Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code: C300001 **Date: 24-02-2023**

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 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.	$\log_2 1 \cdot \log_3 2 \cdot \log_4 3 . \log_5 4$ = ...			
	A.	4	B.	1/4
	C.	0	D.	1/5
૧.	$\log_2 1 \cdot \log_3 2 \cdot \log_4 3 . \log_5 4$ = ...			
	A.	4	B.	1/4
	C.	0	D.	1/5
2.	$\log(\frac{2}{3}) + \log 9$ = ...			
	A.	6	B.	log6
	C.	log(11/3)	D.	log5
૨.	$\log(\frac{2}{3}) + \log 9$ = ...			
	A.	6	B.	log6
	C.	log(11/3)	D.	log5
3.	$log_{\sqrt{7}} 49$ = ...			
	A.	1/4	B.	4
	C.	1	D.	1/2
૩.	$log_{\sqrt{7}} 49$ = ...			
	A.	1/4	B.	4
	C.	1	D.	1/2
4.	$log64 \div log16$			
	A.	3/2	B.	2/3
	C.	4	D.	log(1/4)
૪.	$log64 \div log16$			
	A.	3/2	B.	2/3
	C.	4	D.	log(1/4)
5.	$9^{\log_3 2}$ = ...			
	A.	4	B.	1
	C.	0	D.	-2
૫.	$9^{\log_3 2}$ = ...			
	A.	4	B.	1
	C.	0	D.	-2
6.	If $\log_{25} m = \frac{1}{2}$ then , m = ...			
	A.	25	B.	625
	C.	5	D.	15
૬.	જો $\log_{25} m = \frac{1}{2}$ હોય તો , m = ...			

	A.	25	B.	625
	C.	5	D.	15
7.	$\log \tan\theta + logcot\theta =$			
	A.	1	B.	logsinθ
	C.	logcosθ	D.	0
૭.	$\log \tan\theta + logcot\theta =$			
	A.	1	B.	logsinθ
	C.	logcosθ	D.	0
8.	$2^{\log_2 5} - 4^{\log_4 2} =$			
	A.	2	B.	3
	C.	4	D.	5
૮.	$2^{\log_2 5} - 4^{\log_4 2} =$			
	A.	2	B.	3
	C.	4	D.	5
9.	log(x+2) + log(x-2) = log21 , then x = ...			
	A.	5	B.	4
	C.	7	D.	2
૯.	log(x+2) + log(x-2) = log21 , હોય તો x = ...			
	A.	5	B.	4
	C.	7	D.	2
10.	$\frac{1}{\log_3 15} + \frac{1}{\log_5 15} =$			
	A.	15	B.	5/3
	C.	1	D.	0
૧૦.	$\frac{1}{\log_3 15} + \frac{1}{\log_5 15} =$			
	A.	15	B.	5/3
	C.	1	D.	0
11.	If $x^m = y^n$ then $\frac{\log y}{\log x} =$			
	A.	m + n	B.	n/m
	C.	m/n	D.	m-n
૧૧.	જો $x^m = y^n$ હોય તો $\frac{\log y}{\log x} =$			
	A.	m + n	B.	n/m
	C.	m/n	D.	m-n
12.	$\sqrt{\log_3 x} = 2$ then , x = ...			
	A.	9	B.	81
	C.	$\sqrt{3}$	D.	6
૧૨.	$\sqrt{\log_3 x} = 2$હોય તો , x = ...થાય.			
	A.	9	B.	81
	C.	$\sqrt{3}$	D.	6
13.	$\begin{vmatrix} 2 & 3 \\ 2 & 5 \end{vmatrix}$ = ...			
