Seat No. / Enrolment No.:

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering/ Diploma Architecture – SEM – 1 – EXAMINATION – Summer-2025

Subject Code: DA300001/C300001 **Date: 29-05-2025**

Subject Name: Basic 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. પ્રશ્ન અને વિકલ્પો.			
1.	$\log(x \cdot y) =$ _____			
	A.	$\log x \cdot \log y$	B.	$\log x + \log y$
	C.	$\log x - \log y$	D.	$\log x \div \log y$
૧.	$\log(x \cdot y) =$ _____			
	A.	$\log x \cdot \log y$	B.	$\log x + \log y$
	C.	$\log x - \log y$	D.	$\log x \div \log y$
2.	$\log(x \div y) =$ _____			
	A.	$\log x + \log y$	B.	$\log x \cdot \log y$
	C.	$\log x \div \log y$	D.	$\log x - \log y$
૨.	$\log(x \div y) =$ _____			
	A.	$\log x + \log y$	B.	$\log x \cdot \log y$
	C.	$\log x \div \log y$	D.	$\log x - \log y$
3.	If $\log(x-1) + \log(x+1) = \log 24$ then $x =$ _____			
	A.	1	B.	5
	C.	-1	D.	0
૩.	જો $\log(x-1) + \log(x+1) = \log 24$ હોય તો $x =$ _____			
	A.	1	B.	5
	C.	-1	D.	0
4.	$\log x^5 =$ _____			
	A.	5	B.	x
	C.	$5\log x$	D.	$x\log 5$
૪.	$\log x^5 =$ _____			
	A.	5	B.	x
	C.	$5\log x$	D.	$x\log 5$

5.	$\log_a a =$ _____			
	A.	1	B.	-1
	C.	a	D.	0
૫.	$\log_a a =$ _____			
	A.	1	B.	-1
	C.	a	D.	0
6.	$4^{2\log_4 3} =$ _____			
	A.	8	B.	9
	C.	4	D.	1
૬.	$4^{2\log_4 3} =$ _____			
	A.	8	B.	9
	C.	4	D.	1
7.	$\log_2 1 \cdot \log_3 2 \cdot \log_4 3 \cdot \log_5 4 =$ _____			
	A.	0	B.	$\log_2 4$
	C.	$\frac{1}{4}$	D.	$\frac{1}{\log_2 4}$
૭.	$\log_2 1 \cdot \log_3 2 \cdot \log_4 3 \cdot \log_5 4 =$ _____			
	A.	0	B.	$\log_2 4$
	C.	$\frac{1}{4}$	D.	$\frac{1}{\log_2 4}$
8.	$\log_b a \cdot \log_c b \cdot \log_a c =$ _____			
	A.	$\log(a+b+c)$	B.	$\log(a \cdot b \cdot c)$
	C.	0	D.	1
૮.	$\log_b a \cdot \log_c b \cdot \log_a c =$ _____			
	A.	$\log(a+b+c)$	B.	$\log(a \cdot b \cdot c)$
	C.	0	D.	1
9.	If $\log_5 x = 2$ then $x =$ _____			
	A.	1	B.	0
	C.	5	D.	25
૯.	જો $\log_5 x = 2$ હોય તો $x =$ _____			
	A.	1	B.	0
	C.	5	D.	25
10.	$\log 16 \div \log 8 =$ _____			
	A.	$\frac{4}{3}$	B.	$\frac{3}{4}$
	C.	2	D.	16
૧૦.	$\log 16 \div \log 8 =$ _____			
	A.	$\frac{4}{3}$	B.	$\frac{3}{4}$
	C.	2	D.	16
11.	Size of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ is _____			
	A.	3×2	B.	2×3
	C.	2×2	D.	3×3
૧૧.	શ્રેણિક $A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ ની કક્ષા =_____			

