National Testing Agency

Question Paper Name :	BTECH E 5th Sep 2020 Shift 1
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BTECH

Group Number :	1
Group Id :	405036130
Group Maximum Duration :	0
Group Minimum Duration :	180
Show Attended Group? :	No
Edit Attended Group? :	No
Break time :	0
Group Marks :	300
Is this Group for Examiner? :	No

Mathematics

Section Id :	405036432
Section Number :	3
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	25
Number of Questions to be attempted :	25
Section Marks :	100
Display Number Panel :	Yes
Group All Questions :	Yes
Mark As Answered Required? :	Yes
Sub-Section Number :	1
Sub-Section Id :	405036831
Question Shuffling Allowed :	Yes

Question Number : 51 Question Id : 40503611806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

A survey shows that 73% of the persons working in an office like coffee, whereas 65% like tea. If x denotes the percentage of them, who like both coffee and tea, then x cannot be :

Options :

40503642731. 38

40503642732. 54

40503642733. 63

40503642734. 36

Question Number : 51 Question Id : 40503611806 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

एक सर्वेक्षण यह दिखाता है कि एक कार्यालय में कार्यरत 73% व्यक्ति कॉफी पसन्द करते हैं, जबकि 65% चाय पसन्द करते हैं। यदि x उस प्रतिशत को दर्शाता है, जो कॉफी और चाय दोनों को पसन्द करते हैं, तो x **नहीं** हो सकता :

Options :

40503642731. 38

40503642732. 54

40503642733. 63

40503642734. 36

Question Number : 52 Question Id : 40503611807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the four complex numbers z, $\overline{z}$, $\overline{z} - 2\text{Re}(\overline{z})$ and $z - 2\text{Re}(z)$ represent the vertices of a square of side 4 units in the Argand plane, then $|z|$ is equal to :

Options :

40503642735. $4\sqrt{2}$

40503642736. 2

40503642737. $2\sqrt{2}$

40503642738. 4

Question Number : 52 Question Id : 40503611807 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि आर्गंड तल में, चार सम्मिश्र संख्याएँ z, $\bar{z}$, $\bar{z}-2\mathrm{Re}(\bar{z})$ तथा $z-2\mathrm{Re}(z)$, 4 इकाई भुजा के एक वर्ग के शीर्षों को निरूपित करते हैं, तो $|z|$ बराबर है :

Options :

40503642735. $4\sqrt{2}$

40503642736. 2

40503642737. $2\sqrt{2}$

40503642738. 4

Question Number : 53 Question Id : 40503611808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The product of the roots of the equation $9x^2-18|x|+5=0$, is :

Options :

40503642739. $\frac{25}{9}$

40503642740. $\frac{5}{27}$

40503642741. $\frac{5}{9}$

40503642742. $\frac{25}{81}$

Question Number : 53 Question Id : 40503611808 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

समीकरण $9x^2-18|x|+5=0$ के मूलों का गुणनफल है :

Options :

40503642739. $\frac{25}{9}$

40503642740. $\frac{5}{27}$

40503642741. $\frac{5}{9}$

40503642742. $\frac{25}{81}$

Question Number : 54 Question Id : 40503611809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the minimum and the maximum values of the function $f:\left[\frac{\pi}{4},\frac{\pi}{2}\right]\to\mathbf{R}$, defined by

$$f(\theta)=\begin{vmatrix}-\sin^2\theta & -1-\sin^2\theta & 1\\ -\cos^2\theta & -1-\cos^2\theta & 1\\ 12 & 10 & -2\end{vmatrix}$$

are m and M respectively, then the ordered pair (m, M) is equal to :

Options :

40503642743. $(-4,4)$

40503642744. $(0,2\sqrt{2})$

40503642745. $(-4,0)$

40503642746. $(0, 4)$

Question Number : 54 Question Id : 40503611809 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $f(\theta) = \begin{vmatrix} -\sin^2\theta & -1-\sin^2\theta & 1 \\ -\cos^2\theta & -1-\cos^2\theta & 1 \\ 12 & 10 & -2 \end{vmatrix}$

द्वारा परिभाषित फलन $f : \left[\frac{\pi}{4}, \frac{\pi}{2}\right] \to \mathbf{R}$ के निम्नतम तथा उच्चतम मान क्रमश: m तथा M हैं, तो क्रमित युग्म (m, M) बराबर है :

Options :

40503642743. $(-4, 4)$

40503642744. $(0, 2\sqrt{2})$

40503642745. $(-4, 0)$

40503642746. $(0, 4)$

Question Number : 55 Question Id : 40503611810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

Let $\lambda \in \mathbf{R}$. The system of linear equations

$2x_1 - 4x_2 + \lambda x_3 = 1$

$x_1 - 6x_2 + x_3 = 2$

$\lambda x_1 - 10x_2 + 4x_3 = 3$

is inconsistent for :

Options :

40503642747. every value of λ.