	A.	4	B.	-5
	C.	2	D.	5
૧૩.	$\begin{vmatrix} 2 & 3 \\ 2 & 5 \end{vmatrix}$=			
	A.	4	B.	-5
	C.	2	D.	5
14.	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix} + \begin{bmatrix} 1 & -1 \\ 1 & 3 \end{bmatrix}$ = ----------			
	A.	$\begin{bmatrix} 2 & 4 \\ 1 & 7 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & 1 \\ 4 & 7 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 2 \\ 1 & 7 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 2 & -1 \end{bmatrix}$

૧૪.	$\begin{bmatrix}1 & 2\\3 & 4\end{bmatrix}+\begin{bmatrix}1 & -1\\1 & 3\end{bmatrix}$ = ----------			
	A.	$\begin{bmatrix}2 & 4\\1 & 7\end{bmatrix}$	B.	$\begin{bmatrix}2 & 1\\4 & 7\end{bmatrix}$
	C.	$\begin{bmatrix}4 & 2\\1 & 7\end{bmatrix}$	D.	$\begin{bmatrix}0 & 1\\2 & -1\end{bmatrix}$
15.	If $\begin{vmatrix}x & 1\\4 & 2\end{vmatrix}$ = 0, then value of x = ----------			
	A.	0	B.	2
	C.	-2	D.	4
૧૫.	જો $\begin{vmatrix}x & 1\\4 & 2\end{vmatrix}$ = 0, હોય તો x = ----------થાય.			
	A.	0	B.	2
	C.	-2	D.	4
16.	Adj.of $\begin{bmatrix}1 & 2\\3 & -1\end{bmatrix}$ = -------			
	A.	$\begin{bmatrix}1 & 2\\3 & -1\end{bmatrix}$	B.	$\begin{bmatrix}-1 & -2\\-3 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}-1 & 3\\2 & 1\end{bmatrix}$	D.	$\begin{bmatrix}1 & -2\\-3 & -1\end{bmatrix}$
૧૬.	Adj.of $\begin{bmatrix}1 & 2\\3 & -1\end{bmatrix}$ = -------			
	A.	$\begin{bmatrix}1 & 2\\3 & -1\end{bmatrix}$	B.	$\begin{bmatrix}-1 & -2\\-3 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}-1 & 3\\2 & 1\end{bmatrix}$	D.	$\begin{bmatrix}1 & -2\\-3 & -1\end{bmatrix}$
17.	If A = $\begin{bmatrix}2 & 1\\3 & 0\end{bmatrix}$ and B = $\begin{bmatrix}1 & 5\\4 & -3\end{bmatrix}$ then A + 2B = ...			
	A.	$\begin{bmatrix}4 & -11\\11 & -6\end{bmatrix}$	B.	$\begin{bmatrix}4 & -11\\-11 & 6\end{bmatrix}$
	C.	$\begin{bmatrix}4 & -11\\-11 & -6\end{bmatrix}$	D.	$\begin{bmatrix}4 & 11\\11 & -6\end{bmatrix}$
૧૭.	જો A = $\begin{bmatrix}2 & 1\\3 & 0\end{bmatrix}$ અને B = $\begin{bmatrix}1 & 5\\4 & -3\end{bmatrix}$ હોય તો A + 2B = ...			
	A.	$\begin{bmatrix}4 & -11\\11 & -6\end{bmatrix}$	B.	$\begin{bmatrix}4 & -11\\-11 & 6\end{bmatrix}$
	C.	$\begin{bmatrix}4 & -11\\-11 & -6\end{bmatrix}$	D.	$\begin{bmatrix}4 & 11\\11 & -6\end{bmatrix}$
18.	If $A_{3\times2}$ and $B_{2\times3}$ then BA = ...			
	A.	2×2	B.	3×3
	C.	2×3	D.	3×2
૧૮.	જો $A_{3\times2}$ અને $B_{2\times3}$ હોય તો BA = ...			
	A.	2×2	B.	3×3
	C.	2×3	D.	3×2
19.	For matrix A , $A.A^{-1}$ = ...			
	A.	I	B.	A
	C.	A^{-1}	D.	0
૧૯.	ક્ષેત્રિક A માટે , $A.A^{-1}$ = ...			
	A.	I	B.	A
	C.	A^{-1}	D.	0
20.	$\begin{bmatrix}1 & -2\\2 & 3\\2 & -1\end{bmatrix}\begin{bmatrix}1 & 2 & -2\\-1 & 1 & 0\end{bmatrix}$ = ...			