	A.	3×2	B.	2×3
	C.	2×2	D.	3×3
12.	If $A = \begin{bmatrix} 5 & 7 & 3 \\ 0 & 2 & 4 \end{bmatrix}$ then $A^T =$ _____			
	A.	$\begin{bmatrix} 5 & 0 \\ 7 & 2 \\ 3 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 5 & 7 & 3 \\ 0 & 2 & 4 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$
૧૨.	જો $A = \begin{bmatrix} 5 & 7 & 3 \\ 0 & 2 & 4 \end{bmatrix}$ હોય તો $A^T =$ _____			
	A.	$\begin{bmatrix} 5 & 0 \\ 7 & 2 \\ 3 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 5 & 7 & 3 \\ 0 & 2 & 4 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 0 \\ 0 & 0 \\ 0 & 0 \end{bmatrix}$
13.	Identity matrix $I =$ _____			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
૧૩.	એકમ શ્રેણિક $I =$ _____			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
14.	If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then $Adj(A) =$ _____			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
૧૪.	જો $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ હોય તો $Adj(A) =$ _____			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
15.	$\begin{vmatrix} -cos\theta & sin\theta \\ sin\theta & cos\theta \end{vmatrix} =$ _____			
	A.	-1	B.	1
	C.	2	D.	0
૧૫.	$\begin{vmatrix} -cos\theta & sin\theta \\ sin\theta & cos\theta \end{vmatrix} =$ _____			
	A.	-1	B.	1
	C.	2	D.	0
16.	If $\begin{vmatrix} x & -4 \\ -2 & 1 \end{vmatrix} = 0$ then $x =$ _____			
	A.	-4	B.	2
	C.	4	D.	8
૧૬.	જો $\begin{vmatrix} x & -4 \\ -2 & 1 \end{vmatrix} = 0$ હોય તો $x =$ _____			

	A.	-4	B.	2
	C.	4	D.	8
17.	$\begin{vmatrix} \log_6 3 & \log_6 2 \\ -1 & 1 \end{vmatrix} =$ _____			
	A.	0	B.	1
	C.	2	D.	-1
૧૭.	$\begin{vmatrix} \log_6 3 & \log_6 2 \\ -1 & 1 \end{vmatrix} =$ _____			
	A.	0	B.	1
	C.	2	D.	-1
18.	If $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ then $A^2 =$ _____			
	A.	$2A$	B.	I
	C.	A	D.	O
૧૮.	જો $A = \begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$ હોય તો $A^2 =$ _____			
	A.	$2A$	B.	I
	C.	A	D.	O
19.	$\begin{bmatrix} -2 & -1 & 3 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 5 \end{bmatrix} =$ [____]			
	A.	21	B.	9
	C.	18	D.	1
૧૯.	$\begin{bmatrix} -2 & -1 & 3 \end{bmatrix} \begin{bmatrix} 3 \\ 0 \\ 5 \end{bmatrix} =$ [____]			
	A.	21	B.	9
	C.	18	D.	1
20.	$\begin{bmatrix} 2 & -1 \\ -4 & -3 \end{bmatrix} . \begin{bmatrix} 2 & 1 \\ -3 & -2 \end{bmatrix} =$ _____			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 4 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 1 \\ -12 & 6 \end{bmatrix}$	D.	$\begin{bmatrix} 7 & 0 \\ 1 & 2 \end{bmatrix}$
૨૦.	$\begin{bmatrix} 2 & -1 \\ -4 & -3 \end{bmatrix} . \begin{bmatrix} 2 & 1 \\ -3 & -2 \end{bmatrix} =$ _____			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 4 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 1 \\ -12 & 6 \end{bmatrix}$	D.	$\begin{bmatrix} 7 & 0 \\ 1 & 2 \end{bmatrix}$
21.	$\begin{bmatrix} 1 & 5 \\ -4 & 3 \end{bmatrix} + \begin{bmatrix} 2 & -5 \\ 4 & 0 \end{bmatrix} =$ _____			
	A.	4I	B.	5I
	C.	2I	D.	3I
૨૧.	$\begin{bmatrix} 1 & 5 \\ -4 & 3 \end{bmatrix} + \begin{bmatrix} 2 & -5 \\ 4 & 0 \end{bmatrix} =$ _____			
	A.	4I	B.	5I
	C.	2I	D.	3I
22.	$\begin{vmatrix} 2 & 3 & 5 \\ 0 & 0 & 0 \\ 2 & 3 & 4 \end{vmatrix} =$ _____			
	A.	4	B.	1
	C.	2	D.	0

