

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 1(CtoD) New – EXAMINATION – Winter-2022

Subject Code: C4300001**Date: 24-02-2023****Subject Name: Mathematics****Time: 10:30 AM TO 12:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make Suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of non-programmable scientific calculator is permitted.
6. English version is authentic.

No.	Question Text and Option. પ્રશ્ન અને વિકલ્પો.			
1.	$\begin{vmatrix} 1 & 2 \\ -1 & 1 \end{vmatrix} = \text{_____}$.			
	A.	1	B.	2
	C.	3	D.	4
૧.	$\begin{vmatrix} 1 & 2 \\ -1 & 1 \end{vmatrix} = \text{_____}$.			
	A.	1	B.	2
	C.	3	D.	4
2.	$\log_{100} 100 = \text{_____}$.			
	A.	100	B.	1
	C.	0	D.	10000
૨.	$\log_{100} 100 = \text{_____}$.			
	A.	100	B.	1
	C.	0	D.	10000
3.	$b^{\log_b a} = \text{_____}$.			
	A.	a	B.	b
	C.	ab	D.	0
૩.	$b^{\log_b a} = \text{_____}$.			
	A.	a	B.	b
	C.	ab	D.	0
4.	$\log 2 - \log 3 = \text{_____}$.			
	A.	$\log \frac{2}{3}$	B.	$\log \frac{3}{2}$
	C.	$\log 6$	D.	$\log 23$
૪.	$\log 2 - \log 3 = \text{_____}$.			
	A.	$\log \frac{2}{3}$	B.	$\log \frac{3}{2}$
	C.	$\log 6$	D.	$\log 23$
5.	If $\begin{vmatrix} 2 & 2 \\ 11 & x \end{vmatrix} = 2$, then $x = \text{_____}$.			
	A.	22	B.	12
	C.	-12	D.	24
૫.	જો $\begin{vmatrix} 2 & 2 \\ 11 & x \end{vmatrix} = 2$ હોય, તો $x = \text{_____}$.			
	A.	22	B.	12

	C.	-12	D.	24
6.	If $\begin{vmatrix} x & y \\ -1 & 1 \end{vmatrix} = 2$, then $x + y = \underline{\hspace{2cm}}$.			
	A.	1	B.	3
	C.	2	D.	4
૬.	જો $\begin{vmatrix} x & y \\ -1 & 1 \end{vmatrix} = 2$ હોય, તો $x + y = \underline{\hspace{2cm}}$.			
	A.	1	B.	3
	C.	2	D.	4
7.	If $f(x) = \log x$, then $f(x) + f(y) = \underline{\hspace{2cm}}$.			
	A.	$f(x + y)$	B.	$f(x - y)$
	C.	$f(xy)$	D.	$f\left(\frac{x}{y}\right)$
૭.	જો $f(x) = \log x$ હોય, તો $f(x) + f(y) = \underline{\hspace{2cm}}$.			
	A.	$f(x + y)$	B.	$f(x - y)$
	C.	$f(xy)$	D.	$f\left(\frac{x}{y}\right)$
8.	If $f(x) = 2x - 1$, then $f(0) + f(1) = \underline{\hspace{2cm}}$.			
	A.	1	B.	3
	C.	2	D.	0
૮.	જો $f(x) = 2x - 1$ હોય, તો $f(0) + f(1) = \underline{\hspace{2cm}}$.			
	A.	1	B.	3
	C.	2	D.	0
9.	If $f(x) = \log_x 1, x \in R^+ - \{1\}$ then $f(10000) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	1000	D.	10000
૯.	જો $f(x) = \log_x 1, x \in R^+ - \{1\}$ હોય, તો $f(10000) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	1000	D.	10000
10.	$\log 2022 \times \log 2021 \times \log 2020 \times \dots \times \log 3 \times \log 2 \times \log 1 = \underline{\hspace{2cm}}$.			
	A.	2022	B.	0
	C.	2021	D.	2020
૧૦.	$\log 2022 \times \log 2021 \times \log 2020 \times \dots \times \log 3 \times \log 2 \times \log 1 = \underline{\hspace{2cm}}$.			
