

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 1(CtoD) New – EXAMINATION – Summer-2025

Subject Code: C4300001

Date: 03-06-2025

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 simple calculators and non-programmable scientific calculators are permitted.
5. English version is authentic.
6. Use only OMR to answer this question paper.

No.	Question Text and Option. પાશ્વ અને વિકલ્પો.			
1.	Value of $D = \begin{vmatrix} 2 & -2 \\ 1 & 1 \\ 2 & 2 \end{vmatrix}$ is ____ .			
	A.	1	B.	-1
	C.	0	D.	2
૧.	$D = \begin{vmatrix} 2 & -2 \\ 1 & 1 \\ 2 & 2 \end{vmatrix}$ ની કિંમત ____ છે.			
	A.	1	B.	-1
	C.	0	D.	2
2.	If $\begin{vmatrix} 3 & 2 \\ -3 & x \end{vmatrix} = 9$ then $x =$ ____			
	A.	-1	B.	1
	C.	-5	D.	5
૨.	જો $\begin{vmatrix} 3 & 2 \\ -3 & x \end{vmatrix} = 9$ હોય તો $x =$ ____			
	A.	-1	B.	1
	C.	-5	D.	5
3.	$\log 16 \div \log 2 =$ ____			
	A.	1	B.	8
	C.	4	D.	2
3.	$\log 16 \div \log 2 =$ ____			
	A.	1	B.	8
	C.	4	D.	2
4.	$\log 3 \cdot \log 2 \cdot \log 1 =$ ____			
	A.	1	B.	3
	C.	6	D.	0
૪.	$\log 3 \cdot \log 2 \cdot \log 1 =$ ____			
	A.	1	B.	3
	C.	6	D.	0
5.	$\log_{4\sqrt{3}} 48 =$ ____			
	A.	1	B.	2
	C.	-1	D.	-2

૫.	$\log_{4\sqrt{3}} 48 = \underline{\hspace{2cm}}$			
	A.	1	B.	2
	C.	-1	D.	-2
6.	Which of the statement given bellow is correct?			
	A.	$x^n = y$ then $\log_x y = n$	B.	$x^n = y$ then $\log_y x = n$
	C.	$x^n = y$ then $\log_y n = x$	D.	$x^n = y$ then $\log_n x = y$
૬.	નીચેના વિધાન માંથી કયુ સાચુ છે ?			
	A.	$x^n = y$ then $\log_x y = n$	B.	$x^n = y$ then $\log_y x = n$
	C.	$x^n = y$ then $\log_y n = x$	D.	$x^n = y$ then $\log_n x = y$
7.	$e^{\log_e x} = \underline{\hspace{2cm}}$			
	A.	x	B.	e
	C.	0	D.	e^x
૭.	$e^{\log_e x} = \underline{\hspace{2cm}}$			
	A.	x	B.	e
	C.	0	D.	e^x
8.	If $f(x) = x^2$ then $f(x+1) - f(x-1) = \underline{\hspace{2cm}}$			
	A.	x	B.	4x
	C.	0	D.	2
૮.	જો $f(x) = x^2$ હોય તો $f(x+1) - f(x-1) = \underline{\hspace{2cm}}$			
	A.	x	B.	4x
	C.	0	D.	2
9.	If $f(x) = \sin x + \cos x$ then $f\left(\frac{\pi}{4}\right) = \underline{\hspace{2cm}}$			
	A.	$\frac{1}{2}$	B.	2
	C.	$\frac{1}{\sqrt{2}}$	D.	$\sqrt{2}$
૯.	જો $f(x) = \sin x + \cos x$ હોય તો $f\left(\frac{\pi}{4}\right) = \underline{\hspace{2cm}}$			
	A.	$\frac{1}{2}$	B.	2
	C.	$\frac{1}{\sqrt{2}}$	D.	$\sqrt{2}$
10.	If $f(x) = \frac{x}{x+1}$ then $f(x) + f\left(\frac{1}{x}\right) = \underline{\hspace{2cm}}$			
	A.	1	B.	X+1
	C.	x	D.	None of the above
૧૦.	જો $f(x) = \frac{x}{x+1}$ હોય તો $f(x) + f\left(\frac{1}{x}\right) = \underline{\hspace{2cm}}$			
	A.	1	B.	X+1
	C.	x	D.	ઉપરના માંથી એક પણ નહિ
11.	If $\begin{vmatrix} x & 1 \\ -1 & 2 \end{vmatrix} = \begin{vmatrix} 7 & 5 \\ 0 & 1 \end{vmatrix}$ then $x = \underline{\hspace{2cm}}$			
	A.	4	B.	-3
	C.	3	D.	-4
૧૧.	જો $\begin{vmatrix} x & 1 \\ -1 & 2 \end{vmatrix} = \begin{vmatrix} 7 & 5 \\ 0 & 1 \end{vmatrix}$ હોય તો $x = \underline{\hspace{2cm}}$			
	A.	4	B.	-3