	A.	$\begin{bmatrix}2 & -2 & 2\\-1 & 4 & 0\end{bmatrix}$	B.	$\begin{bmatrix}3 & 0 & -2\\-1 & 7 & -4\\3 & 3 & 4\end{bmatrix}$
	C.	$\begin{bmatrix}1 & 4\\-2 & 4\\3 & -2\end{bmatrix}$	D.	$\begin{bmatrix}1 & 5\\4 & -3\end{bmatrix}$
૨૦.	$\begin{bmatrix}1 & -2\\2 & 3\\2 & -1\end{bmatrix}\begin{bmatrix}1 & 2 & -2\\-1 & 1 & 0\end{bmatrix}$ = ...			

	A.	$\begin{bmatrix} 2 & -2 & 2 \\ -1 & 4 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 0 & -2 \\ -1 & 7 & -4 \\ 3 & 3 & 4 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 4 \\ -2 & 4 \\ 3 & -2 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 5 \\ 4 & -3 \end{bmatrix}$
21.	If A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ then A^2 = ...			
	A.	$\begin{bmatrix} 8 & 5 \\ 5 & -3 \end{bmatrix}$	B.	$\begin{bmatrix} 9 & 1 \\ 1 & 4 \end{bmatrix}$
	C.	$\begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} -8 & 5 \\ 5 & -3 \end{bmatrix}$
૨૧.	જો A = $\begin{bmatrix} 3 & 1 \\ -1 & 2 \end{bmatrix}$ હોય તો A^2 = ...			
	A.	$\begin{bmatrix} 8 & 5 \\ 5 & -3 \end{bmatrix}$	B.	$\begin{bmatrix} 9 & 1 \\ 1 & 4 \end{bmatrix}$
	C.	$\begin{bmatrix} 8 & 5 \\ -5 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} -8 & 5 \\ 5 & -3 \end{bmatrix}$
22.	$\begin{vmatrix} 2 & 3 \\ 1 & 4x \end{vmatrix} = \begin{vmatrix} 2x & -1 \\ 5 & x \end{vmatrix}$ then x = ...			
	A.	-4	B.	3
	C.	2	D.	5
૨૨.	$\begin{vmatrix} 2 & 3 \\ 1 & 4x \end{vmatrix} = \begin{vmatrix} 2x & -1 \\ 5 & x \end{vmatrix}$ હોય તો x = ...			
	A.	-4	B.	3
	C.	2	D.	5
23.	If A = $\begin{bmatrix} 3 & -2 \\ 2 & 4 \\ -3 & 1 \end{bmatrix}$ then A^T = ...			
	A.	$\begin{bmatrix} -3 & 2 \\ -2 & -4 \\ 3 & -1 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 2 & -3 \\ -2 & 4 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & -2 \\ 2 & 4 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -2 & 4 & 0 \\ 3 & 2 & -3 \end{bmatrix}$
૨૩.	A = $\begin{bmatrix} 3 & -2 \\ 2 & 4 \\ -3 & 1 \end{bmatrix}$ હોય તો A^T = ...			
	A.	$\begin{bmatrix} -3 & 2 \\ -2 & -4 \\ 3 & -1 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 2 & -3 \\ -2 & 4 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & -2 \\ 2 & 4 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -2 & 4 & 0 \\ 3 & 2 & -3 \end{bmatrix}$
24.	If A = $\begin{bmatrix} -7 & 6 \\ 5 & -2 \end{bmatrix}$ then A.I = ...			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & -6 \\ -5 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} -2 & 6 \\ 5 & -7 \end{bmatrix}$	D.	$\begin{bmatrix} -7 & 6 \\ 5 & -2 \end{bmatrix}$
૨૪.	જો A = $\begin{bmatrix} -7 & 6 \\ 5 & -2 \end{bmatrix}$ હોય તો A.I = ...			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & -6 \\ -5 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} -2 & 6 \\ 5 & -7 \end{bmatrix}$	D.	$\begin{bmatrix} -7 & 6 \\ 5 & -2 \end{bmatrix}$
25.	$\begin{vmatrix} 1 & \log_n m \\ \log_m n & 1 \end{vmatrix}$ = ...			
	A.	1	B.	0
	C.	log (m/n)	D.	none

૨૫.	$\begin{vmatrix} 1 & \log_n m \\ \log_m n & 1 \end{vmatrix}$ = ...			