	A.	2022	B.	0
	C.	2021	D.	2020
11.	If $2^x = 3^y$, then $\frac{x}{y} = \underline{\hspace{2cm}}$.			
	A.	$\frac{\log 3}{\log 2}$	B.	$\frac{\log 2}{\log 3}$
	C.	$\log\left(\frac{2}{3}\right)$	D.	$\log\left(\frac{3}{2}\right)$
૧૧.	જો $2^x = 3^y$ હોય, તો $\frac{x}{y} = \underline{\hspace{2cm}}$.			
	A.	$\frac{\log 3}{\log 2}$	B.	$\frac{\log 2}{\log 3}$
	C.	$\log\left(\frac{2}{3}\right)$	D.	$\log\left(\frac{3}{2}\right)$
12.	If $\begin{vmatrix} y & 2 \\ 3 & 4 \end{vmatrix} = 2$, then $y = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	3	D.	4
૧૨.	જો $\begin{vmatrix} y & 2 \\ 3 & 4 \end{vmatrix} = 2$ હોય, તો $y = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	3	D.	4
13.	If $f(x) = x^3$ and $g(x) = x$, then $g(f(0)) = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	0	D.	3

૧૩.	જો $f(x) = x^3$ અને $g(x) = x$ હોય, તો $g(f(0)) = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	0	D.	3
14.	$\log_2 4 \times \log_4 2 = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	3
૧૪.	$\log_2 4 \times \log_4 2 = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	3
15.	$\log_x y^4 \times \log_y x^5 = \underline{\hspace{2cm}}$.			
	A.	4	B.	9
	C.	5	D.	20
૧૫.	$\log_x y^4 \times \log_y x^5 = \underline{\hspace{2cm}}$.			
	A.	4	B.	9
	C.	5	D.	20
16.	If $f(x) = 2022^x$, then $f(0) = \underline{\hspace{2cm}}$.			
	A.	0	B.	2
	C.	1	D.	3
૧૬.	જો $f(x) = 2022^x$ હોય, તો $f(0) = \underline{\hspace{2cm}}$.			
	A.	0	B.	2
	C.	1	D.	3
17.	$1^\circ = \underline{\hspace{2cm}}$ radian			
	A.	$\frac{\pi}{180}$	B.	$\frac{180}{\pi}$
	C.	1	D.	π
૧૭.	$1^\circ = \underline{\hspace{2cm}}$ રેડીયન .			
	A.	$\frac{\pi}{180}$	B.	$\frac{180}{\pi}$
	C.	1	D.	π
18.	$\frac{\pi}{3}$ radian = $\underline{\hspace{2cm}}$ degree .			
	A.	30	B.	60
	C.	45	D.	90
૧૮.	$\frac{\pi}{3}$ રેડીયન = $\underline{\hspace{2cm}}$ ડિગ્રી .			
	A.	30	B.	60
	C.	45	D.	90
19.	Principal period of the function $\sin x$ is $\underline{\hspace{2cm}}$.			
	A.	π	B.	2π
	C.	3π	D.	4π
૧૯.	$\sin x$ નું મુખ્ય આવર્તમાન $\underline{\hspace{2cm}}$ છે.			
	A.	π	B.	2π
	C.	3π	D.	4π
20.	$\sin(-\theta) = \underline{\hspace{2cm}}$.			
	A.	$-\sin \theta$	B.	$\sin \theta$
	C.	$\cos \theta$	D.	$-\cos \theta$
૨૦.	$\sin(-\theta) = \underline{\hspace{2cm}}$.			
	A.	$-\sin \theta$	B.	$\sin \theta$
	C.	$\cos \theta$	D.	$-\cos \theta$
21.	$\cos(2\pi - \theta) = \underline{\hspace{2cm}}$.			
	A.	$\sin \theta$	B.	$\cos \theta$
	C.	$-\sin \theta$	D.	$-\cos \theta$
૨૧.	$\cos(2\pi - \theta) = \underline{\hspace{2cm}}$.			
	A.	$\sin \theta$	B.	$\cos \theta$
	C.	$-\sin \theta$	D.	$-\cos \theta$
22.	$\sin^2 30^\circ + \cos^2 30^\circ = \underline{\hspace{2cm}}$.			

	A.	$\tan(30^\circ)$	B.	30°
	C.	0	D.	1
22.	$\sin^2 30^\circ + \cos^2 30^\circ = \underline{\hspace{2cm}}$.			