	C.	3	D.	-4
12.	Value of $D = \begin{vmatrix} 0 & 1 & 0 \\ 2 & 3 & -2 \\ 2 & 4 & 1 \end{vmatrix}$ is ____ .			
	A.	2	B.	-2
	C.	6	D.	-6
૧૨.	$D = \begin{vmatrix} 0 & 1 & 0 \\ 2 & 3 & -2 \\ 2 & 4 & 1 \end{vmatrix}$ નું મૂલ્ય ____ છે .			
	A.	2	B.	-2
	C.	6	D.	-6
13.	$\log_2(\log_3 y) = 1$ then $y =$ ____			
	A.	6	B.	9
	C.	8	D.	5
૧૩.	$\log_2(\log_3 y) = 1$ હોય તો $y =$ ____			
	A.	6	B.	9
	C.	8	D.	5
14.	If $ac=b$ then $\frac{1}{\log_a b} + \frac{1}{\log_c b} =$ ____			
	A.	a	B.	b
	C.	c	D.	1
૧૪.	જો $ac=b$ હોય તો $\frac{1}{\log_a b} + \frac{1}{\log_c b} =$ ____			
	A.	a	B.	b
	C.	c	D.	1
15.	If $f(x) = 3x - 1$ and $f(x) = x^3 + 2$ then $f(2) - g(-1) =$ ____			
	A.	3	B.	6
	C.	4	D.	2
૧૫.	જો $f(x) = 3x - 1$ અને $f(x) = x^3 + 2$ હોય તો $f(2) - g(-1) =$ ____			
	A.	3	B.	6
	C.	4	D.	2
16.	If $f(x) = 2 - \log(\cos 2x)$ then $f(0) =$ ____			
	A.	2	B.	1
	C.	x	D.	0
૧૬.	જો $f(x) = 2 - \log(\cos 2x)$ હોય તો $f(0) =$ ____			
	A.	2	B.	1
	C.	x	D.	0
17.	$\frac{2\pi}{3}$ Radian = ____ Degree			
	A.	210	B.	150
	C.	120	D.	270
૧૭.	$\frac{2\pi}{3}$ રેડિયન = ____ ડિગ્રી			
	A.	210	B.	150
	C.	120	D.	270
18.	$\sin^2 55 + \sin^2 35 =$ ____			
	A.	0	B.	1
	C.	-1	D.	all