	A.	1	B.	O
	C.	log (m/n)	D.	none
26.	A = $\begin{bmatrix} 1 & 4 \\ 3 & -2 \end{bmatrix}$ then , 2A – 3I = ...			
	A.	$\begin{bmatrix} 1 & 8 \\ 6 & -4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 8 \\ 6 & 7 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 8 \\ 6 & -7 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & -8 \\ -6 & 7 \end{bmatrix}$
૨૬.	A = $\begin{bmatrix} 1 & 4 \\ 3 & -2 \end{bmatrix}$ હોય તો 2A – 3I = ...			
	A.	$\begin{bmatrix} 1 & 8 \\ 6 & -4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 8 \\ 6 & 7 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 8 \\ 6 & -7 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & -8 \\ -6 & 7 \end{bmatrix}$
27.	$\begin{vmatrix} x & -5 \\ y & 5 \end{vmatrix}$ = 20 then x + y = ...			
	A.	4	B.	-4
	C.	-5	D.	5
૨૭.	$\begin{vmatrix} x & -5 \\ y & 5 \end{vmatrix}$ = 20 હોય તો x + y = ...			
	A.	4	B.	-4
	C.	-5	D.	5
28.	$\begin{bmatrix} 3 & -3 & 4 \\ 2 & 5 & 2 \\ -1 & 0 & 3 \end{bmatrix}$ then the cofactor of 5 is			
	A.	13	B.	-5
	C.	-13	D.	5
૨૮.	$\begin{bmatrix} 3 & -3 & 4 \\ 2 & 5 & 2 \\ -1 & 0 & 3 \end{bmatrix}$ માં 5નો સહઅવયવ .....થાય.			
	A.	13	B.	-5
	C.	-13	D.	5
29.	If A = $\begin{bmatrix} 1 & 2 \\ 3 & 5 \end{bmatrix}$ then A^{-1} = ...			
	A.	$\begin{bmatrix} 5 & -2 \\ -3 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} -5 & 2 \\ 3 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 3 \\ 2 & -5 \end{bmatrix}$	D.	Not possible.
૨૯.	A = $\begin{bmatrix} 1 & 2 \\ 3 & 5 \end{bmatrix}$ હોય તો A^{-1} = ...			
	A.	$\begin{bmatrix} 5 & -2 \\ -3 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} -5 & 2 \\ 3 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & 3 \\ 2 & -5 \end{bmatrix}$	D.	શકય નથી.
30.	For matrix A if A^{-1} exist then A. A^{-1} = ...			
	A.	A	B.	I
	C.	A^{-1}	D.	A^T
૩૦.	જો શ્રેણિકA માટે A^{-1} શકય હોય તો A. A^{-1} = ...			
	A.	A	B.	I
	C.	A^{-1}	D.	A^T
31.	cosec(2π + θ) = ...			
	A.	cosecθ	B.	-cosecθ
	C.	secθ	D.	- secθ
૩૧.	cosec(2π + θ) = ...			
	A.	cosecθ	B.	-cosecθ
	C.	secθ	D.	- secθ
32.	$1 + \tan^2 A$ = ...			

	A.	$\tan^2 A$	B.	$\cot^2 A$
	C.	$\sec^2 A$	D.	$\operatorname{cosec}^2 A$
૩૨.	$1 + \tan^2 A$ = ...			
	A.	$\tan^2 A$	B.	$\cot^2 A$
	C.	$\sec^2 A$	D.	$\operatorname{cosec}^2 A$
33.	240 ° = ...radian.			
	A.	$\frac{3\pi}{4}$	B.	$\frac{4\pi}{3}$
	C.	$\frac{2\pi}{3}$	D.	$\frac{\pi}{2}$
૩૩.	240 ° = ...radian.			
	A.	$\frac{3\pi}{4}$	B.	$\frac{4\pi}{3}$
	C.	$\frac{2\pi}{3}$	D.	$\frac{\pi}{2}$
34.	$\sin^{-1} x + \cos^{-1} x$ = ...			
	A.	$\frac{\pi}{3}$	B.	1
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
૩૪.	$\sin^{-1} x + \cos^{-1} x$ = ...			
	A.	$\frac{\pi}{3}$	B.	1
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
35.	$\sin(A + B) .\sin(A - B)$ = ...			