40503642748. exactly one positive value of λ.

40503642749. exactly one negative value of λ.

40503642750. exactly two values of λ.

Question Number : 55 Question Id : 40503611810 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

माना $\lambda \in R$. रैखिक समीकरण निकाय

$$2x_1 - 4x_2 + \lambda x_3 = 1$$
$$x_1 - 6x_2 + x_3 = 2$$
$$\lambda x_1 - 10x_2 + 4x_3 = 3$$

असंगत है :

Options :

40503642747. λ के प्रत्येक मान के लिए।

40503642748. λ के मात्र एक धनात्मक मान के लिए।

40503642749. λ के मात्र एक ऋणात्मक मान के लिए।

40503642750. λ के मात्र दो मानों के लिए।

Question Number : 56 Question Id : 40503611811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $3^{2\sin 2\alpha - 1}$, 14 and $3^{4 - 2\sin 2\alpha}$ are the first three terms of an A.P. for some α, then the sixth term of this A.P. is :

Options :

40503642751. 81

40503642752. 78

40503642753. 66

40503642754. 65

Question Number : 56 Question Id : 40503611811 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि किसी α के लिए $3^{2\sin 2\alpha - 1}$, 14 तथा $3^{4 - 2\sin 2\alpha}$ एक समान्तर श्रेढ़ी के प्रथम तीन पद हैं, तो इस समान्तर श्रेढ़ी का छठा पद है :

Options :

40503642751. 81

40503642752. 78

40503642753. 66

40503642754. 65

Question Number : 57 Question Id : 40503611812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If

$2^{10} + 2^9 \cdot 3^1 + 2^8 \cdot 3^2 + ... + 2 \cdot 3^9 + 3^{10} = S - 2^{11}$,

then S is equal to :

Options :

40503642755. 3^{11}

40503642756. $2 \cdot 3^{11}$

40503642757. $3^{11} - 2^{12}$

40503642758. $\frac{3^{11}}{2} + 2^{10}$

Question Number : 57 Question Id : 40503611812 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि

$2^{10}+2^9\cdot3^1+2^8\cdot3^2+....+2\cdot3^9+3^{10}=S-2^{11}$,

तो S बराबर है :

Options :

40503642755. 3^{11}

40503642756. $2\cdot3^{11}$

40503642757. $3^{11}-2^{12}$

40503642758. $\frac{3^{11}}{2}+2^{10}$

Question Number : 58 Question Id : 40503611813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If α is the positive root of the equation,

$p(x)=x^2-x-2=0$, then

$\lim\limits_{x\to\alpha^+}\frac{\sqrt{1-\cos(p(x))}}{x+\alpha-4}$ is equal to :

Options :

40503642759. $\frac{1}{2}$

40503642760. $\frac{1}{\sqrt{2}}$

40503642761. $\frac{3}{\sqrt{2}}$

40503642762. $\frac{3}{2}$

Question Number : 58 Question Id : 40503611813 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि α, समीकरण $p(x)=x^2-x-2=0$ का धनात्मक मूल है, तो $\lim\limits_{x\to\alpha^+}\frac{\sqrt{1-\cos(p(x))}}{x+\alpha-4}$ बराबर है :

Options :

40503642759. $\frac{1}{2}$

40503642760. $\frac{1}{\sqrt{2}}$

40503642761. $\frac{3}{\sqrt{2}}$

40503642762. $\frac{3}{2}$

Question Number : 59 Question Id : 40503611814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the function $f(x)=\begin{cases}k_1(x-\pi)^2-1, & x\le\pi\\ k_2\cos x, & x>\pi\end{cases}$ is twice differentiable, then the ordered pair (k_1,k_2) is equal to :

Options :

40503642763. $\left(\frac{1}{2},1\right)$

40503642764. $(1, 1)$

40503642765. $\left(\frac{1}{2}, -1\right)$

40503642766. $(1, 0)$

Question Number : 59 Question Id : 40503611814 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि फलन

$$f(x) = \begin{cases} k_1(x - \pi)^2 - 1, & x \leq \pi \\ k_2 \cos x, & x > \pi \end{cases}$$

