

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering – SEMESTER – 2 (CtoD) – EXAMINATION – Summer-2026****Subject Code: C4320002****Date: 19-06-2026****Subject Name: Engineering Mathematics****Time: 10:30 AM TO 12:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary
3. Each question is of 1 mark.
4. Use of simple calculators and non-programmable scientific calculators are permitted.
5. English version is authentic.
6. There is No negative marking.
7. Use only OMR to answer this question paper.

No.	Question Text and Option. પૂશ્ચ અને વિકલ્પો.
1.	If $\begin{bmatrix} x-y & 2 \\ -3 & x+y \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ -3 & 16 \end{bmatrix}$ then value of x = _____ and y = _____
	A. -6 and -10 B. 16 and 4
	C. 10 and 6 D. -10 and 6
૧.	જો $\begin{bmatrix} x-y & 2 \\ -3 & x+y \end{bmatrix} = \begin{bmatrix} 4 & 2 \\ -3 & 16 \end{bmatrix}$ હોય તો x = _____ અને y = _____
	A. -6 અને -10 B. 16 અને 4
	C. 10 અને 6 D. -10 અને 6
2.	Order of matrix $\begin{bmatrix} 1 & 2 & 0 \\ -1 & -3 & 5 \end{bmatrix}$ is = _____
	A. 2X3 B. 3X3
	C. 2X2 D. 3X2
૨.	શ્રેણિક $\begin{bmatrix} 1 & 2 & 0 \\ -1 & -3 & 5 \end{bmatrix}$ ની કક્ષા = _____
	A. 2X3 B. 3X3
	C. 2X2 D. 3X2
3.	If $A = \begin{bmatrix} 1 & 4 \\ 3 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 0 \\ 1 & 2 \end{bmatrix}$ then $2A + 3B =$ _____
	A. $\begin{bmatrix} 8 & 4 \\ 4 & 2 \end{bmatrix}$ B. $\begin{bmatrix} 8 & 8 \\ 9 & 0 \end{bmatrix}$
	C. $\begin{bmatrix} 8 & 8 \\ 9 & 2 \end{bmatrix}$ D. $\begin{bmatrix} 3 & 4 \\ 4 & 0 \end{bmatrix}$
૩.	જો $A = \begin{bmatrix} 1 & 4 \\ 3 & -2 \end{bmatrix}$ અને $B = \begin{bmatrix} 2 & 0 \\ 1 & 2 \end{bmatrix}$ હોય તો $2A + 3B =$ _____
	A. $\begin{bmatrix} 8 & 4 \\ 4 & 2 \end{bmatrix}$ B. $\begin{bmatrix} 8 & 8 \\ 9 & 0 \end{bmatrix}$
	C. $\begin{bmatrix} 8 & 8 \\ 9 & 2 \end{bmatrix}$ D. $\begin{bmatrix} 3 & 4 \\ 4 & 0 \end{bmatrix}$
4.	If $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \\ 2 & 1 \end{bmatrix}$ then $A^T =$ _____
	A. $\begin{bmatrix} 1 & 0 & 2 \\ 2 & 1 & 1 \end{bmatrix}$ B. $\begin{bmatrix} 2 & 1 & 1 \\ 1 & 0 & 2 \end{bmatrix}$
	C. $\begin{bmatrix} 1 & 1 & 2 \\ 2 & 0 & 1 \end{bmatrix}$ D. $\begin{bmatrix} 2 & 0 & 1 \\ 1 & 1 & 2 \end{bmatrix}$