	A.	$\sin^2 A - \cos^2 B$	B.	$\sin^2 A - \sin^2 B$
	C.	$\cos^2 A - \cos^2 B$	D.	$\cos^2 A - \sin^2 B$
૩૫.	$\sin(A + B) .\sin(A - B)$ = ...			
	A.	$\sin^2 A - \cos^2 B$	B.	$\sin^2 A - \sin^2 B$
	C.	$\cos^2 A - \cos^2 B$	D.	$\cos^2 A - \sin^2 B$
36.	If $\tan\alpha$ = ½ and $\tan\beta$ = 1/3 then , $\tan(\alpha + \beta)$ = ...			
	A.	1	B.	$\frac{1}{\sqrt{2}}$
	C.	$\frac{\sqrt{3}}{2}$	D.	0
૩૬.	જો $\tan\alpha$ = ½ અને $\tan\beta$ = 1/3હોય તો , $\tan(\alpha + \beta)$ = ...			
	A.	1	B.	$\frac{1}{\sqrt{2}}$
	C.	$\frac{\sqrt{3}}{2}$	D.	0
37.	For ΔPQR $\sin(Q + R)$ = ...			
	A.	sinP	B.	- sinP
	C.	-cosP	D.	cosP
૩૭.	ΔPQR માટે $\sin(Q + R)$ = ...થાય.			
	A.	sinP	B.	- sinP
	C.	-cosP	D.	cosP
38.	$\sin40° + \sin20°$ = ...			
	A.	$\sqrt{2}\sin10°$	B.	cos10°
	C.	-2cos20°	D.	$\sqrt{3}\sin10°$
૩૮.	$\sin40° + \sin20°$ = ...			
	A.	$\sqrt{2}\sin10°$	B.	cos10°
	C.	-2cos20°	D.	$\sqrt{3}\sin10°$
39.	If $\sec\theta$ = 3/2 then $\tan\theta$ = ... ($0< \theta < \frac{\pi}{2}$)			
	A.	$\frac{\sqrt{13}}{2}$	B.	$\frac{2\sqrt{13}}{3}$
	C.	$\frac{9}{4}$	D.	$\frac{\sqrt{5}}{2}$
૩૯.	જો $\sec\theta$ = 3/2 હોય તો $\tan\theta$ = ... ($0< \theta < \frac{\pi}{2}$)			

	A.	$\frac{\sqrt{13}}{2}$	B.	$\frac{2\sqrt{13}}{3}$
	C.	$\frac{9}{4}$	D.	$\frac{\sqrt{5}}{2}$
40.	$\sin3\alpha$ = ...			
	A.	$4\sin^3\alpha - 3\sin\alpha$	B.	$3\cos\alpha - 4\cos^3\alpha$
	C.	$4\sin\alpha - 3\sin^3\alpha$	D.	$3\sin\alpha - 4\sin^3\alpha$
૪૦.	$\sin3\alpha$ = ...			
	A.	$4\sin^3\alpha - 3\sin\alpha$	B.	$3\cos\alpha - 4\cos^3\alpha$
	C.	$4\sin\alpha - 3\sin^3\alpha$	D.	$3\sin\alpha - 4\sin^3\alpha$
41.	Periods of function $\tan(2x + 7)$ is			
	A.	2π	B.	$\frac{\pi}{2}$
	C.	π	D.	$\frac{2\pi}{7}$
૪૧.	વિધેય $\tan(2x + 7)$ નું આવર્તમાન ..... થાય.			
	A.	2π	B.	$\frac{\pi}{2}$
	C.	π	D.	$\frac{2\pi}{7}$
42.	$\sin^2 39° + \cos^2 39°$ = ...			
	A.	1	B.	39°
	C.	2π	D.	Not possible.
૪૨.	$\sin^2 39° + \cos^2 39°$ = ...			
	A.	1	B.	39°
	C.	2π	D.	શક્ય નથી.
43.	$\sin2\theta$ = ...			
	A.	$2\sin\theta$	B.	$2\sin\theta\cos\theta$
	C.	$\sin^2\theta - \cos^2\theta$	D.	$\cos^2\theta - \sin^2\theta$
૪૩.	$\sin2\theta$ = ...			