૨૨.	$\begin{vmatrix} 2 & 3 & 5 \\ 0 & 0 & 0 \\ 2 & 3 & 4 \end{vmatrix} =$ _____			
	A.	4	B.	1
	C.	2	D.	0
23.	$\begin{bmatrix} -1 & 1 \\ -3 & 5 \end{bmatrix} - 2\begin{bmatrix} 2 & -1 \\ 4 & -1 \end{bmatrix} =$ _____			
	A.	$\begin{bmatrix} -5 & 11 \\ 5 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} -5 & 11 \\ -11 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} -5 & 3 \\ -11 & 7 \end{bmatrix}$	D.	$\begin{bmatrix} -5 & 11 \\ 5 & 7 \end{bmatrix}$
૨૩.	$\begin{bmatrix} -1 & 1 \\ -3 & 5 \end{bmatrix} - 2\begin{bmatrix} 2 & -1 \\ 4 & -1 \end{bmatrix} =$ _____			
	A.	$\begin{bmatrix} -5 & 11 \\ 5 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} -5 & 11 \\ -11 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} -5 & 3 \\ -11 & 7 \end{bmatrix}$	D.	$\begin{bmatrix} -5 & 11 \\ 5 & 7 \end{bmatrix}$
24.	If $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ then $A^2 =$ _____			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$
૨૪.	જો $A = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ હોય તો $A^2 =$ _____			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$
25.	If $\begin{bmatrix} 2x-4 & 2 \\ 4 & 6 \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ 4 & 6 \end{bmatrix}$ then $x =$ _____			
	A.	-2	B.	4
	C.	1	D.	-1
૨૫.	જો $\begin{bmatrix} 2x-4 & 2 \\ 4 & 6 \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ 4 & 6 \end{bmatrix}$ હોય તો $x =$ _____			
	A.	-2	B.	4
	C.	1	D.	-1
26.	$\cos^2 10^\circ + \cos^2 80^\circ =$ _____			
	A.	-1	B.	2
	C.	0	D.	1
૨૬.	$\cos^2 10^\circ + \cos^2 80^\circ =$ _____			
	A.	-1	B.	2
	C.	0	D.	1
27.	$45^\circ =$ _____radian			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{6}$
૨૭.	$45^\circ =$ _____રેડિયન			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{6}$
28.	$\cot(30^\circ) =$ _____			
	A.	$\sqrt{3}$	B.	1

	C.	$\frac{\sqrt{3}}{2}$	D.	$\frac{1}{\sqrt{3}}$
૨૮.	$\cot(30^\circ) =$ _____			
	A.	$\sqrt{3}$	B.	1
	C.	$\frac{\sqrt{3}}{2}$	D.	$\frac{1}{\sqrt{3}}$
29.	Principal Period of $\cos\theta$ is _____			
	A.	0	B.	2π
	C.	1	D.	π
૨૯.	$\cos\theta$ નું મુખ્ય આવર્તમાન=_____			
	A.	0	B.	2π
	C.	1	D.	π
30.	$2\pi =$ _____			
	A.	360°	B.	540°
	C.	720°	D.	180°
૩૦.	$2\pi =$ _____			
	A.	360°	B.	540°
	C.	720°	D.	180°
31.	$\cos\left(\frac{\pi}{2}+\theta\right) =$ _____			
	A.	$\cos\theta$	B.	$-\cos\theta$
	C.	$\sin\theta$	D.	$-\sin\theta$
૩૧.	$\cos\left(\frac{\pi}{2}+\theta\right) =$ _____			
	A.	$\cos\theta$	B.	$-\cos\theta$
	C.	$\sin\theta$	D.	$-\sin\theta$
32.	$\sin(\pi+\theta) =$ _____			
	A.	$\cos\theta$	B.	$-\cos\theta$
	C.	$\sin\theta$	D.	$-\sin\theta$
૩૨.	$\sin(\pi+\theta) =$ _____			
	A.	$\cos\theta$	B.	$-\cos\theta$
	C.	$\sin\theta$	D.	$-\sin\theta$
33.	$\cos(\alpha+\beta) =$ _____			
	A.	$\cos\alpha\cos\beta-\sin\alpha\sin\beta$	B.	$\cos\alpha\cos\beta+\sin\alpha\sin\beta$
	C.	$\sin\alpha\cos\beta+\cos\alpha\sin\beta$	D.	$\sin\alpha\cos\beta-\cos\alpha\sin\beta$
૩૩.	$\cos(\alpha+\beta) =$ _____			
	A.	$\cos\alpha\cos\beta-\sin\alpha\sin\beta$	B.	$\cos\alpha\cos\beta+\sin\alpha\sin\beta$
	C.	$\sin\alpha\cos\beta+\cos\alpha\sin\beta$	D.	$\sin\alpha\cos\beta-\cos\alpha\sin\beta$
34.	$\cos^2 11^\circ+\sin^2 11^\circ =$ _____			
	A.	1	B.	0
	C.	-1	D.	2π
૩૪.	$\cos^2 11^\circ+\sin^2 11^\circ =$ _____			
	A.	1	B.	0
	C.	-1	D.	2π
35.	$\sin 0^\circ \sin 30^\circ \sin 60^\circ =$ _____			