18.	$\sin^2 55 + \sin^2 35 = \underline{\hspace{2cm}}$			
	A.	0	B.	1
	C.	-1	D.	all
19.	Period of $\cos(2x-3) = \underline{\hspace{2cm}}$			
	A.	π	B.	2π
	C.	3π	D.	0
19.	$\cos(2x-3)$ નું ચક્રાવલંબન = $\underline{\hspace{2cm}}$			
	A.	π	B.	2π
	C.	3π	D.	0
20.	If $\alpha = \frac{\pi}{2}$ then $\sin(\alpha + \frac{\pi}{4}) = \underline{\hspace{2cm}}$.			
	A.	1	B.	$\frac{\sqrt{3}}{2}$
	C.	$\frac{1}{\sqrt{2}}$	D.	$\frac{1}{2}$
20.	જો $\alpha = \frac{\pi}{2}$ હોય તો $\sin(\alpha + \frac{\pi}{4}) = \underline{\hspace{2cm}}$.			
	A.	1	B.	$\frac{\sqrt{3}}{2}$
	C.	$\frac{1}{\sqrt{2}}$	D.	$\frac{1}{2}$
21.	$\cos(p+q) = \underline{\hspace{2cm}}$			
	A.	$\cos p \cos q + \sin p \sin q$	B.	$\sin p \cos q + \sin q \cos p$
	C.	$\cos p \cos q - \sin p \sin q$	D.	$\sin p \cos q - \sin q \cos p$
21.	$\cos(p+q) = \underline{\hspace{2cm}}$			
	A.	$\cos p \cos q + \sin p \sin q$	B.	$\sin p \cos q + \sin q \cos p$
	C.	$\cos p \cos q - \sin p \sin q$	D.	$\sin p \cos q - \sin q \cos p$
22.	$\sin(-\theta) = \underline{\hspace{2cm}}$			
	A.	$\sin \theta$	B.	$-\sin \theta$
	C.	$\cos \theta$	D.	$-\cos \theta$
22.	$\sin(-\theta) = \underline{\hspace{2cm}}$			
	A.	$\sin \theta$	B.	$-\sin \theta$
	C.	$\cos \theta$	D.	$-\cos \theta$
23.	$\sin(A+B) \cdot \sin(A-B) = \underline{\hspace{2cm}}$			
	A.	$\sin^2 A + \sin^2 B$	B.	$\sin^2 A - \sin^2 B$
	C.	$\cos^2 A + \cos^2 B$	D.	$\cos^2 A - \cos^2 B$
23.	$\sin(A+B) \cdot \sin(A-B) = \underline{\hspace{2cm}}$			
	A.	$\sin^2 A + \sin^2 B$	B.	$\sin^2 A - \sin^2 B$
	C.	$\cos^2 A + \cos^2 B$	D.	$\cos^2 A - \cos^2 B$
24.	$\cos^{-1}\left(\sin \frac{\pi}{3}\right)$			
	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{4}$
	C.	$\frac{\pi}{6}$	D.	$\frac{\pi}{2}$
24.	$\cos^{-1}\left(\sin \frac{\pi}{3}\right)$			
	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{4}$
	C.	$\frac{\pi}{6}$	D.	$\frac{\pi}{2}$
25.	If $A=30^\circ$ then $2\sin A \cdot \cos A = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$			
	A.	1	B.	$\frac{\sqrt{3}}{2}$

	C.	$\frac{1}{\sqrt{2}}$	D.	$\frac{1}{2}$
૨૫.	જો $A=30^\circ$ હોય તો $2\sin A \cdot \cos A = \underline{\hspace{2cm}}$			
	A.	1	B.	$\frac{\sqrt{3}}{2}$
	C.	$\frac{1}{\sqrt{2}}$	D.	$\frac{1}{2}$
26.	$\sin C + \sin D = \underline{\hspace{2cm}}$			
	A.	$2\sin\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$	B.	$-2\sin\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$
	C.	$-2\cos\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$	D.	$2\sin\left(\frac{C+D}{2}\right) \cdot \sin\left(\frac{C-D}{2}\right)$
૨૬.	$\sin C + \sin D = \underline{\hspace{2cm}}$			
	A.	$2\sin\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$	B.	$-2\sin\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$
	C.	$-2\cos\left(\frac{C+D}{2}\right) \cdot \cos\left(\frac{C-D}{2}\right)$	D.	$2\sin\left(\frac{C+D}{2}\right) \cdot \sin\left(\frac{C-D}{2}\right)$
27.	$\sin(\cos^{-1} 1) = \underline{\hspace{2cm}}$			
	A.	1	B.	$\frac{\pi}{2}$
	C.	π	D.	0
૨૭.	$\sin(\cos^{-1} 1) = \underline{\hspace{2cm}}$			
	A.	1	B.	$\frac{\pi}{2}$
	C.	π	D.	0
28.	$\tan^{-1}\left(\frac{1}{2}\right) + \cot^{-1}\left(\frac{1}{2}\right) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{4}$
	C.	$\frac{\pi}{6}$	D.	$\frac{\pi}{2}$
૨૮.	$\tan^{-1}\left(\frac{1}{2}\right) + \cot^{-1}\left(\frac{1}{2}\right) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{4}$
	C.	$\frac{\pi}{6}$	D.	$\frac{\pi}{2}$
29.	$270^\circ = \underline{\hspace{2cm}}$			
	A.	$\left(2\pi/3\right)^R$	B.	$\left(\pi/3\right)^R$
	C.	$\left(3\pi/2\right)^R$	D.	$\left(\pi/2\right)^R$
૨૯.	$270^\circ = \underline{\hspace{2cm}}$			
	A.	$\left(2\pi/3\right)^R$	B.	$\left(\pi/3\right)^R$
	C.	$\left(3\pi/2\right)^R$	D.	$\left(\pi/2\right)^R$
30.	$\tan(\pi - \theta) = \underline{\hspace{2cm}}$			
	A.	$\tan \theta$	B.	$\cot \theta$
	C.	$-\tan \theta$	D.	$-\cot \theta$
૩૦.	$\tan(\pi - \theta) = \underline{\hspace{2cm}}$			
	A.	$\tan \theta$	B.	$\cot \theta$