	A.	$\tan(30^\circ)$	B.	30°
	C.	0	D.	1
23.	$\tan\left(\frac{\pi}{2} - \theta\right) = \underline{\hspace{2cm}}$.			
	A.	$\tan \theta$	B.	$\cot \theta$
	C.	$-\tan \theta$	D.	$-\cot \theta$
23.	$\tan\left(\frac{\pi}{2} - \theta\right) = \underline{\hspace{2cm}}$.			
	A.	$\tan \theta$	B.	$\cot \theta$
	C.	$-\tan \theta$	D.	$-\cot \theta$
24.	$\tan \alpha \times \cot \alpha = \underline{\hspace{2cm}}$.			
	A.	$\tan \alpha$	B.	$\cot \alpha$
	C.	1	D.	0
24.	$\tan \alpha \times \cot \alpha = \underline{\hspace{2cm}}$.			
	A.	$\tan \alpha$	B.	$\cot \alpha$
	C.	1	D.	0
25.	$\sec^2 \theta - \tan^2 \theta = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	-1	D.	2
24.	$\sec^2 \theta - \tan^2 \theta = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	-1	D.	2
26.	In ΔABC , $\sin(A + B) = \underline{\hspace{2cm}}$.			
	A.	$\sin C$	B.	$-\sin C$
	C.	$-\cos C$	D.	$\cos C$
25.	ΔABC માં, $\sin(A + B) = \underline{\hspace{2cm}}$.			
	A.	$\sin C$	B.	$-\sin C$
	C.	$-\cos C$	D.	$\cos C$
27.	$\cos 0^\circ \times \cos 30^\circ \times \cos 45^\circ \times \cos 90^\circ = \underline{\hspace{2cm}}$.			
	A.	0	B.	-1
	C.	1	D.	2
29.	$\cos 0^\circ \times \cos 30^\circ \times \cos 45^\circ \times \cos 90^\circ = \underline{\hspace{2cm}}$.			
	A.	0	B.	-1
	C.	1	D.	2
28.	$\cos 3\theta = \underline{\hspace{2cm}}$.			
	A.	$4 \cos^3 \theta - 3 \cos \theta$	B.	$3 \cos \theta - 4 \cos^3 \theta$
	C.	$3 \cos^3 \theta - 4 \cos \theta$	D.	$4 \cos \theta - 3 \cos^3 \theta$
28.	$\cos 3\theta = \underline{\hspace{2cm}}$.			
	A.	$4 \cos^3 \theta - 3 \cos \theta$	B.	$3 \cos \theta - 4 \cos^3 \theta$
	C.	$3 \cos^3 \theta - 4 \cos \theta$	D.	$4 \cos \theta - 3 \cos^3 \theta$
29.	$\tan^{-1}\left(\frac{3}{2}\right) + \tan^{-1}\left(\frac{2}{3}\right) = \underline{\hspace{2cm}}$.			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$-\frac{\pi}{2}$
28.	$\tan^{-1}\left(\frac{3}{2}\right) + \tan^{-1}\left(\frac{2}{3}\right) = \underline{\hspace{2cm}}$.			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$-\frac{\pi}{2}$
30.	$\sin^{-1}(\sin 0) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0

	C.	-1	D.	2
30.	$\sin^{-1}(\sin 0) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	-1	D.	2
31.	$\underline{\hspace{2cm}}$ is a scalar quantity.			
	A.	Velocity	B.	Acceleration
	C.	Temperature	D.	Force
39.	$\underline{\hspace{2cm}}$ એ એક અદિશ રાશી છે.			
	A.	વેગ	B.	પ્રવેગ
	C.	તાપમાન	D.	બળ
32.	$\hat{j} \times \hat{i} = \underline{\hspace{2cm}}$.			
	A.	\hat{i}	B.	\hat{j}
	C.	\hat{k}	D.	$-\hat{k}$
32.	$\hat{j} \times \hat{i} = \underline{\hspace{2cm}}$.			
	A.	\hat{i}	B.	\hat{j}
	C.	\hat{k}	D.	$-\hat{k}$
33.	$\hat{i} \cdot \hat{i} = \underline{\hspace{2cm}}$.			
