Question Number : 16 Question Id : 347577166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Consider two vectors

$\vec{u} = 3\hat{i} - \hat{j}$ and $\vec{v} = 2\hat{i} + \hat{j} - \lambda\hat{k},\ \lambda > 0$. The angle between them is given by $\cos^{-1}\left(\frac{\sqrt{5}}{2\sqrt{7}}\right)$.

Let $\vec{v} = \vec{v_1} + \vec{v_2}$, where $\vec{v_1}$ is parallel to $\vec{u}$ and $\vec{v_2}$ is perpendicular to $\vec{u}$. Then the value $\left|\vec{v_1}\right|^2 + \left|\vec{v_2}\right|^2$ is equal to

Options :

347577571. 14

347577572. 10

347577573. $\frac{23}{2}$

347577574. $\frac{25}{2}$

Question Number : 16 Question Id : 347577166 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

दो सदिशों $\vec{u} = 3\hat{i} - \hat{j}$ और $\vec{v} = 2\hat{i} + \hat{j} - \lambda\hat{k},\ \lambda > 0$ का विचार कीजिए। इनके बीच का कोण $\cos^{-1}\left(\frac{\sqrt{5}}{2\sqrt{7}}\right)$ है। माना $\vec{v} = \vec{v_1} + \vec{v_2}$ है, जहाँ $\vec{v_1}$ सदिश $\vec{u}$ के समांतर है और $\vec{v_2}$, सदिश $\vec{u}$ के लंबवत है। तो $\left|\vec{v_1}\right|^2 + \left|\vec{v_2}\right|^2$ का मान है

Options :

347577571. 14

347577572. 10

347577573. $\frac{23}{2}$

347577574. $\frac{25}{2}$

Question Number : 17 Question Id : 347577167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $\lim\limits_{x\to 1^+} \frac{(x-1)\left(6+\lambda\cos(x-1)\right)+\mu\sin(1-x)}{(x-1)^3} = -1$, where $\lambda, \mu \in \mathbb{R}$, then $\lambda + \mu$ is equal to

Options :

347577575. 17

347577576. 18

347577577. 19

347577578. 20

Question Number : 17 Question Id : 347577167 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

यदि $\lim\limits_{x\to1^+}\dfrac{(x-1)\left(6+\lambda\cos(x-1)\right)+\mu\sin(1-x)}{(x-1)^3}=-1,\ \lambda,\mu\in\mathbb{R}$ हैं, तो $\lambda+\mu$ बराबर है

Options :

347577575. 17

347577576. 18

347577577. 19

347577578. 20

Question Number : 18 Question Id : 347577168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f:\mathbb{R}\to\mathbb{R}$ be a continuous function satisfying $f(0)=1$ and $f(2x)-f(x)=x$ for all $x\in\mathbb{R}$. If $\lim\limits_{n\to\infty}\left\{f(x)-f\left(\dfrac{x}{2^n}\right)\right\}=G(x)$, then $\sum\limits_{r=1}^{10}G\left(r^2\right)$ is equal to

Options :

347577579. 215

347577580. 385

347577581. 420

347577582. 540

Question Number : 18 Question Id : 347577168 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना एक संतत फलन $f:\mathbb{R}\to\mathbb{R}$ के लिए $f(0)=1$ और $f(2x)-f(x)=x,\ \ \forall x\in\mathbb{R}$ हैं। यदि $\lim\limits_{n\to\infty}\left\{f(x)-f\left(\dfrac{x}{2^n}\right)\right\}=G(x)$ है, तो $\sum\limits_{r=1}^{10}G\left(r^2\right)$ बराबर है

Options :

347577579. 215

347577580. 385

347577581. 420

347577582. 540

Question Number : 19 Question Id : 347577169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

The value of $\int_{-1}^{1} \frac{\left(1+\sqrt{|x|-x}\right)e^{x}+\left(\sqrt{|x|-x}\right)e^{-x}}{e^{x}+e^{-x}}dx$ is equal to

Options :

347577583. $2+\frac{2\sqrt{2}}{3}$

347577584. $3-\frac{2\sqrt{2}}{3}$

347577585. $1-\frac{2\sqrt{2}}{3}$

347577586. $1+\frac{2\sqrt{2}}{3}$

Question Number : 19 Question Id : 347577169 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