	C.	$-\tan\theta$	D.	$-\cot\theta$
31.	If $\vec{p} = \vec{i} + 3\vec{j} - 2\vec{k}$ then $ \vec{p} = \underline{\hspace{1cm}}$.			
	A.	$\sqrt{14}$	B.	6
	C.	$\sqrt{12}$	D.	2
31.	જો $\vec{p} = \vec{i} + 3\vec{j} - 2\vec{k}$ then $ \vec{p} = \underline{\hspace{1cm}}$.			
	A.	$\sqrt{14}$	B.	6
	C.	$\sqrt{12}$	D.	2
32.	$\vec{a} \cdot (\vec{a} \times \vec{b}) = \underline{\hspace{1cm}}$.			
	A.	$\vec{a}$	B.	$\vec{a} \times \vec{b}$
	C.	0	D.	$\vec{b}$
32.	$\vec{a} \cdot (\vec{a} \times \vec{b}) = \underline{\hspace{1cm}}$.			
	A.	$\vec{a}$	B.	$\vec{a} \times \vec{b}$
	C.	0	D.	$\vec{b}$
33.	$(2\vec{i} - \vec{j} + 2\vec{k}) \cdot (5\vec{i} + 3\vec{j} - 4\vec{k})$			
	A.	1	B.	-1
	C.	0	D.	2
33.	$(2\vec{i} - \vec{j} + 2\vec{k}) \cdot (5\vec{i} + 3\vec{j} - 4\vec{k})$			
	A.	1	B.	0
	C.	-1	D.	2
34.	Unit vector in the direction of vector $2\vec{i} + 2\vec{j} - \vec{k}$ is $\underline{\hspace{1cm}}$.			
	A.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{3}$	B.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{9}$
	C.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{4}$	D.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{5}$
34.	સદિશ $2\vec{i} + 2\vec{j} - \vec{k}$ ની દિશાનો એકમ સદિશ $\underline{\hspace{1cm}}$ છે.			
	A.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{3}$	B.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{9}$
	C.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{4}$	D.	$\frac{(2\vec{i} + 2\vec{j} - \vec{k})}{5}$
35.	vectors $\vec{x}$ and $\vec{y}$ are perpendicular to each other then $\underline{\hspace{1cm}}$.			
	A.	$\vec{x} \times \vec{y} = 1$	B.	$\vec{x} \times \vec{y} = 0$
	C.	$\vec{x} \cdot \vec{y} = 1$	D.	$\vec{x} \cdot \vec{y} = 0$
34.	સદિશો $\vec{x}$ અને $\vec{y}$ પરસ્પર લંબ સદિશ હોય તો $\underline{\hspace{1cm}}$			
	A.	$\vec{x} \times \vec{y} = 1$	B.	$\vec{x} \times \vec{y} = 0$
	C.	$\vec{x} \cdot \vec{y} = 1$	D.	$\vec{x} \cdot \vec{y} = 0$
36.	If force $\vec{F} = 2\vec{i} + 3\vec{j} + 4\vec{k}$ and displacement $\vec{d} = \vec{i} - \vec{j} + 3\vec{k}$ then work done = $\underline{\hspace{1cm}}$.			
	A.	8	B.	9
	C.	10	D.	11
36.	જો બળ $\vec{F} = 2\vec{i} + 3\vec{j} + 4\vec{k}$ અને સ્થાનાંતર $\vec{d} = \vec{i} - \vec{j} + 3\vec{k}$ હોય તો થયેલ કાર્ય $\underline{\hspace{1cm}}$ છે.			
	A.	8	B.	9
	C.	10	D.	11
37.	If $\vec{a} = \vec{i} - 2\vec{j} + \vec{k}$ and $\vec{b} = 3\vec{i} + 2\vec{j} - 5\vec{k}$ then $ \vec{a} + \vec{b} = \underline{\hspace{1cm}}$			
	A.	$2\sqrt{2}$	B.	4
	C.	$4\sqrt{2}$	D.	$3\sqrt{2}$
39.	જો $\vec{a} = \vec{i} - 2\vec{j} + \vec{k}$ અને $\vec{b} = 3\vec{i} + 2\vec{j} - 5\vec{k}$ હોય તો $ \vec{a} + \vec{b} = \underline{\hspace{1cm}}$			
	A.	$2\sqrt{2}$	B.	4