	A.	\hat{i}	B.	0
	C.	1	D.	\hat{j}
33.	$\hat{i} \cdot \hat{i} = \underline{\hspace{2cm}}$.			
	A.	\hat{i}	B.	0
	C.	1	D.	\hat{j}
34.	If $(\bar{x} \wedge \bar{y}) = \alpha$, then $\sin \alpha = \underline{\hspace{2cm}}$.			
	A.	$\frac{\bar{x} \times \bar{y}}{ \bar{x} \bar{y} }$	B.	$\frac{ \bar{x} \times \bar{y} }{ \bar{x} \bar{y} }$
	C.	$\frac{\bar{x} \cdot \bar{y}}{ \bar{x} \bar{y} }$	D.	$-\frac{ \bar{x} \times \bar{y} }{ \bar{x} \bar{y} }$
34.	જો $(\bar{x} \wedge \bar{y}) = \alpha$ હોય, તો $\sin \alpha = \underline{\hspace{2cm}}$.			
	A.	$\frac{\bar{x} \times \bar{y}}{ \bar{x} \bar{y} }$	B.	$\frac{ \bar{x} \times \bar{y} }{ \bar{x} \bar{y} }$
	C.	$\frac{\bar{x} \cdot \bar{y}}{ \bar{x} \bar{y} }$	D.	$-\frac{ \bar{x} \times \bar{y} }{ \bar{x} \bar{y} }$
35.	If $\bar{x} = (1, 2, -3)$ and $\bar{y} = (2, 1, 0)$, then $ \bar{x} - 2\bar{y} = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{2}$	B.	18
	C.	$2\sqrt{3}$	D.	$3\sqrt{2}$
34.	જો $\bar{x} = (1, 2, -3)$ અને $\bar{y} = (2, 1, 0)$ હોય, તો $ \bar{x} - 2\bar{y} = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{2}$	B.	18
	C.	$2\sqrt{3}$	D.	$3\sqrt{2}$
36.	$\bar{a} \times (5\bar{a}) = \underline{\hspace{2cm}}$.			
	A.	0	B.	5
	C.	$5 \bar{a} ^2$	D.	$\bar{0}$
36.	$\bar{a} \times (5\bar{a}) = \underline{\hspace{2cm}}$.			
	A.	0	B.	5
	C.	$5 \bar{a} ^2$	D.	$\bar{0}$
37.	If $ \bar{a} = 1$, then $ 5\bar{a} = \underline{\hspace{2cm}}$.			
	A.	2	B.	4
	C.	3	D.	5
37.	જો $ \bar{a} = 1$ હોય, તો $ 5\bar{a} = \underline{\hspace{2cm}}$.			
	A.	2	B.	4
	C.	3	D.	5
38.	The direction cosines of vector $\hat{i} + \hat{k}$ are $\underline{\hspace{2cm}}$.			
	A.	$\frac{1}{\sqrt{2}}, 0, \frac{1}{\sqrt{2}}$	B.	$\frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}}$

	C.	$-\frac{1}{\sqrt{2}}, 0, \frac{1}{\sqrt{2}}$	D.	$-\frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}}$
૩૮.	સદિશ $\hat{i} + \hat{k}$ ના દીકકોસાઈનો _____ છે.			
	A.	$\frac{1}{\sqrt{2}}, 0, \frac{1}{\sqrt{2}}$	B.	$\frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}}$
	C.	$-\frac{1}{\sqrt{2}}, 0, \frac{1}{\sqrt{2}}$	D.	$-\frac{1}{\sqrt{2}}, 0, -\frac{1}{\sqrt{2}}$
૩૯.	If l, m, n are direction cosines of vector \vec{a} , then $l^2 + m^2 + n^2 =$ _____.			
	A.	0	B.	1
	C.	2	D.	-1
૩૯.	જો l, m, n સદિશ \vec{a} ના દીકકોસાઈનો હોય તો $l^2 + m^2 + n^2 =$ _____.			
	A.	0	B.	1
	C.	2	D.	-1
૪૦.	If $\vec{x} = (1, 2, 1)$ and $\vec{y} = (0, 2, -3)$ then $\vec{x} \cdot \vec{y} =$ _____.			
	A.	0	B.	1
	C.	2	D.	-1
૪૦.	જો $\vec{x} = (1, 2, 1)$ અને $\vec{y} = (0, 2, -3)$ હોય, તો $\vec{x} \cdot \vec{y} =$ _____.			