	A.	$2\sin\theta$	B.	$2\sin\theta\cos\theta$
	C.	$\sin^2\theta - \cos^2\theta$	D.	$\cos^2\theta - \sin^2\theta$
44.	$\frac{3\pi}{4}$ radian = ...°			
	A.	270	B.	135
	C.	720	D.	153
૪૪.	$\frac{3\pi}{4}$ radian = ...°			
	A.	270	B.	135
	C.	720	D.	153
45.	$\sin\frac{\pi}{6}\sin\frac{\pi}{3}\sin\frac{\pi}{2}\sin\frac{\pi}{4}$ = ...			
	A.	$\frac{\sqrt{6}}{4}$	B.	$\frac{\sqrt{6}}{8}$
	C.	$\frac{\sqrt{3}}{4}$	D.	$\frac{\sqrt{3}}{8}$
૪૫.	$\sin\frac{\pi}{6}\sin\frac{\pi}{3}\sin\frac{\pi}{2}\sin\frac{\pi}{4}$ = ...			
	A.	$\frac{\sqrt{6}}{4}$	B.	$\frac{\sqrt{6}}{8}$
	C.	$\frac{\sqrt{3}}{4}$	D.	$\frac{\sqrt{3}}{8}$
46.	$\sin28.\cos17 + \cos28 . \sin17$ = ...			
	A.	$\frac{1}{2}$	B.	1
	C.	$\frac{\sqrt{3}}{2}$	D.	$\frac{1}{\sqrt{2}}$
૪૬.	$\sin28.\cos17 + \cos28 . \sin17$ = ...			
	A.	$\frac{1}{2}$	B.	1
	C.	$\frac{\sqrt{3}}{2}$	D.	$\frac{1}{\sqrt{2}}$
47.	$\sin^{-1}(sin\frac{5\pi}{6})$ = ...			

	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{5}$
	C.	$\frac{\pi}{6}$	D.	$\frac{5\pi}{3}$
૪૭.	$\sin^{-1}(sin\frac{5\pi}{6})$ = ...			
	A.	$\frac{\pi}{3}$	B.	$\frac{\pi}{5}$
	C.	$\frac{\pi}{6}$	D.	$\frac{5\pi}{3}$
48.	$\sec^{-1}(-\sqrt{2})$ = ...			
	A.	$\frac{3\pi}{4}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$-\frac{\pi}{4}$
૪૮.	$\sec^{-1}(-\sqrt{2})$ = ...			
	A.	$\frac{3\pi}{4}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{4}$	D.	$-\frac{\pi}{4}$
49.	..... is a unit vector.			
	A.	(1,1)	B.	(-1,1)
	C.	(cosθ ,sinθ)	D.	(2cosθ, sinθ)
૪૯.	અહી ..... એકમ સદીશ થાય.			
	A.	(1,1)	B.	(-1,1)
	C.	(cosθ ,sinθ)	D.	(2cosθ, sinθ)
50.	If $\bar{a}$ = 2i-j-2k then $\|\bar{a}\|$ = ...			
	A.	3	B.	-1
	C.	5	D.	1
૫૦.	જો $\bar{a}$ = 2i-j-2k હોય તો $\|\bar{a}\|$ = ...			
	A.	3	B.	-1
	C.	5	D.	1
51.	If $\bar{a}\ and\ \bar{b}$ are perpendicular with each other then			
	A.	$\bar{a}.\bar{b}$ = 1	B.	$\bar{a}.\bar{b}$ = 0
	C.	$\bar{a} \times \bar{b}$ = 1	D.	$\|\bar{a}\| = \|\bar{b}\|$
૫૧.	$\bar{a}$ અને $\bar{b}$ પરસ્પરલંબ હોય તો			
	A.	$\bar{a}.\bar{b}$ = 1	B.	$\bar{a}.\bar{b}$ = 0
	C.	$\bar{a} \times \bar{b}$ = 1	D.	$\|\bar{a}\| = \|\bar{b}\|$
52.	If $\bar{x} = (1,2,-1) and\ \bar{y} = (2,-1,2) then\ \bar{x}.\bar{y}$ = ...			
	A.	0	B.	2
	C.	-2	D.	6
૫૨.	જો $\bar{x} = (1,2,-1)$ અને $\bar{y} = (2,-1,2)$ હોય તો $\bar{x}.\bar{y}$ = ...			