	C.	$4\sqrt{2}$	D.	$3\sqrt{2}$
38.	$\vec{k} \times \vec{i} = \underline{\hspace{1cm}}$.			
	A.	$\vec{j}$	B.	$-\vec{j}$
	C.	$\vec{k}$	D.	$\vec{i}$
39.	$\vec{k} \times \vec{i} = \underline{\hspace{1cm}}$.			
	A.	$\vec{j}$	B.	$-\vec{j}$
	C.	$\vec{k}$	D.	$\vec{i}$
39.	$\vec{j} \cdot \vec{j} = \underline{\hspace{1cm}}$.			
	A.	$\vec{j}$	B.	$-\vec{j}$
	C.	1	D.	-1
39.	$\vec{j} \cdot \vec{j} = \underline{\hspace{1cm}}$.			
	A.	$\vec{j}$	B.	$-\vec{j}$
	C.	1	D.	-1
40.	If the angle between the vectors $\vec{x}$ and $\vec{y}$ is θ then $\cos\theta = \underline{\hspace{1cm}}$			
	A.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{x} \vec{y} }$	B.	$\frac{ \vec{x} \vec{y} }{\vec{x} \cdot \vec{y}}$
	C.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{x} }$	D.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{y} }$
40.	જો સદિશો $\vec{x}$ અને $\vec{y}$ વચ્ચેનો ખૂણો θ હોય તો $\cos\theta = \underline{\hspace{1cm}}$			
	A.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{x} \vec{y} }$	B.	$\frac{ \vec{x} \vec{y} }{\vec{x} \cdot \vec{y}}$
	C.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{x} }$	D.	$\frac{\vec{x} \cdot \vec{y}}{ \vec{y} }$
41.	If $(2\vec{i} - 3\vec{j} + 5\vec{k}) \perp (m\vec{i} - 6\vec{j} - 8\vec{k})$ then $m = \underline{\hspace{1cm}}$.			
	A.	10	B.	11
	C.	22	D.	12
41.	જો $(2\vec{i} - 3\vec{j} + 5\vec{k}) \perp (m\vec{i} - 6\vec{j} - 8\vec{k})$ હોય તો $m = \underline{\hspace{1cm}}$.			
	A.	10	B.	11
	C.	22	D.	12
42.	$ 2\vec{i} - 2\vec{j} + \vec{k} + 3\vec{j} + 4\vec{k} = \underline{\hspace{1cm}}$.			
	A.	7	B.	8
	C.	9	D.	10
42.	$ 2\vec{i} - 2\vec{j} + \vec{k} + 3\vec{j} + 4\vec{k} = \underline{\hspace{1cm}}$.			
	A.	7	B.	8
	C.	9	D.	10
43.	$\vec{x} = (1, 1, 1)$ $\vec{y} = (2, -1, -1)$ then $\vec{x} \times \vec{y} = \underline{\hspace{1cm}}$.			
	A.	(0, 3, 3)	B.	(0, -3, -3)
	C.	(0, -3, 3)	D.	(0, 3, -3)
43.	$\vec{x} = (1, 1, 1)$ $\vec{y} = (2, -1, -1)$ હોય તો $\vec{x} \times \vec{y} = \underline{\hspace{1cm}}$.			
	A.	(0, 3, 3)	B.	(0, -3, -3)
	C.	(0, -3, 3)	D.	(0, 3, -3)
44.	For the vectors $\vec{x}$ and $\vec{y}$ which is always true ?			
	A.	$ \vec{x} + \vec{y} = \vec{x} + \vec{y} $	B.	$ \vec{x} + \vec{y} \leq \vec{x} + \vec{y} $
	C.	$ \vec{x} + \vec{y} \geq \vec{x} + \vec{y} $	D.	$ \vec{x} + \vec{y} > \vec{x} + \vec{y} $
44.	સદિશો $\vec{x}$ અને $\vec{y}$ માટે હંમેશા શું સાચુ છે ?			
	A.	$ \vec{x} + \vec{y} = \vec{x} + \vec{y} $	B.	$ \vec{x} + \vec{y} \leq \vec{x} + \vec{y} $