$\int_{-1}^{1} \frac{\left(1+\sqrt{|x|-x}\right)e^{x}+\left(\sqrt{|x|-x}\right)e^{-x}}{e^{x}+e^{-x}}dx$ का मान है

Options :

347577583. $2+\frac{2\sqrt{2}}{3}$

347577584. $3-\frac{2\sqrt{2}}{3}$

347577585. $1-\frac{2\sqrt{2}}{3}$

347577586. $1+\frac{2\sqrt{2}}{3}$

Question Number : 20 Question Id : 347577170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Let $f: [0, \infty) \to \mathbb{R}$ be a differentiable function such that

$$f(x)=1-2x+\int_0^x e^{x-t} f(t)\,dt \text{ for all } x \in [0, \infty).$$

Then the area of the region bounded by $y=f(x)$ and the coordinate axes is

Options :

347577587. 2

347577588. $\sqrt{2}$

347577589. $\frac{1}{2}$

347577590. $\sqrt{5}$

Question Number : 20 Question Id : 347577170 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

माना एक अवकलनीय फलन $f: [0, \infty) \to \mathbb{R}$ के लिए

$f(x)=1-2x+\int_0^x e^{x-t} f(t)\,dt$, $x \in [0, \infty)$ है। तो $y=f(x)$ और निर्देशांक अक्षों से परिबद्ध क्षेत्र का क्षेत्रफल है

Options :

347577587. 2

347577588. $\sqrt{2}$

347577589. $\frac{1}{2}$

347577590. $\sqrt{5}$

Mathematics Section B

Section Id : 34757714

Section Number : 2

Section type : Online

Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5
Section Marks :	20
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34757714
Question Shuffling Allowed :	Yes

Question Number : 21 Question Id : 347577171 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Let $A = \{z \in \mathbb{C} : |z-2-i| = 3\}$, $B = \{z \in \mathbb{C} : \text{Re}(z - iz) = 2\}$ and $S = A \cap B$. Then $\sum_{z \in S} |z|^2$ is equal to _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 21 Question Id : 347577171 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

माना $A = \{z \in \mathbb{C} : |z-2-i| = 3\}$, $B = \{z \in \mathbb{C} : \text{Re}(z - iz) = 2\}$ और $S = A \cap B$ हैं। तो $\sum_{z \in S} |z|^2$ बराबर है _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 22 Question Id : 347577172 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Let $A = \begin{bmatrix} \cos\theta & 0 & -\sin\theta \\ 0 & 1 & 0 \\ \sin\theta & 0 & \cos\theta \end{bmatrix}$. If for some $\theta \in (0, \pi)$, $A^2 = A^T$, then the sum of the diagonal elements of the matrix $(A+I)^3 + (A-I)^3 - 6A$ is equal to _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 22 Question Id : 347577172 Question Type : SA Display Question Number : Yes

Correct Marks : 4 Wrong Marks : 1

माना $A=\begin{bmatrix}\cos\theta & 0 & -\sin\theta\\ 0 & 1 & 0\\ \sin\theta & 0 & \cos\theta\end{bmatrix}$ है। यदि किसी $\theta \in (0, \pi)$ के लिए $A^2 = A^T$ है, तो आव्यूह $(A+I)^3 + (A-I)^3 - 6A$ के विकर्ण के अवयवों का योग है _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 23 Question Id : 347577173 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1

Let C be the circle $x^2 + (y-1)^2 = 2$, E_1 and E_2 be two ellipses whose centres lie at the origin and major axes lie on x-axis and y-axis respectively. Let the straight line $x + y = 3$ touch the curves C, E_1 and E_2 at $P(x_1, y_1)$, $Q(x_2, y_2)$ and $R(x_3, y_3)$ respectively. Given that P is the mid point of the line segment QR and $PQ = \frac{2\sqrt{2}}{3}$, the value of $9(x_1y_1 + x_2y_2 + x_3y_3)$ is equal to _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 23 Question Id : 347577173 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1

माना C वृत्त $x^2 + (y-1)^2 = 2$ है, दो दीर्घवृत्तों E_1 और E_2 के केन्द्र मूल बिंदु पर हैं तथा दीर्घ अक्ष क्रमशः x-अक्ष और y-अक्ष पर हैं। माना सरल रेखा $x + y = 3$, वक्रों C, E_1 और E_2 को क्रमशः $P(x_1, y_1)$, $Q(x_2, y_2)$ और $R(x_3, y_3)$ पर स्पर्श करती है। यदि रेखा खंड QR का मध्य बिंदु P है और $PQ = \frac{2\sqrt{2}}{3}$ है, तो $9(x_1y_1 + x_2y_2 + x_3y_3)$ का मान है _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 24 Question Id : 347577174 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1