	A.	0	B.	1
	C.	2	D.	-1
૪૧.	If $\vec{x} \cdot \vec{y} = \vec{x} = \vec{y} = \sqrt{2}$, then $(\vec{x} \wedge \vec{y}) =$ _____.			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{6}$
૪૧.	જો $\vec{x} \cdot \vec{y} = \vec{x} = \vec{y} = \sqrt{2}$ હોય, તો $(\vec{x} \wedge \vec{y}) =$ _____.			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{6}$
૪૨.	Force $\vec{F} = 2\hat{j}$ is acted on a body whose displacement vector is $\hat{i} - 2\hat{j} + \hat{k}$, then the work done is_____.			
	A.	4	B.	-4
	C.	2	D.	3
૪૨.	કોઈ પદાર્થ પર બળ $\vec{F} = 2\hat{j}$ લાગતા તેનું સ્થાનાંતર $\hat{i} - 2\hat{j} + \hat{k}$ થાય છે તો થયેલ કાર્ય _____ છે.			
	A.	4	B.	-4
	C.	2	D.	3
૪૩.	Unit vector in the direction of \vec{a} is _____.			
	A.	\hat{i}	B.	\vec{a}
	C.	$\frac{\vec{a}}{ \vec{a} }$	D.	$\vec{a} \vec{a} $
૪૩.	સદિશ \vec{a} ની દિશામાંનો એકમ સદિશ=_____.			
	A.	\hat{i}	B.	\vec{a}
	C.	$\frac{\vec{a}}{ \vec{a} }$	D.	$\vec{a} \vec{a} $
૪૪.	$\vec{y} \cdot (\vec{y} \times \vec{x}) =$ _____.			
	A.	0	B.	-1
	C.	1	D.	None
૪૪.	$\vec{y} \cdot (\vec{y} \times \vec{x}) =$ _____.			
	A.	0	B.	-1
	C.	1	D.	આમાંથી એક પણ નહિ
૪૫.	Distance between two points (1,1) and (1, -1) is _____.			
	A.	2	B.	$\sqrt{2}$
	C.	$2\sqrt{2}$	D.	4
૪૫.	બે બિંદુઓ (1,1) અને (1, -1) વચ્ચેનું અંતર=_____.			
	A.	2	B.	$\sqrt{2}$
	C.	$2\sqrt{2}$	D.	4
૪૬.	Two lines having slopes m_1 and m_2 respectively are perpendicular if _____.			

	A.	$m_1 m_2 = -1$	B.	$m_1 m_2 = 1$
	C.	$m_1 + 1 = m_2$	D.	$m_1 = m_2$
૪૬.	બે લંબ રેખાઓ કે જેના ઢાળ અનુક્રમે m_1 અને m_2 હોય તો _____.			
	A.	$m_1 m_2 = -1$	B.	$m_1 m_2 = 1$
	C.	$m_1 + 1 = m_2$	D.	$m_1 = m_2$
47.	Centre of the circle $x^2 + y^2 = 4$ is _____.			
	A.	(2,2,)	B.	(4,4,)
	C.	(4,0,)	D.	(0,0)
૪૭.	વર્તુળ $x^2 + y^2 = 4$ નું કેન્દ્ર _____ છે.			
	A.	(2,2,)	B.	(4,4,)
	C.	(4,0,)	D.	(0,0)
48.	X-intercept of the line $ax + by + c = 0$ is _____.			
	A.	$\frac{a}{b}$	B.	$\frac{c}{a}$
	C.	$-\frac{c}{a}$	D.	$-\frac{c}{b}$
૪૮.	રેખા $ax + by + c = 0$ માટે X-અંતઃખંડ _____ છે.			
	A.	$\frac{a}{b}$	B.	$\frac{c}{a}$
	C.	$-\frac{c}{a}$	D.	$-\frac{c}{b}$
49.	Slope of line \overline{AB} passes from points $A(1,2)$ and $B(0,2)$ is _____.			
	A.	1	B.	2
	C.	4	D.	0
૪૯.	$A(1,2)$ અને $B(0,2)$ હોય તો રેખા \overline{AB} નો ઢાળ _____ છે.			