	C.	$ \bar{x} + \bar{y} \geq \bar{x} + \bar{y} $	D.	$ \bar{x} + \bar{y} > \bar{x} + \bar{y} $
45.	Slope of line $2x+3y-4=0$ is _____			
	A.	$-\frac{3}{2}$	B.	$\frac{3}{2}$
	C.	$-\frac{2}{3}$	D.	$\frac{2}{3}$
૪૫.	સુરેખા $2x+3y-4=0$ નો ઢાળ _____ છે.			
	A.	$-\frac{3}{2}$	B.	$\frac{3}{2}$
	C.	$-\frac{2}{3}$	D.	$\frac{2}{3}$
46.	If slope of l_1 is m_1 and slope of l_2 is m_2 also $l_1 \perp l_2$ then			
	A.	$m_1 = m_2$	B.	$m_1 < m_2$
	C.	$m_1 > m_2$	D.	$m_1 m_2 = -1$
૪૬.	જો સુરેખા l_1 નો ઢાળ m_1 અને સુરેખા l_2 નો ઢાળ m_2 હોય તથા $l_1 \perp l_2$ હોય તો			
	A.	$m_1 = m_2$	B.	$m_1 < m_2$
	C.	$m_1 > m_2$	D.	$m_1 m_2 = -1$
47.	Line $l_1: 4x-3y=1$ and l_1 is parallel to line l_2 then slope of l_2 is _____ .			
	A.	$-\frac{3}{4}$	B.	$\frac{4}{3}$
	C.	$-\frac{4}{3}$	D.	$\frac{3}{4}$
૪૭.	સુરેખા $l_1: 4x-3y=1$ તથા l_1 અને l_2 સમાંતર રેખાઓ છે તો l_2 નો ઢાળ _____ છે.			
	A.	$-\frac{3}{4}$	B.	$\frac{4}{3}$
	C.	$-\frac{4}{3}$	D.	$\frac{3}{4}$
48.	Angle between lines $2x+y=0$ and $x-2y=0$ is _____ .			
	A.	0	B.	45°
	C.	30°	D.	90°
૪૮.	સુરેખાઓ $2x+y=0$ અને $x-2y=0$ વચ્ચેનો ખુણો _____ છે.			
	A.	0	B.	45°
	C.	30°	D.	90°
49.	x-Intercept of line $2x-3y+4=0$ is _____ .			
	A.	-3	B.	2
	C.	-2	D.	3
૪૯.	સુરેખા $2x-3y+4=0$ નો x- નો અંતઃખંડ _____ છે.			
	A.	-3	B.	2
	C.	-2	D.	3
50.	Equation of line passing through the points $(1,-3)$ and $(-2,2)$ is _____			
	A.	$5x+3y + 4=0$	B.	$5x-3y + 4=0$
	C.	$5x+3y - 4=0$	D.	$5x-3y - 4=0$
૫૦.	$(1,-3)$ અને $(-2,2)$ માંથી પસાર થતી રેખાનું સમીકરણ _____ છે.			
	A.	$5x+3y + 4=0$	B.	$5x-3y + 4=0$
	C.	$5x+3y - 4=0$	D.	$5x-3y - 4=0$
51.	x-Intercept of line is -3 then the line is passing through point is _____ .			
	A.	$(-3,0)$	B.	$(3,0)$
	C.	$(0,-3)$	D.	$(0,3)$
૫૧.	સુરેખાનો x- અંતઃખંડ -3 છે તો રેખા _____ બિંદુમાંથી પસાર થાય છે.			
	A.	$(-3,0)$	B.	$(3,0)$
	C.	$(0,-3)$	D.	$(0,3)$
52.	Equation of circle having centre $(0,0)$ and radius 5 is _____			
	A.	$x^2 + y^2 = 5$	B.	$x^2 + y^2 = 25$
	C.	$x^2 + y^2 = -5$	D.	$x^2 + y^2 = -25$