दो बार अवकलनीय है, तो क्रमित युग्म (k_1, k_2) बराबर है :

Options :

40503642763. $\left(\frac{1}{2}, 1\right)$

40503642764. $(1, 1)$

40503642765. $\left(\frac{1}{2}, -1\right)$

40503642766. $(1, 0)$

Question Number : 60 Question Id : 40503611815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the point P on the curve, $4x^2 + 5y^2 = 20$ is farthest from the point $Q(0, -4)$, then PQ^2 is equal to :

Options :

40503642767. 36

40503642768. 29

40503642769. 21

40503642770. 48

Question Number : 60 Question Id : 40503611815 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि वक्र $4x^2+5y^2=20$ पर बिन्दु P, बिन्दु $Q(0,-4)$ से अधिकतम दूरी पर है, तो PQ^2 बराबर है :

Options :

40503642767. 36

40503642768. 29

40503642769. 21

40503642770. 48

Question Number : 61 Question Id : 40503611816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $\int\left(e^{2x}+2e^{x}-e^{-x}-1\right)e^{(e^{x}+e^{-x})}\,dx$

$= g(x)\,e^{(e^{x}+e^{-x})}+c$, where c is a constant of integration, then $g(0)$ is equal to :

Options :

40503642771. 1

40503642772. 2

40503642773. e

40503642774. e^2

Question Number : 61 Question Id : 40503611816 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि $\int\left(e^{2x}+2e^{x}-e^{-x}-1\right)e^{(e^{x}+e^{-x})}\,dx$

$= g(x)\,e^{(e^{x}+e^{-x})}+c$ है, जहाँ c एक समाकलन अचर है, तो $g(0)$ बराबर है :

Options :

40503642771. 1

40503642772. 2

40503642773. e

40503642774. e^2

Question Number : 62 Question Id : 40503611817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The value of $\int_{-\pi/2}^{\pi/2}\frac{1}{1+e^{\sin x}}dx$ is :

Options :

40503642775. $\frac{3\pi}{2}$

40503642776. $\frac{\pi}{2}$

40503642777. $\frac{\pi}{4}$

40503642778. π

Question Number : 62 Question Id : 40503611817 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

$\int_{-\pi/2}^{\pi/2} \frac{1}{1+e^{\sin x}}dx$ का मान है :

Options :

40503642775. $\frac{3\pi}{2}$

40503642776. $\frac{\pi}{2}$

40503642777. $\frac{\pi}{4}$

40503642778. π

Question Number : 63 Question Id : 40503611818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If $y = y(x)$ is the solution of the differential equation $\frac{5+e^x}{2+y}\cdot\frac{dy}{dx} + e^x = 0$ satisfying $y(0) = 1$, then a value of $y(\log_e 13)$ is :

Options :

40503642779. 1

40503642780. -1

40503642781. 0

40503642782. 2

Question Number : 63 Question Id : 40503611818 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि अवकल समीकरण $\frac{5+e^x}{2+y}\cdot\frac{dy}{dx}+e^x=0$,

का हल $y=y(x)$ है, जिसके लिए $y(0)=1$ है, तो

$y(\log_e 13)$ का एक मान है :

Options :

40503642779. 1

40503642780. -1

40503642781. 0

40503642782. 2

Question Number : 64 Question Id : 40503611819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the common tangent to the parabolas,

$y^2=4x$ and $x^2=4y$ also touches the circle,

$x^2+y^2=c^2$, then c is equal to :

Options :

40503642783. $\frac{1}{\sqrt{2}}$

40503642784. $\frac{1}{2}$

40503642785. $\frac{1}{4}$

40503642786. $\frac{1}{2\sqrt{2}}$

Question Number : 64 Question Id : 40503611819 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि परवलयों $y^2=4x$ तथा $x^2=4y$ की उभयनिष्ठ स्पर्शरेखा, वृत्त $x^2+y^2=c^2$ को भी स्पर्श करती है, तो c बराबर है :

Options :

40503642783. $\frac{1}{\sqrt{2}}$

40503642784. $\frac{1}{2}$

40503642785. $\frac{1}{4}$

40503642786. $\frac{1}{2\sqrt{2}}$

Question Number : 65 Question Id : 40503611820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the co-ordinates of two points A and B are $\left(\sqrt{7},0\right)$ and $\left(-\sqrt{7},0\right)$ respectively and P is any point on the conic, $9x^2+16y^2=144$, then PA + PB is equal to :