	A.	1	B.	2
	C.	4	D.	0
50.	The radius of the circle $x^2 + y^2 = 9$ is _____.			
	A.	1	B.	9
	C.	3	D.	$\sqrt{3}$
૫૦.	વર્તુળ $x^2 + y^2 = 9$ ની ત્રિજ્યા _____ છે.			
	A.	1	B.	9
	C.	3	D.	$\sqrt{3}$
51.	If two lines $2x + 7y = 1$ and $kx + 7y - 5 = 0$ are parallel then $k =$ _____.			
	A.	7	B.	5
	C.	2	D.	1
૫૧.	જો સુરેખાઓ $2x + 7y = 1$ અને $kx + 7y - 5 = 0$ પરસ્પર સમાંતર હોય તો $k =$ _____.			
	A.	7	B.	5
	C.	2	D.	1
52.	Equation of a circle having centre (0,2) and radius 2 is _____.			
	A.	$x^2 + (y + 2)^2 = 2$	B.	$x^2 + (y - 2)^2 = 2$
	C.	$x^2 + (y + 2)^2 = 4$	D.	$x^2 + (y - 2)^2 = 4$
૫૨.	કેન્દ્ર (0,2) અને ત્રિજ્યા 2 વાળા વર્તુળનું સમીકરણ _____.			
	A.	$x^2 + (y + 2)^2 = 2$	B.	$x^2 + (y - 2)^2 = 2$
	C.	$x^2 + (y + 2)^2 = 4$	D.	$x^2 + (y - 2)^2 = 4$
53.	If A (0, 2) and B (0, 4) then midpoint of line segment \overline{AB} is = _____.			
	A.	(0, 2)	B.	(0, 4)
	C.	(0, 3)	D.	(0,0)
૫૩.	જો A (0, 2) અને B (0, 4) હોય તો રેખાખંડ \overline{AB} ના મધ્યબિંદુના યામ = _____ થાય.			
	A.	(0, 2)	B.	(0, 4)
	C.	(0, 3)	D.	(0,0)
54.	Centre of the circle $x^2 + y^2 + 6x - 2y - 16 = 0$ is _____.			

	A.	(3, -1)	B.	(-3,1)
	C.	(6, 2)	D.	(-3, -1)
૫૪.	વર્તુળ $x^2 + y^2 + 6x - 2y - 16 = 0$ નું કેન્દ્ર _____.			
	A.	(3, -1)	B.	(-3,1)
	C.	(6, 2)	D.	(-3, -1)
55.	Slope of line making an angle $\frac{\pi}{4}$ with positive direction of X - axis is _____.			
	A.	$\frac{1}{\sqrt{3}}$	B.	$\sqrt{3}$
	C.	-1	D.	1
૫૫.	રેખા X -અક્ષ ની ધન દિશા સાથે $\frac{\pi}{4}$ ખૂણો બનાવે તો રેખાનો ઢાળ _____ થાય.			
	A.	$\frac{1}{\sqrt{3}}$	B.	$\sqrt{3}$
	C.	-1	D.	1
56.	Equation of line having slope 1 and passes through the point (1,0) is _____.			
	A.	$y = x - 1$	B.	$y = 2x + 1$
	C.	$x = y - 1$	D.	$x = 2y + 1$
૫૬.	ઢાળ 1 અને બિંદુ (1,0) માંથી પસાર થતી રેખાનું સમીકરણ _____ છે.			
	A.	$y = x - 1$	B.	$y = 2x + 1$
	C.	$x = y - 1$	D.	$x = 2y + 1$
57.	Y-intercept of the line $x + y = 1$ is _____.			
	A.	1	B.	11
	C.	0	D.	-1
૫૭.	રેખા $x + y = 1$ માટે Y-અંતઃખંડ _____ છે.			
	A.	1	B.	11
	C.	0	D.	-1
58.	For circle $x^2 + y^2 + 2x + 2y - 14 = 0$ radius is _____.			
	A.	14	B.	18
	C.	8	D.	4
૫૮.	વર્તુળ $x^2 + y^2 + 2x + 2y - 14 = 0$ ની ત્રિજ્યા _____ છે.			