૫૨.	કેન્દ્ર(0,0) અને ત્રિજ્યા 5 હોય તેવા વર્તુળ નું સમીકરણ _____ છે			
	A.	$x^2 + y^2 = 5$	B.	$x^2 + y^2 = 25$
	C.	$x^2 + y^2 = -5$	D.	$x^2 + y^2 = -25$
53.	Centre of circle $x^2 + y^2 - 4x + 2y + 1 = 0$ is _____ .			
	A.	(2,1)	B.	(-2,-1)
	C.	(-2,1)	D.	(2,-1)
૫૩.	વર્તુળ $x^2 + y^2 - 4x + 2y + 1 = 0$ નું કેન્દ્ર _____ છે.			
	A.	(2,1)	B.	(-2,-1)
	C.	(-2,1)	D.	(2,-1)
54.	Equation of line passing through the points (1,1) and having slope 2 is _____			
	A.	$2x - y - 1 = 0$	B.	$x - 2y + 1 = 0$
	C.	$2x - y - 3 = 0$	D.	$x - 2y + 3 = 0$
૫૪.	(1,1) માંથી પસાર થતી અને જેનો ઢાળ 2 હોય તેવી રેખાનું સમીકરણ _____ છે.			
	A.	$2x - y - 1 = 0$	B.	$x - 2y + 1 = 0$
	C.	$2x - y - 3 = 0$	D.	$x - 2y + 3 = 0$
55.	Equation of circle having centre (-3,-2) and radius 4 is _____			
	A.	$x^2 + y^2 + 6x - 4y + 3 = 0$	B.	$x^2 + y^2 + 6x + 4y - 3 = 0$
	C.	$x^2 + y^2 - 6x - 4y + 3 = 0$	D.	$x^2 + y^2 - 6x - 4y - 3 = 0$
૫૫.	કેન્દ્ર(-3,-2) અને ત્રિજ્યા 4 હોય તેવા વર્તુળ નું સમીકરણ _____ છે.			
	A.	$x^2 + y^2 + 6x - 4y + 3 = 0$	B.	$x^2 + y^2 + 6x + 4y - 3 = 0$
	C.	$x^2 + y^2 - 6x - 4y + 3 = 0$	D.	$x^2 + y^2 - 6x - 4y - 3 = 0$
56.	Radius of circle $x^2 + y^2 = 7$ is _____ .			
	A.	49	B.	7
	C.	$\sqrt{7}$	D.	1
૫૬.	વર્તુળ $x^2 + y^2 = 7$ ની ત્રિજ્યા _____ છે.			
	A.	49	B.	7
	C.	$\sqrt{7}$	D.	1
57.	Equation of normal for standard circle at (x_1, y_1) is _____ .			
	A.	$xy_1 = yx_1$	B.	$xx_1 = yy_1$
	C.	$x_1y_1 = y$	D.	$x_1y_1 = x$
૫૭.	(x_1, y_1) બિંદુ આગળ પ્રમાણિત વર્તુળના અભિલંબ નું સમીકરણ _____ છે.			
	A.	$xy_1 = yx_1$	B.	$xx_1 = yy_1$
	C.	$x_1y_1 = y$	D.	$x_1y_1 = x$
58.	Radius of circle $x^2 + y^2 - 4x - 8y + k = 0$ is 4 then $k =$ _____			
	A.	2	B.	4
	C.	-2	D.	-4
૫૮.	વર્તુળ $x^2 + y^2 - 4x - 8y + k = 0$ ની ત્રિજ્યા 4 હોય તો $k =$ _____			
	A.	2	B.	4
	C.	-2	D.	-4
59.	$\lim_{x \rightarrow 0} (1-x)^{\frac{1}{x}} =$ _____ .			
	A.	e	B.	1
	C.	$\frac{1}{e}$	D.	0
૫૯.	$\lim_{x \rightarrow 0} (1-x)^{\frac{1}{x}} =$ _____ .			
	A.	e	B.	1