Options :

40503642787. 16

40503642788. 6

40503642789. 9

40503642790. 8

Question Number : 65 Question Id : 40503611820 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि दो बिन्दुओं A तथा B के निर्देशांक क्रमशः $(\sqrt{7}, 0)$ तथा $(-\sqrt{7}, 0)$ हैं और शांकव (conic) $9x^2+16y^2=144$ पर कोई बिन्दु P है, तो PA + PB बराबर है :

Options :

40503642787. 16

40503642788. 6

40503642789. 9

40503642790. 8

Question Number : 66 Question Id : 40503611821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If (a, b, c) is the image of the point $(1, 2, -3)$ in the line,

$\frac{x+1}{2} = \frac{y-3}{-2} = \frac{z}{-1}$, then a + b + c is equal to :

Options :

40503642791. -1

40503642792. 1

40503642793. 2

40503642794. 3

Question Number : 66 Question Id : 40503611821 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि बिन्दु $(1,\ 2,\ -3)$ का रेखा

$\frac{x+1}{2} = \frac{y-3}{-2} = \frac{z}{-1}$ में प्रतिबिंब (a, b, c) है,

तो $a+b+c$ बराबर है :

Options :

40503642791. -1

40503642792. 1

40503642793. 2

40503642794. 3

Question Number : 67 Question Id : 40503611822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If the volume of a parallelopiped, whose coterminus edges are given by the vectors

$\vec{a} = \hat{i}+\hat{j}+n\hat{k}$, $\vec{b} = 2\hat{i}+4\hat{j}-n\hat{k}$ and

$\vec{c} = \hat{i}+n\hat{j}+3\hat{k}$ $(n \geq 0)$, is 158 cu.units,

then :

Options :

40503642795. $n=7$

40503642796. $n=9$

40503642797. $\vec{b}\cdot\vec{c} = 10$

40503642798. $\vec{a}\cdot\vec{c} = 17$

Question Number : 67 Question Id : 40503611822 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि एक समांतर षट्फलक, जिसके एक ही शीर्ष से जाने वाले किनारे (edges) सदिशों $\vec{a} = \hat{i}+\hat{j}+n\hat{k}$, $\vec{b} = 2\hat{i}+4\hat{j}-n\hat{k}$ तथा $\vec{c} = \hat{i}+n\hat{j}+3\hat{k}$ $(n \geq 0)$ द्वारा दिए गए हैं, का आयतन 158 घन इकाइयाँ है, तो :

Options :

40503642795. $n=7$

40503642796. $n=9$

40503642797. $\vec{b}\cdot\vec{c} = 10$

40503642798. $\vec{a}\cdot\vec{c} = 17$

Question Number : 68 Question Id : 40503611823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The mean and variance of 7 observations are 8 and 16, respectively. If five observations are 2, 4, 10, 12, 14, then the absolute difference of the remaining two observations is :

Options :

40503642799. 1

40503642800. 2

40503642801. 3

40503642802. 4

Question Number : 68 Question Id : 40503611823 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

7 प्रेक्षणों का माध्य तथा प्रसरण क्रमशः 8 तथा 16 हैं।
यदि पाँच प्रेक्षण 2, 4, 10, 12, 14 हैं, तो शेष दो प्रेक्षणों
का निरपेक्ष अंतर है :

Options :

40503642799. 1

40503642800. 2

40503642801. 3

40503642802. 4

Question Number : 69 Question Id : 40503611824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

If S is the sum of the first 10 terms of the
series

$$\tan^{-1}\left(\frac{1}{3}\right)+\tan^{-1}\left(\frac{1}{7}\right)+\tan^{-1}\left(\frac{1}{13}\right)+\tan^{-1}\left(\frac{1}{21}\right)+\ldots,$$

then tan(S) is equal to :

Options :

40503642803. $\frac{5}{6}$

40503642804. $\frac{10}{11}$

40503642805. $-\frac{6}{5}$

40503642806. $\frac{5}{11}$

Question Number : 69 Question Id : 40503611824 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

यदि श्रेणी

$\tan^{-1}\left(\frac{1}{3}\right)+\tan^{-1}\left(\frac{1}{7}\right)+\tan^{-1}\left(\frac{1}{13}\right)+\tan^{-1}\left(\frac{1}{21}\right)+\ldots,$

के प्रथम 10 पदों का योग S है, तो tan(S) बराबर है :

Options :