	A.	0	B.	$\frac{1}{2}$
	C.	1	D.	$\frac{1}{4}$
૩૫.	$\sin 0^\circ \sin 30^\circ \sin 60^\circ =$ _____			
	A.	0	B.	$\frac{1}{2}$
	C.	1	D.	$\frac{1}{4}$
36.	$\cos 2\alpha =$ _____			
	A.	$\cos^2\alpha + \sin^2\alpha$	B.	$\cos^2\alpha - \sin^2\alpha$
	C.	$2\sin\alpha\cos\alpha$	D.	$1 - \sin^2\alpha$
૩૬.	$\cos 2\alpha =$ _____			
	A.	$\cos^2\alpha + \sin^2\alpha$	B.	$\cos^2\alpha - \sin^2\alpha$
	C.	$2\sin\alpha\cos\alpha$	D.	$1 - \sin^2\alpha$
37.	For $\Delta ABC, tan(A+B) =$ _____			
	A.	$tanC$	B.	$-tanC$
	C.	$cotC$	D.	$-cotC$
૩૭.	ΔABC માટે, $tan(A+B) =$ _____			
	A.	$tanC$	B.	$-tanC$
	C.	$cotC$	D.	$-cotC$
38.	$\tan^{-1}\left(\frac{4}{5}\right) + \tan^{-1}\left(\frac{5}{4}\right) =$ _____			
	A.	0	B.	$\frac{3\pi}{2}$
	C.	$-\frac{\pi}{2}$	D.	$\frac{\pi}{2}$
૩૮.	$\tan^{-1}\left(\frac{4}{5}\right) + \tan^{-1}\left(\frac{5}{4}\right) =$ _____			
	A.	0	B.	$\frac{3\pi}{2}$
	C.	$-\frac{\pi}{2}$	D.	$\frac{\pi}{2}$
39.	$\sin 75^\circ + \sin 15^\circ =$ _____			
	A.	1	B.	0
	C.	$\frac{\sqrt{3}}{2}$	D.	$\sqrt{\frac{3}{2}}$
૩૯.	$\sin 75^\circ + \sin 15^\circ =$ _____			
	A.	1	B.	0
	C.	$\frac{\sqrt{3}}{2}$	D.	$\sqrt{\frac{3}{2}}$
40.	Period of $\sin(3x-5) =$ _____			
	A.	$\frac{3\pi}{2}$	B.	$\frac{2\pi}{3}$
	C.	2π	D.	π
૪૦.	$\sin(3x-5)$ નું આવર્તમાન = _____			

	A.	$\frac{3\pi}{2}$	B.	$\frac{2\pi}{3}$
	C.	2π	D.	π
41.	$\sin\left(\frac{\pi}{8}\right) =$ _____			
	A.	$\frac{\sqrt{2-\sqrt{2}}}{2}$	B.	$\frac{\sqrt{2+\sqrt{2}}}{2}$
	C.	$\frac{2-\sqrt{2}}{4}$	D.	$\frac{2+\sqrt{2}}{4}$
४१.	$\sin\left(\frac{\pi}{8}\right) =$ _____			
	A.	$\frac{\sqrt{2-\sqrt{2}}}{2}$	B.	$\frac{\sqrt{2+\sqrt{2}}}{2}$
	C.	$\frac{2-\sqrt{2}}{4}$	D.	$\frac{2+\sqrt{2}}{4}$
42.	$\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) =$ _____			
	A.	$-\frac{3\pi}{4}$	B.	$\frac{3\pi}{4}$
	C.	$-\frac{\pi}{4}$	D.	$\frac{\pi}{4}$
४२.	$\sin^{-1}\left(\frac{1}{\sqrt{2}}\right) =$ _____			
	A.	$-\frac{3\pi}{4}$	B.	$\frac{3\pi}{4}$
	C.	$-\frac{\pi}{4}$	D.	$\frac{\pi}{4}$
43.	$\sin(-225^{\circ}) =$ _____			
	A.	$\frac{\sqrt{3}}{2}$	B.	$-\frac{\sqrt{3}}{2}$
	C.	$\frac{1}{\sqrt{2}}$	D.	$-\frac{1}{\sqrt{2}}$
४3.	$\sin(-225^{\circ}) =$ _____			
	A.	$\frac{\sqrt{3}}{2}$	B.	$-\frac{\sqrt{3}}{2}$
	C.	$\frac{1}{\sqrt{2}}$	D.	$-\frac{1}{\sqrt{2}}$
44.	$\cos\left(\frac{\pi}{5}\right) + \cos\left(\frac{6\pi}{5}\right) =$ _____			
	A.	0	B.	1
	C.	-1	D.	2
४४.	$\cos\left(\frac{\pi}{5}\right) + \cos\left(\frac{6\pi}{5}\right) =$ _____			
	A.	0	B.	1
	C.	-1	D.	2
45.	If $tan\theta = \frac{3}{4}$ then $tan2\theta =$ _____.			
	A.	$\frac{24}{25}$	B.	$\frac{24}{7}$
	C.	$\frac{12}{7}$	D.	$\frac{12}{25}$