	C.	$\frac{1}{e}$	D.	0
60.	$\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x - 3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	-1
	C.	2	D.	0
60.	$\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{x - 3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	-1
	C.	2	D.	0
61.	$\lim_{x \rightarrow \infty} \frac{2x^2 + 3x + 2}{x^2 + 2x + 3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	2	D.	3
61.	$\lim_{x \rightarrow \infty} \frac{2x^2 + 3x + 2}{x^2 + 2x + 3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	2	D.	3
62.	$\lim_{n \rightarrow -1} \frac{2n + 3}{3n + 2} = \underline{\hspace{2cm}}.$			
	A.	-1	B.	1
	C.	2	D.	0
62.	$\lim_{n \rightarrow -1} \frac{2n + 3}{3n + 2} = \underline{\hspace{2cm}}.$			
	A.	-1	B.	1
	C.	2	D.	0
63.	$\lim_{x \rightarrow 0} \frac{x}{\sin 5x} = \underline{\hspace{2cm}}.$			
	A.	0	B.	$\frac{1}{5}$
	C.	1	D.	5
63.	$\lim_{x \rightarrow 0} \frac{x}{\sin 5x} = \underline{\hspace{2cm}}.$			
	A.	0	B.	$\frac{1}{5}$
	C.	1	D.	5
64.	$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = \underline{\hspace{2cm}}.$			
	A.	na^{n-1}	B.	$(n-1)x^n$
	C.	na^{n+1}	D.	$(n-1)a^{n+1}$
64.	$\lim_{x \rightarrow a} \frac{x^n - a^n}{x - a} = \underline{\hspace{2cm}}.$			
	A.	na^{n-1}	B.	$(n-1)x^n$
	C.	na^{n+1}	D.	$(n-1)a^{n+1}$
65.	$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x}\right)^{5x} = \underline{\hspace{2cm}}.$			
	A.	e^{25}	B.	e^2
	C.	e^5	D.	e^{10}
65.	$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x}\right)^{5x} = \underline{\hspace{2cm}}.$			

	A.	e^{25}	B.	e^2
	C.	e^5	D.	e^{10}
66.	$\lim_{y \rightarrow 3} \left(\frac{3^y - 1}{y} \right) = \underline{\hspace{2cm}}.$			
	A.	$\log_e 3$	B.	1
	C.	$\log_3 e$	D.	0
ξξ.	$\lim_{y \rightarrow 3} \left(\frac{3^y - 1}{y} \right) = \underline{\hspace{2cm}}.$			
	A.	$\log_e 3$	B.	1
	C.	$\log_3 e$	D.	0
67.	$\lim_{x \rightarrow \infty} \frac{1}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	x	D.	e
ξθ.	$\lim_{x \rightarrow \infty} \frac{1}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	x	D.	e
68.	$\lim_{\theta \rightarrow 0} \left(\frac{\sin 4\theta}{\theta} + \frac{\tan \theta}{3\theta} \right) = \underline{\hspace{2cm}}.$			
	A.	$-\frac{13}{3}$	B.	$\frac{13}{3}$
	C.	$-\frac{3}{13}$	D.	$\frac{3}{13}$
ξϙ.	$\lim_{\theta \rightarrow 0} \left(\frac{\sin 4\theta}{\theta} + \frac{\tan \theta}{3\theta} \right) = \underline{\hspace{2cm}}.$			
	A.	$-\frac{13}{3}$	B.	$\frac{13}{3}$
	C.	$-\frac{3}{13}$	D.	$\frac{3}{13}$
69.	$\lim_{\theta \rightarrow 0} \left(\frac{1 - \cos \theta}{\theta^2} \right) = \underline{\hspace{2cm}}.$			
	A.	0	B.	1
	C.	$\frac{1}{2}$	D.	2
ξϙ.	$\lim_{\theta \rightarrow 0} \left(\frac{1 - \cos \theta}{\theta^2} \right) = \underline{\hspace{2cm}}.$			
	A.	0	B.	1
	C.	$\frac{1}{2}$	D.	2
70.	$\lim_{h \rightarrow 0} \frac{a^h - 1}{h} = \underline{\hspace{2cm}}$			
	A.	1	B.	$\log_e h$
	C.	h	D.	e
θο.	$\lim_{h \rightarrow 0} \frac{a^h - 1}{h} = \underline{\hspace{2cm}}$			
	A.	1	B.	$\log_e h$
	C.	h	D.	e