Let m and n be the number of points at which the function $f(x) = \max\{x, x^3, x^5, \ldots, x^{21}\}$, $x \in \mathbb{R}$, is not differentiable and not continuous, respectively. Then $m + n$ is equal to _____

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 24 Question Id : 347577174 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1
माना उन बिंदुओं, जहाँ पर फलन $f(x) = \max\{x, x^3, x^5, \ldots, x^{21}\}, x \in \mathbb{R}$, अवकलनीय नहीं है और संतत नहीं है, की संख्या क्रमशः m और n है। तो $m + n$ बराबर है _____
Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 25 Question Id : 347577175 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1
If the area of the region $\{(x, y) : |x - 5| \le y \le 4\sqrt{x}\}$ is A, then $3A$ is equal to _____
Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 25 Question Id : 347577175 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 1
यदि क्षेत्र $\{(x, y) : |x - 5| \le y \le 4\sqrt{x}\}$ का क्षेत्रफल A है, तो $3A$ बराबर है _____
Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Physics Section A

Section Id :	34757715
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20

Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34757715
Question Shuffling Allowed :	Yes

Question Number : 26 Question Id : 347577176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In an experiment with a closed organ pipe, it is filled with water by $\left(\frac{1}{5}\right)$th of its volume. The frequency of the fundamental note will change by

Options :

347577596. 20%

347577597. 25%

347577598. -20%

347577599. -25%

Question Number : 26 Question Id : 347577176 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

बन्द आर्गन पाइप के साथ एक प्रयोग में, यह अपने आयतन के $\left(\frac{1}{5}\right)$ वें हिस्से तक जल से भरा है।

मूल स्वर की आवृत्ति में परिवर्तन होगा

Options :

347577596. 20%

347577597. 25%

347577598. -20%

347577599. -25%

Question Number : 27 Question Id : 347577177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

In an electromagnetic system, the quantity representing the ratio of electric flux and magnetic flux has dimension of $M^PL^QT^RA^S$, where value of 'Q' and 'R' are

Options :

347577600. $(-2, 2)$

347577601. $(1,-1)$

347577602. $(3, -5)$

347577603. $(-2, 1)$

Question Number : 27 Question Id : 347577177 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

एक वैद्युत-चुम्बकीय निकाय में, वैद्युत अभिवाह (फ्लक्स) और चुम्बकीय अभिवाह के अनुपात को निरूपित करने वाली राशि की $M^PL^QT^RA^S$ की विमा है, जहाँ 'Q' और 'R' के मान हैं:

Options :

347577600. $(-2, 2)$

347577601. $(1,-1)$

347577602. $(3, -5)$

347577603. $(-2, 1)$

Question Number : 28 Question Id : 347577178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

Which of the following are correct expression for torque acting on a body?

A. $\vec{\tau} = \vec{r} \times \vec{L}$

B. $\vec{\tau} = \frac{d}{dt}(\vec{r} \times \vec{p})$

C. $\vec{\tau} = \vec{r} \times \frac{d\vec{p}}{dt}$

D. $\vec{\tau} = I\,\vec{\alpha}$

E. $\vec{\tau} = \vec{r} \times \vec{F}$

($\vec{r}$ = position vector; $\vec{p}$ = linear momentum; $\vec{L}$= angular momentum; $\vec{\alpha}$ = angular acceleration; I = moment of inertia; $\vec{F}$ = force; t = time)

Choose the correct answer from the options given below:

Options :

347577604. B, D and E Only

347577605. A, B, D and E Only

347577606. B, C, D and E Only

347577607. C and D Only

Question Number : 28 Question Id : 347577178 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

एक पिण्ड पर कार्यरत बल-आघूर्ण के लिए निम्नलिखित में से कौन से व्यंजक सही हैं?