	A.	0	B.	2
	C.	-2	D.	6
53.	Angle between the vector (1,-1,0) and (1,0,1)			
	A.	$\frac{\pi}{6}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{2}$	D.	None of above
૫૩.	સદીશો (1,-1,0) અને (1,0,1) વચ્ચેનો ખૂણો=.....થાય.			
	A.	$\frac{\pi}{6}$	B.	$\frac{\pi}{3}$
	C.	$\frac{\pi}{2}$	D.	None of above
54.	If l , m, and n are directional cosine then $l^2 + m^2 + n^2$ = …….			
	A.	2	B.	0
	C.	1	D.	-1
૫૪.	જો l , m અને n એ દિક્ કોસાઈન હોય તો $l^2 + m^2 + n^2$ = …….			
	A.	2	B.	0
	C.	1	D.	-1

55.	Force acting on the particle F and the displacement of the partical is d then workdone W= ……			
	A.	F× d	B.	d×F
	C.	F.d	D.	None of above
૫૫.	એક બિંદુ પર લાગુ પાડવામાં આવેલ બળ F હોય તથા તેના લીધે થયેલ સ્થાનાંતરજો d હોય તો થયેલ કાર્ય = ...			
	A.	F× d	B.	d×F
	C.	F.d	D.	None of above
56.	$\|2i - 4j - 4k\|$ = ……..			
	A.	-4	B.	4
	C.	-6	D.	6
૫૬.	$\|2i - 4j - 4k\|$ = ……..			
	A.	-4	B.	4
	C.	-6	D.	6
57.	If $\bar{x} = 3\bar{y}$ then $\bar{x} \times \bar{y}$ = ……			
	A.	$3\|\bar{y}\|^2$	B.	0
	C.	$3\|\bar{x}\|^2$	D.	$\frac{1}{3}\|\bar{y}\|^2$
૫૭.	જો $\bar{x} = 3\bar{y}$ હોય તો $\bar{x} \times \bar{y}$ = ……			
	A.	$3\|\bar{y}\|^2$	B.	0
	C.	$3\|\bar{x}\|^2$	D.	$\frac{1}{3}\|\bar{y}\|^2$
58.	$\bar{x}$ = (a,4,2a) and $\bar{y}$ = (2a,-1,a) are perpendicular with each other then a = ……			
	A.	4	B.	2
	C.	0	D.	1
૫૮.	$\bar{x}$ = (a,4,2a) અને $\bar{y}$ = (2a,-1,a) પરસ્પરલંબ હોય તો a = …… મળે.			
	A.	4	B.	2
	C.	0	D.	1
59.	If $\|m\| = 3, and\ \|\bar{n}\|$ = 4 also $\|\bar{m} + \bar{n}\|$ = 5 then $\|\bar{m} - \bar{n}\|$ = ……			
	A.	6	B.	4
	C.	3	D.	5
૫૯.	જો $\|m\| = 3,$ અને $\|\bar{n}\|$ = 4 તથા $\|\bar{m} + \bar{n}\|$ = 5 હોય તો $\|\bar{m} - \bar{n}\|$ = ……			
	A.	6	B.	4
	C.	3	D.	5
60.	If $\bar{x}$ = (1,2,3) and $\bar{y}$ = (-1,3,5) then $\bar{x} \times \bar{y}$ = ...			
	A.	(1,-8,-5)	B.	(-1,8,-5)
	C.	(1,-8,5)	D.	(-1,-8,5)
૬૦.	જો $\bar{x}$ = (1,2,3) અને $\bar{y}$ = (-1,3,5) તો $\bar{x} \times \bar{y}$ = ...			
	A.	(1,-8,-5)	B.	(-1,8,-5)
	C.	(1,-8,5)	D.	(-1,-8,5)
61.	Forces (1,2,3) and (-1,-2,-1) are acting on a point whose displacement is (1,1,2) from origin then total work done is .....unit.			
	A.	4	B.	3
	C.	2	D.	5
૬૧.	બળો (1,2,3) અને (-1,-2,-1) ની અસર હેઠળ કોઈ પદાર્થનું સ્થાનાંતર (1,1,2) થતુ હોય તો થયેલ કુલ કાર્ય = ...એકમ.			