૪૫.	જો $tan\theta = \frac{3}{4}$ હોય તો $tan2\theta =$ _____.			
	A.	$\frac{24}{25}$	B.	$\frac{24}{7}$
	C.	$\frac{12}{7}$	D.	$\frac{12}{25}$
46.	_____ is a unit vector.			
	A.	$i + j$	B.	$sin\theta i + cos\theta j$
	C.	$i - j$	D.	$0i + 0j$
૪૬.	_____ એ એકમ સદિશ છે.			
	A.	$i + j$	B.	$sin\theta i + cos\theta j$
	C.	$i - j$	D.	$0i + 0j$
47.	If $\bar{x} = (5,-1,4), \bar{y} = (-2,1,-3)$ then $\bar{y} + \bar{x} =$ _____			
	A.	$(-3,0,1)$	B.	$(3,0,1)$
	C.	$(-3,0,-1)$	D.	$(3,0,-1)$
૪૭.	જો $\bar{x} = (5,-1,4), \bar{y} = (-2,1,-3)$ હોય તો $\bar{y} + \bar{x} =$ _____			
	A.	$(-3,0,1)$	B.	$(3,0,1)$
	C.	$(-3,0,-1)$	D.	$(3,0,-1)$
48.	$\|2i + 3j - k\| =$ _____			
	A.	$\sqrt{13}$	B.	$\sqrt{6}$
	C.	$\sqrt{14}$	D.	$\sqrt{2}$
૪૮.	$\|2i + 3j - k\| =$ _____			
	A.	$\sqrt{13}$	B.	$\sqrt{6}$
	C.	$\sqrt{14}$	D.	$\sqrt{2}$
49.	If $x(1,1) + y(2,1) = (-1,0)$ then $(x, y) =$ _____			
	A.	$(-1,-1)$	B.	$(1,1)$
	C.	$(1,-1)$	D.	$(-1,1)$
૪૯.	જો $x(1,1) + y(2,1) = (-1,0)$ હોય તો $(x, y) =$ _____			
	A.	$(-1,-1)$	B.	$(1,1)$
	C.	$(1,-1)$	D.	$(-1,1)$
50.	A unit vector along $3i + 4j =$ _____			
	A.	$\frac{3i + 4j}{5}$	B.	$\frac{3i - 4j}{5}$
	C.	$\frac{3i + 4j}{25}$	D.	$\frac{3i - 4j}{25}$
૫૦.	$3i + 4j$ ની દિશામા એકમ સદિશ = _____			
	A.	$\frac{3i + 4j}{5}$	B.	$\frac{3i - 4j}{5}$
	C.	$\frac{3i + 4j}{25}$	D.	$\frac{3i - 4j}{25}$
51.	Direction cosine of vector $(1,-2,2)$ is _____			
	A.	$\frac{1}{3}, -\frac{2}{3}, \frac{2}{3}$	B.	$-\frac{1}{3}, \frac{2}{3}, -\frac{2}{3}$
	C.	$-\frac{1}{3}, -\frac{2}{3}, -\frac{2}{3}$	D.	$\frac{1}{5}, -\frac{2}{5}, \frac{2}{5}$
૫૧.	સદિશ $(1,-2,2)$ ના દિક્કોસાઇનો _____ છે.			