A. $\vec{\tau} = \vec{r} \times \vec{L}$,

B. $\vec{\tau} = \frac{d}{dt}(\vec{r} \times \vec{p})$,

C. $\vec{\tau} = \vec{r} \times \frac{d\vec{p}}{dt}$,

D. $\vec{\tau} = I\,\vec{\alpha}$,

E. $\vec{\tau} = \vec{r} \times \vec{F}$,

($\vec{r}$ = स्थिति सदिश, $\vec{p}$ = रैखिक संवेग, $\vec{L}$ = कोणीय संवेग, $\vec{\alpha}$ = कोणीय त्वरण, I = जड़त्व-आघूर्ण, $\vec{F}$ = बल, t = समय)

नीचे दिए गए विकल्पों में से **सही** उत्तर चुनें:

Options :

347577604. केवल B, D और E

347577605. केवल A, B, D और E

347577606. केवल B, C, D और E

347577607. केवल C और D

Question Number : 29 Question Id : 347577179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

A body of mass m is suspended by two strings making angles θ_1 and θ_2 with the horizontal ceiling with tensions T_1 and T_2 simultaneously. T_1 and T_2 are related by $T_1 = \sqrt{3}T_2$, the angles θ_1 and θ_2 are

Options :

347577608. $\theta_1 = 30°\ \theta_2 = 60°$ with $T_2 = \frac{4mg}{5}$

347577609. $\theta_1 = 60°\ \theta_2 = 30°$ with $T_2 = \frac{mg}{2}$

347577610. $\theta_1 = 45°\ \theta_2 = 45°$ with $T_2 = \frac{3mg}{4}$

347577611. $\theta_1 = 30°\ \theta_2 = 60°$ with $T_2 = \frac{3mg}{4}$

Question Number : 29 Question Id : 347577179 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

द्रव्यमान m का एक पिण्ड क्षैतिज छत के साथ θ_1 और θ_2 कोण बनाती हुई दो डोरियों, जिनके तनाव T_1 और T_2 हैं, से एक ही समय पर निलम्बित है। T_1 और T_2, $T_1=\sqrt{3}T_2$ द्वारा सम्बन्धित हैं, तो कोण θ_1 और θ_2 हैं:

Options :

347577608. $T_2=\frac{4mg}{5}$ के साथ $\theta_1 = 30°, \theta_2 = 60°$

347577609. $T_2=\frac{mg}{2}$ के साथ $\theta_1 = 60°, \theta_2 = 30°$

347577610. $T_2=\frac{3mg}{4}$ के साथ $\theta_1 = 45°, \theta_2 = 45°$

347577611. $T_2=\frac{3mg}{4}$ के साथ $\theta_1 = 30°, \theta_2 = 60°$

Question Number : 30 Question Id : 347577180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

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

Assertion A: The kinetic energy needed to project a body of mass m from earth surface to infinity is $\frac{1}{2}$mgR, where R is the radius of earth.

Reason R: The maximum potential energy of a body is zero when it is projected to infinity from earth surface.

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

Options :

347577612. Both **A** and **R** are true and **R** is the correct explanation of **A**

347577613. Both **A** and **R** are true but **R** is **NOT** the correct explanation of **A**

347577614. **A** is true but **R** is false

347577615. **A** is false but **R** is true

Question Number : 30 Question Id : 347577180 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

नीचे दो कथन दिए गए हैं, एक को अभिकथन **A** और दूसरे को कारण **R** नामांकित किया गया है।

अभिकथन A: द्रव्यमान m के एक पिण्ड को, पृथ्वी की सतह से, अनन्त में प्रक्षेपित करने के लिए आवश्यक गतिज ऊर्जा $\frac{1}{2}$mgR है, जहाँ R पृथ्वी की त्रिज्या है।

कारण R: एक पिण्ड की गतिज ऊर्जा शून्य होती है, जब कि इसे पृथ्वी की सतह से अनन्त में प्रक्षेपित किया जाता है।

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

Options :

347577612. A और R दोनों सत्य हैं और R, A की सही व्याख्या है।

347577613. A और R दोनों सत्य हैं, परन्तु R, A की सही व्याख्या नहीं है।

347577614. A सत्य है, परन्तु R असत्य है।

347577615. A असत्य है, परन्तु R सत्य है।

Question Number : 31 Question Id : 347577181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

If $\vec{L}$ and $\vec{P}$ represent the angular momentum and linear momentum respectively of a particle of mass 'm' having position vector as $\vec{r} = a\left(\hat{i}\cos\omega t + \hat{j}\sin\omega t\right)$. The direction of force is