40503642803. $\frac{5}{6}$

40503642804. $\frac{10}{11}$

40503642805. $-\frac{6}{5}$

40503642806. $\frac{5}{11}$

Question Number : 70 Question Id : 40503611825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

The negation of the Boolean expression

$x \leftrightarrow \sim y$ is equivalent to :

Options :

40503642807. $(x \wedge \sim y) \vee (\sim x \wedge y)$

40503642808. $(\sim x \wedge y) \vee (\sim x \wedge \sim y)$

40503642809. $(x \wedge y) \wedge (\sim x \vee \sim y)$

40503642810. $(x \wedge y) \vee (\sim x \wedge \sim y)$

Question Number : 70 Question Id : 40503611825 Question Type : MCQ Option Shuffling : Yes Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 4 Wrong Marks : 1

बूले के व्यंजक $x \leftrightarrow \sim y$ का निषेधन निम्न में से किस के समतुल्य है?

Options :

40503642807. $(x \wedge \sim y) \vee (\sim x \wedge y)$

40503642808. $(\sim x \wedge y) \vee (\sim x \wedge \sim y)$

40503642809. $(x \wedge y) \wedge (\sim x \vee \sim y)$

40503642810. $(x \wedge y) \vee (\sim x \wedge \sim y)$

Sub-Section Number : 2
Sub-Section Id : 405036832
Question Shuffling Allowed : Yes

Question Number : 71 Question Id : 40503611826 Question Type : SA Display Question Number : Yes
Correct Marks : 4 Wrong Marks : 0

The number of words, with or without meaning, that can be formed by taking 4 letters at a time from the letters of the word 'SYLLABUS' such that two letters are distinct and two letters are alike, is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes

Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 71 Question Id : 40503611826 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

'SYLLABUS' शब्द के अक्षरों में से एक बार में 4 अक्षर लेकर बनाए जा सकने वाले शब्दों, अर्थपूर्ण या अर्थहीन, इस प्रकार कि दो अक्षर भिन्न हों तथा दो अक्षर एक समान हों, की संख्या है _____ ।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 72 Question Id : 40503611827 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

The natural number m, for which the coefficient of x in the binomial expansion of $\left(x^m + \frac{1}{x^2}\right)^{22}$ is 1540, is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 72 Question Id : 40503611827 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

प्राकृत संख्या m, जिसके लिए $\left(x^m + \frac{1}{x^2}\right)^{22}$ के द्विपद प्रसार में x का गुणांक 1540 है, है _____ ।

Response Type : Numeric

Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 73 Question Id : 40503611828 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

Let $f(x) = x.\left[\frac{x}{2}\right]$, for $-10 < x < 10$, where [t] denotes the greatest integer function. Then the number of points of discontinuity of f is equal to _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 73 Question Id : 40503611828 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

माना $f(x) = x.\left[\frac{x}{2}\right], -10 < x < 10$, है जहाँ [t] महत्तम पूर्णांक फलन है, तो f के असंतत बिन्दुओं की संख्या है _____।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 74 Question Id : 40503611829 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

If the line, $2x-y+3=0$ is at a distance $\frac{1}{\sqrt{5}}$ and $\frac{2}{\sqrt{5}}$ from the lines $4x-2y+\alpha=0$ and $6x-3y+\beta=0$, respectively, then the sum of all possible values of α and β is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 74 Question Id : 40503611829 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

यदि रेखा $2x-y+3=0$, रेखाओं $4x-2y+\alpha=0$ तथा $6x-3y+\beta=0$ से क्रमशः $\frac{1}{\sqrt{5}}$ तथा $\frac{2}{\sqrt{5}}$ की दूरी पर है, तो α तथा β के सभी संभव मानों का योग है _____ ।

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 75 Question Id : 40503611830 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

Four fair dice are thrown independently 27 times. Then the expected number of times, at least two dice show up a three or a five, is _____.

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range

Text Areas : PlainText
Possible Answers :
5 to 5.002

Question Number : 75 Question Id : 40503611830 Question Type : SA Display Question Number : Yes Correct Marks : 4 Wrong Marks : 0

चार अनभिनत पासों को 27 बार स्वतंत्र रूप से फेंका जाता है। तो कम से कम दो पासों के तीन या पाँच दर्शाने की संभावना कितनी बार है?

Response Type : Numeric
Evaluation Required For SA : Yes
Show Word Count : Yes
Answers Type : Range
Text Areas : PlainText
Possible Answers :
5 to 5.002