	A.	$\frac{1}{3}, -\frac{2}{3}, \frac{2}{3}$	B.	$-\frac{1}{3}, \frac{2}{3}, -\frac{2}{3}$
	C.	$-\frac{1}{3}, -\frac{2}{3}, -\frac{2}{3}$	D.	$\frac{1}{5}, -\frac{2}{5}, \frac{2}{5}$
52.	If $\bar{x} = (1,2,-4), \bar{y} = (4,-1,3)$ then $\bar{x} - \bar{y} =$ _____			
	A.	$(3,-3,1)$	B.	$(-3,-3,-1)$
	C.	$(-3,3,7)$	D.	$(-3,3,-7)$
૫૨.	જો $\bar{x} = (1,2,-4), \bar{y} = (4,-1,3)$ હોય તો $\bar{x} - \bar{y} =$ _____			
	A.	$(3,-3,1)$	B.	$(-3,-3,-1)$
	C.	$(-3,3,7)$	D.	$(-3,3,-7)$
53.	If vectors $\bar{a}$ and $\bar{b}$ are parallel to each other then $\bar{a} \times \bar{b} =$ _____			
	A.	Unit vector	B.	1
	C.	0	D.	Zero vector
૫૩.	જો સદિશો $\bar{a}$ અને $\bar{b}$ પરસ્પર સમાંતર હોય તો $\bar{a} \times \bar{b} =$ _____			
	A.	એકમ સદિશ	B.	1
	C.	0	D.	શૂન્ય સદિશ
54.	If $\bar{a} = (1,3,-4), \bar{b} = (-6,-2,-3)$ then $\bar{a} \cdot \bar{b} =$ _____			
	A.	12	B.	0
	C.	13	D.	-1
૫૪.	જો $\bar{a} = (1,3,-4), \bar{b} = (-6,-2,-3)$ હોય તો $\bar{a} \cdot \bar{b} =$ _____			
	A.	12	B.	0
	C.	13	D.	-1
55.	If θ is an angle between the vectors $\bar{x}$ and $\bar{y}$ then $\cos\theta =$ _____			
	A.	$\frac{\lvert\bar{x} \times \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$	B.	$\frac{\lvert\bar{x} + \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$
	C.	$\frac{\bar{x} \cdot \bar{y}}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$	D.	$\frac{\lvert\bar{x} - \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$
૫૫.	જો સદિશો $\bar{x}$ અને $\bar{y}$ વચ્ચેનો ખૂણો θ હોય તો $\cos\theta =$ _____			
	A.	$\frac{\lvert\bar{x} \times \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$	B.	$\frac{\lvert\bar{x} + \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$
	C.	$\frac{\bar{x} \cdot \bar{y}}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$	D.	$\frac{\lvert\bar{x} - \bar{y}\rvert}{\lvert\bar{x}\rvert\lvert\bar{y}\rvert}$
56.	_____ is perpendicular to $\bar{a}$ and $\bar{b}$ both.			
	A.	$\bar{a} \times \bar{b}$	B.	$\bar{a} - \bar{b}$
	C.	$\bar{a} \cdot \bar{b}$	D.	$\bar{a} + \bar{b}$
૫૬.	_____ એ $\bar{a}$ અને $\bar{b}$ બંન્નેને લંબ છે.			
	A.	$\bar{a} \times \bar{b}$	B.	$\bar{a} - \bar{b}$
	C.	$\bar{a} \cdot \bar{b}$	D.	$\bar{a} + \bar{b}$
57.	If $(1,a,-5) \cdot (0,5,3) = 0$ then $a =$ _____			
	A.	15	B.	3
	C.	0	D.	5
૫૭.	જો $(1,a,-5) \cdot (0,5,3) = 0$ હોય તો $a =$ _____			
	A.	15	B.	3
	C.	0	D.	5
58.	_____ is not unit vector.			
	A.	$(1,1,1)$	B.	$(-1,0,0)$
	C.	$(0,0,1)$	D.	$(0,1,0)$
૫૮.	_____ એ સદિશ એકમ નથી.			