	A.	4	B.	3
	C.	2	D.	5
62.	Area of equilateral triangle having side 6 cm is .....cm^2			
	A.	$9\sqrt{3}$	B.	$6\sqrt{3}$
	C.	$12\sqrt{3}$	D.	$4\sqrt{3}$
૬૨.	6 cm બાજુ ધરાવતા સમબાજુ ત્રિકોણ નું ક્ષેત્રફળ = ...cm^2			
	A.	$9\sqrt{3}$	B.	$6\sqrt{3}$

	C.	$12\sqrt{3}$	D.	$4\sqrt{3}$
63.	If the diagonal of a square is 12 cm ,then its area = ...cm^2			
	A.	36	B.	48
	C.	72	D.	96
૬૩.	જો કોઈ ચોરસના વિકર્ણ નું માપ 12 cm હોય તો તેનું ક્ષેત્રફળ =..... cm^2			
	A.	36	B.	48
	C.	72	D.	96
64.	The total surface area of a cylinder having closed at bottom is			
	A.	$2\pi rh$	B.	$2\pi rh + \pi r^2$
	C.	$2\pi rh$ +2 πr^2	D.	πr^2h
૬૪.	બંધ તળીયા વાળા નળાકાર ની વક્રસપાટીનું ક્ષેત્રફળ .... થાય.			
	A.	$2\pi rh$	B.	$2\pi rh + \pi r^2$
	C.	$2\pi rh$ +2 πr^2	D.	πr^2h
65.	Ratio of two radius of two sphere is 2:3, then the ratio of their area of curved surface is			
	A.	8:27	B.	1:5
	C.	4:9	D.	9:4
૬૫.	બે ગોળાઓની ત્રિજ્યા નો ગુણોત્તર 2:3 હોય તો તેમની વક્રસપાટીના ક્ષેત્રફળનો ગુણોત્તર = ...			
	A.	8:27	B.	1:5
	C.	4:9	D.	9:4
66.	Radius and height of cone are 7cm and 3cm respectively , then it`s volume is .....cm^3			
	A.	77	B.	154
	C.	308	D.	42
૬૬.	7cm ત્રિજ્યા અને 3cm ઊંચાઈ ધરવતા શંકુ નુ ઘનફળ ,.....cm^3 થાય.			
	A.	77	B.	154
	C.	308	D.	42
67.	Capacity of water can be filled in cuboid tank having length 3m breadth 2m and height 1.5 m is .....ltr.			
	A.	90	B.	9
	C.	900	D.	9000
૬૭.	3m લંબાઈ, 2m પહોળાઈ અને 1.5 m ઊંચાઈ ધરાવતી લંબઘન ટાંકિ મા ..... ltr પાણી સમાય.			
	A.	90	B.	9
	C.	900	D.	9000
68.	..... numbers of balls of radius 0.3 cm can be made by a metal cylinder having radius 9cm and height 20cm .			
	A.	45000	B.	54000
	C.	5400	D.	4500
૬૮.	9cm ત્રિજ્યા અને 20cm ઊંચાઈ ધરાવતા નળાકાર માથી 0.3 cm ત્રિજ્યા ધરાવતા ..... ગોળા બને. .			
	A.	45000	B.	54000
	C.	5400	D.	4500
69.	The formula of surface area of a cuboid is			
	A.	2(lb + bh + hl)	B.	(lb + bh + hl)
	C.	lbh	D.	l+b+h
૬૯.	લંબઘન ની વક્રસપાટી નું ક્ષેત્રફળ			
	A.	2(lb + bh + hl)	B.	(lb + bh + hl)
	C.	lbh	D.	l+b+h
70.	Height and radius of a cone are equal. if its volume is $9cm^3$ then its height is .....cm.			
	A.	9	B.	3
	C.	1	D.	27
૭૦.	એક શંકુ ની ત્રિજ્યા અને ઊંચાઈ સમાન છે.જો તેનું ઘનફળ $9cm^3$ હોય તો તેની ઉંચાઈ = ...			
	A.	9	B.	3
	C.	1	D.	27