Options :

347577616. Opposite to the direction of $\vec{r}$

347577617. Opposite to the direction of $\vec{P}$

347577618. Opposite to the direction of $\vec{L}$

347577619. Opposite to the direction of $\vec{L}\times\vec{P}$

Question Number : 31 Question Id : 347577181 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No

Correct Marks : 4 Wrong Marks : 1

यदि $\vec{L}$ तथा $\vec{P}$, स्थिति सदिश $\vec{r} = a\left(\hat{i}\cos\omega t + \hat{j}\sin\omega t\right)$ और द्रव्यमान 'm' के एक कण के क्रमशः

Options :

347577616.

347577617.

347577618.

347577619.

Question Number : 32 Question Id : 347577182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577620.

347577621.

347577622.

347577623.

Question Number : 32 Question Id : 347577182 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577620.

347577621.

347577622.

347577623.

Question Number : 33 Question Id : 347577183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577624.

347577625.

347577626.

347577627.

Question Number : 33 Question Id : 347577183 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577624.

347577625.

347577626.

347577627.

Question Number : 34 Question Id : 347577184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577628.

347577629.

347577630.

347577631.

Question Number : 34 Question Id : 347577184 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577628.

347577629.

347577630.

347577631.

Question Number : 35 Question Id : 347577185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577632.

347577633.

347577634.

347577635.

Question Number : 35 Question Id : 347577185 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577632.

347577633.

347577634.

347577635.

Question Number : 36 Question Id : 347577186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577636.

347577637.

347577638.

347577639.

Question Number : 36 Question Id : 347577186 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577636.

347577637.

347577638.

347577639.

Question Number : 37 Question Id : 347577187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577640.

347577641.

347577642.

347577643.

Question Number : 37 Question Id : 347577187 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577640.

347577641.

347577642.

347577643.

Question Number : 38 Question Id : 347577188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577644.

347577645.

347577646.

347577647.

Question Number : 38 Question Id : 347577188 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577644.

347577645.

347577646.

347577647.

Question Number : 39 Question Id : 347577189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577648.

347577649.

347577650.

347577651.

Question Number : 39 Question Id : 347577189 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577648.

347577649.

347577650.

347577651.

Question Number : 40 Question Id : 347577190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577652.

347577653.

347577654.

347577655.

Question Number : 40 Question Id : 347577190 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577652.

347577653.

347577654.

347577655.

Question Number : 41 Question Id : 347577191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577656.

347577657.

347577658.

347577659.

Question Number : 41 Question Id : 347577191 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577656.

347577657.

347577658.

347577659.

Question Number : 42 Question Id : 347577192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577660.

347577661.

347577662.

347577663.

Question Number : 42 Question Id : 347577192 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577660.

347577661.

347577662.

347577663.

Question Number : 43 Question Id : 347577193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577664.

347577665.

347577666.

347577667.

Question Number : 43 Question Id : 347577193 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577664.

347577665.

347577666.

347577667.

Question Number : 44 Question Id : 347577194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577668.

347577669.

347577670.

347577671.

Question Number : 44 Question Id : 347577194 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577668.

347577669.

347577670.

347577671.

Question Number : 45 Question Id : 347577195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577672.

347577673.

347577674.

347577675.

Question Number : 45 Question Id : 347577195 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577672.

347577673.

347577674.

347577675.

Physics Section B

Section Id :	34757716
Section Number :	4
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5
Section Marks :	20
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34757716
Question Shuffling Allowed :	Yes

Question Number : 46 Question Id : 347577196 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 46 Question Id : 347577196 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 47 Question Id : 347577197 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 47 Question Id : 347577197 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 48 Question Id : 347577198 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 48 Question Id : 347577198 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 49 Question Id : 347577199 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 49 Question Id : 347577199 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 50 Question Id : 347577200 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 50 Question Id : 347577200 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Chemistry Section A

Section Id :	34757717
Section Number :	5
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	20
Number of Questions to be attempted :	20
Section Marks :	80
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	34757717
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 347577201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577681.

347577682.

347577683.

347577684.

Question Number : 51 Question Id : 347577201 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577681.

347577682.

347577683.

347577684.

Question Number : 52 Question Id : 347577202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577685.

347577686.

347577687.

347577688.

Question Number : 52 Question Id : 347577202 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577685.