	A.	$(1,1,1)$	B.	$(-1,0,0)$
	C.	$(0,0,1)$	D.	$(0,1,0)$
59.	If displacement of a particle is $(-1,-2,6)$ under the total force $(3,2,5)$ then the work done will be _____.			
	A.	23	B.	0
	C.	32	D.	30
૫૯.	જો કોઈ કણ પર કુલ બળ $(3,2,5)$ લાગવાથી તેનું સ્થાનાંતર $(-1,-2,6)$ થતું હોય તો કાર્ય _____ થશે.			
	A.	23	B.	0
	C.	32	D.	30
60.	$(-2,1,3) \times (-3,1,-2) =$ _____			
	A.	$(-5,13,-1)$	B.	$(-5,-13,1)$
	C.	$(5,-13,-1)$	D.	$(5,13,-1)$
૬૦.	$(-2,1,3) \times (-3,1,-2) =$ _____			
	A.	$(-5,13,-1)$	B.	$(-5,-13,1)$
	C.	$(5,-13,-1)$	D.	$(5,13,-1)$
61.	Surface area of cylinder = _____			
	A.	πrh	B.	$\pi r^2 h$
	C.	$2\pi r^2 h$	D.	$2\pi rh$
૬૧.	નળાકારની વક્ર સપાટીનું ક્ષેત્રફળ=_____			
	A.	πrh	B.	$\pi r^2 h$
	C.	$2\pi r^2 h$	D.	$2\pi rh$
62.	Volume of sphere of radius $r =$ _____			
	A.	$\frac{4}{3}\pi r^3$	B.	$\frac{2}{3}\pi r^3$
	C.	$2\pi r^2$	D.	$4\pi r^2$
૬૨.	r ત્રિજ્યા વાળા ગોલકનું ઘનફળ=_____			
	A.	$\frac{4}{3}\pi r^3$	B.	$\frac{2}{3}\pi r^3$
	C.	$2\pi r^2$	D.	$4\pi r^2$
63.	Base and altitude of a triangle is 10cm and 6cm. The area of triangle is _____ cm^2			
	A.	60	B.	120
	C.	30	D.	90
૬૩.	ત્રિકોણના પાયા તથા વેધની લંબાઈ 10cm અને 6cm હોય તો ત્રિકોણનું ક્ષેત્રફળ ____.			
	A.	60	B.	120
	C.	30	D.	90
64.	If a circle is made from 10π cm long wire then radius of circle is _____.			
	A.	100	B.	25
	C.	10	D.	5
૬૪.	જો 10π cm લાંબા તારથી વર્તુળ બનાવવામાં આવે તો તે વર્તુળની ત્રિજ્યા ____ થાય.			
	A.	100	B.	25
	C.	10	D.	5
65.	Radius and height of a cone is 6cm and 3cm respectively then Volume = _____			
	A.	49π	B.	36π
	C.	50π	D.	45π
૬૫.	શંકુની ત્રિજ્યા અને ઉંચાઈ અનુક્રમે 6cm અને 3cm હોય તો તેનું ઘનફળ=_____			
	A.	49π	B.	36π
	C.	50π	D.	45π

66.	$1\ m^2 = \_\_\_\_\_ cm^2$			
	A.	100	B.	1000
	C.	10000	D.	10
૬૬.	$1\ m^2 = \_\_\_\_\_ cm^2$			
	A.	100	B.	1000
	C.	10000	D.	10
67.	Area of rectangle having length 300cm and breadth 200cm is _____ m^2.			
	A.	60000	B.	600
	C.	6	D.	60
૬૭.	300cm લંબાઈ અને 200cm પહોળાઈ વાળા લંબચોરસનું ક્ષેત્રફળ _____ m^2 થશે.			
	A.	60000	B.	600
	C.	6	D.	60
68.	Surface area of a cuboid is _____.			
	A.	2(lb+bh+lh)	B.	l+b+h
	C.	lb+bh+lh	D.	lbh
૬૮.	લંબઘનની વક્રસપાટીનું ક્ષેત્રફળ=_____.			
	A.	2(lb+bh+lh)	B.	l+b+h
	C.	lb+bh+lh	D.	lbh
69.	Area of a circle having radius $2\sqrt{2}$ cm is _____.			
	A.	8π	B.	16π
	C.	2π	D.	4π
૬૯.	$2\sqrt{2}$ cm ત્રિજ્યા વાળા વર્તુળનું ક્ષેત્રફળ _____થશે.			
	A.	8π	B.	16π
	C.	2π	D.	4π
70.	Area of square having perimeter $4\sqrt{10}$ cm is _____cm^2.			
	A.	1600	B.	100
	C.	20	D.	10
૭૦.	પરિમિતિ $4\sqrt{10}$ cm હોય તેવા ચોરસનું ક્ષેત્રફળ _____cm^2 થાય.			
	A.	1600	B.	100
	C.	20	D.	10

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