	A.	14	B.	18
	C.	8	D.	4
59.	$\lim_{\theta \rightarrow 0} \frac{\tan \theta}{\theta} = \text{_____}.$			
	A.	2	B.	1
	C.	0	D.	-1
૫૯.	$\lim_{\theta \rightarrow 0} \frac{\tan \theta}{\theta} = \text{_____}.$			
	A.	2	B.	1
	C.	0	D.	-1
60.	$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = \text{_____}.$			
	A.	e	B.	1
	C.	e^2	D.	e^3
૬૦.	$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = \text{_____}.$			
	A.	e	B.	1
	C.	e^2	D.	e^3
61.	$\lim_{n \rightarrow \infty} \frac{1}{n} = \text{_____}.$			
	A.	1		2
	C.	0		∞
૬૧.	$\lim_{n \rightarrow \infty} \frac{1}{n} = \text{_____}.$			
	A.	1	B.	2
	C.	0	D.	∞

62.	$\lim_{x \rightarrow 0} (x^3 + x^2 + x + 1) = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	3
ε 2.	$\lim_{x \rightarrow 0} (x^3 + x^2 + x + 1) = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	3
63.	$\lim_{x \rightarrow 1} x^{2023} = \underline{\hspace{2cm}}$.			
	A.	0	B.	-1
	C.	2023	D.	1
ε 3.	$\lim_{x \rightarrow 1} x^{2023} = \underline{\hspace{2cm}}$.			
	A.	0	B.	-1
	C.	2023	D.	1
64.	$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = \underline{\hspace{2cm}}$.			
	A.	0	B.	4
	C.	1	D.	2
ε 4.	$\lim_{x \rightarrow 2} \frac{x^2 - 4}{x - 2} = \underline{\hspace{2cm}}$.			
	A.	0	B.	4
	C.	1	D.	2
65.	$\lim_{x \rightarrow 0} \frac{\sin 3x}{x} = \underline{\hspace{2cm}}$.			
	A.	3	B.	2
	C.	1	D.	0
ε 4.	$\lim_{x \rightarrow 0} \frac{\sin 3x}{x} = \underline{\hspace{2cm}}$.			
	A.	3	B.	2
	C.	1	D.	0
66.	$\lim_{x \rightarrow 0} \frac{\tan^{-1} 2023x}{x} = \underline{\hspace{2cm}}$.			
	A.	0	B.	2022
	C.	1	D.	2023
ε 5.	$\lim_{x \rightarrow 0} \frac{\tan^{-1} 2023x}{x} = \underline{\hspace{2cm}}$.			
	A.	0	B.	2022
	C.	1	D.	2023
67.	$\lim_{n \rightarrow \infty} \frac{1}{2^n} = \underline{\hspace{2cm}}$.			
	A.	2	B.	$\frac{1}{2}$
	C.	0	D.	∞
ε 9.	$\lim_{n \rightarrow \infty} \frac{1}{2^n} = \underline{\hspace{2cm}}$.			
	A.	2	B.	$\frac{1}{2}$
	C.	0	D.	∞
68.	$\lim_{h \rightarrow 0} \frac{3^h - 1}{h} = \underline{\hspace{2cm}}$.			
	A.	3	B.	$\log_e 3$
	C.	0	D.	$\log_e 2$
ε 7.	$\lim_{h \rightarrow 0} \frac{3^h - 1}{h} = \underline{\hspace{2cm}}$.			
	A.	3	B.	$\log_e 3$
	C.	0	D.	$\log_e 2$
69.	$\lim_{x \rightarrow 0} \frac{x}{\cos x} = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	0	D.	$\cos 1$

১৯.	$\lim_{x \rightarrow 0} \frac{x}{\cos x} = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	0	D.	$\cos 1$
70.	$\lim_{n \rightarrow \infty} \frac{3n^3 + 10n + 1}{6n^3} = \underline{\hspace{2cm}}$.			
	A.	3	B.	1
	C.	6	D.	$\frac{1}{2}$
৯০.	$\lim_{n \rightarrow \infty} \frac{3n^3 + 10n + 1}{6n^3} = \underline{\hspace{2cm}}$.			
	A.	3	B.	1
	C.	6	D.	$\frac{1}{2}$