347577686.

347577687.

347577688.

Question Number : 53 Question Id : 347577203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577689.

347577690.

347577691.

347577692.

Question Number : 53 Question Id : 347577203 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577689.

347577690.

347577691.

347577692.

Question Number : 54 Question Id : 347577204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577693.

347577694.

347577695.

347577696.

Question Number : 54 Question Id : 347577204 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577693.

347577694.

347577695.

347577696.

Question Number : 55 Question Id : 347577205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577697.

347577698.

347577699.

347577700.

Question Number : 55 Question Id : 347577205 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577697.

347577698.

347577699.

347577700.

Question Number : 56 Question Id : 347577206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577701.

347577702.

347577703.

347577704.

Question Number : 56 Question Id : 347577206 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577701.

347577702.

347577703.

347577704.

Question Number : 57 Question Id : 347577207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577705.

347577706.

347577707.

347577708.

Question Number : 57 Question Id : 347577207 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577705.

347577706.

347577707.

347577708.

Question Number : 58 Question Id : 347577208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577709.

347577710.

347577711.

347577712.

Question Number : 58 Question Id : 347577208 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577709.

347577710.

347577711.

347577712.

Question Number : 59 Question Id : 347577209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577713.

347577714.

347577715.

347577716.

Question Number : 59 Question Id : 347577209 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577713.

347577714.

347577715.

347577716.

Question Number : 60 Question Id : 347577210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577717.

347577718.

347577719.

347577720.

Question Number : 60 Question Id : 347577210 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577717.

347577718.

347577719.

347577720.

Question Number : 61 Question Id : 347577211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577721.

347577722.

347577723.

347577724.

Question Number : 61 Question Id : 347577211 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577721.

347577722.

347577723.

347577724.

Question Number : 62 Question Id : 347577212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577725.

347577726.

347577727.

347577728.

Question Number : 62 Question Id : 347577212 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577725.

347577726.

347577727.

347577728.

Question Number : 63 Question Id : 347577213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577729.

347577730.

347577731.

347577732.

Question Number : 63 Question Id : 347577213 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577729.

347577730.

347577731.

347577732.

Question Number : 64 Question Id : 347577214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577733.

347577734.

347577735.

347577736.

Question Number : 64 Question Id : 347577214 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577733.

347577734.

347577735.

347577736.

Question Number : 65 Question Id : 347577215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577737.

347577738.

347577739.

347577740.

Question Number : 65 Question Id : 347577215 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577737.

347577738.

347577739.

347577740.

Question Number : 66 Question Id : 347577216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577741.

347577742.

347577743.

347577744.

Question Number : 66 Question Id : 347577216 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577741.

347577742.

347577743.

347577744.

Question Number : 67 Question Id : 347577217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577745.

347577746.

347577747.

347577748.

Question Number : 67 Question Id : 347577217 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577745.

347577746.

347577747.

347577748.

Question Number : 68 Question Id : 347577218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577749.

347577750.

347577751.

347577752.

Question Number : 68 Question Id : 347577218 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577749.

347577750.

347577751.

347577752.

Question Number : 69 Question Id : 347577219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577753.

347577754.

347577755.

347577756.

Question Number : 69 Question Id : 347577219 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577753.

347577754.

347577755.

347577756.

Question Number : 70 Question Id : 347577220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577757.

347577758.

347577759.

347577760.

Question Number : 70 Question Id : 347577220 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No
Correct Marks : 4 Wrong Marks : 1

Options :

347577757.

347577758.

347577759.

347577760.

Chemistry Section B

Section Id :	34757718
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	5
Number of Questions to be attempted :	5
Section Marks :	20

Maximum Instruction Time : 0
Sub-Section Number : 1
Sub-Section Id : 34757718
Question Shuffling Allowed : Yes

Question Number : 71 Question Id : 347577221 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 71 Question Id : 347577221 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 72 Question Id : 347577222 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText

Possible Answers :

1

Question Number : 72 Question Id : 347577222 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :

1

Question Number : 73 Question Id : 347577223 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :

1

Question Number : 73 Question Id : 347577223 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :

1

Question Number : 74 Question Id : 347577224 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 74 Question Id : 347577224 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 75 Question Id : 347577225 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1

Question Number : 75 Question Id : 347577225 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 1

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Equal
Text Areas : PlainText
Possible Answers :
1