૪.	જો $A = \begin{bmatrix} 1 & 2 \\ 0 & 1 \\ 2 & 1 \end{bmatrix}$ હોય તો $A^T =$ _____			
A.	$\begin{bmatrix} 1 & 0 & 2 \\ 2 & 1 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & 1 & 1 \\ 1 & 0 & 2 \end{bmatrix}$	
C.	$\begin{bmatrix} 1 & 1 & 2 \\ 2 & 0 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 0 & 1 \\ 1 & 1 & 2 \end{bmatrix}$	
5.	If $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ then $ A =$ _____			
A.	0	B.	1	
C.	-1	D.	$\cos^2\theta - \sin^2\theta$	
૫.	જો $A = \begin{bmatrix} \cos\theta & \sin\theta \\ -\sin\theta & \cos\theta \end{bmatrix}$ હોય તો $ A =$ _____			
A.	0	B.	1	
C.	-1	D.	$\cos^2\theta - \sin^2\theta$	
6.	Order of matrix A is 3X2 and order of matrix B is 2X4 then order of matrix AB = _____			
A.	3X4	B.	4X3	
C.	3X3	D.	2X2	
૬.	જો શ્રેણિક A ની કક્ષા 3X2 અને શ્રેણિક B ની કક્ષા 2X4 હોય તો શ્રેણિક AB ની કક્ષા = _____			
A.	3X4	B.	4X3	
C.	3X3	D.	2X2	
7.	If $A = [2 \ 0 \ 5]$ and $B = \begin{bmatrix} -1 \\ 4 \\ 3 \end{bmatrix}$ then $AB =$ _____			
A.	$\begin{bmatrix} -2 & 0 & 15 \\ 8 & 0 & 20 \\ -5 & 0 & 15 \end{bmatrix}$	B.	[0]	
C.	[13]	D.	[-13]	
૭.	જો $A = [2 \ 0 \ 5]$ અને $B = \begin{bmatrix} -1 \\ 4 \\ 3 \end{bmatrix}$ હોય તો $AB =$ _____			
A.	$\begin{bmatrix} -2 & 0 & 15 \\ 8 & 0 & 20 \\ -5 & 0 & 15 \end{bmatrix}$	B.	[0]	
C.	[13]	D.	[-13]	
8.	Matrix $3I_2 =$ _____			
A.	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$	
C.	$\begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 0 & 3 \\ 0 & 3 & 0 \\ 3 & 0 & 0 \end{bmatrix}$	
૮.	શ્રેણિક $3I_2 =$ _____			
A.	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{bmatrix}$	
C.	$\begin{bmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 0 & 3 \\ 0 & 3 & 0 \\ 3 & 0 & 0 \end{bmatrix}$	
9.	If $A = \begin{bmatrix} 1 & -2 \\ 3 & 4 \end{bmatrix}$ then $\text{adj} \cdot A =$ _____			
A.	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 4 & -2 \\ 3 & 1 \end{bmatrix}$	
C.	$\begin{bmatrix} -1 & -2 \\ 3 & -4 \end{bmatrix}$	D.	$\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$	
૯.	જો $A = \begin{bmatrix} 1 & -2 \\ 3 & 4 \end{bmatrix}$ હોય તો $\text{adj} \cdot A =$ _____			

	A. $\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	B. $\begin{bmatrix} 4 & -2 \\ 3 & 1 \end{bmatrix}$
	C. $\begin{bmatrix} -1 & -2 \\ 3 & -4 \end{bmatrix}$	D. $\begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix}$
10.	If $A = \begin{bmatrix} 8 & -4 \\ 6 & -3 \end{bmatrix}$ then inverse of A = _____	
	A. $\begin{bmatrix} 3 & 4 \\ -6 & -8 \end{bmatrix}$	B. $\begin{bmatrix} -8 & -4 \\ 6 & 3 \end{bmatrix}$
	C. $\begin{bmatrix} 3 & -4 \\ -6 & -8 \end{bmatrix}$	D. not possible
૧૦.	જો $A = \begin{bmatrix} 8 & -4 \\ 6 & -3 \end{bmatrix}$ હોય તો A નો વ્યસ્ત શ્રેણિક = _____	
	A. $\begin{bmatrix} 3 & 4 \\ -6 & -8 \end{bmatrix}$	B. $\begin{bmatrix} -8 & -4 \\ 6 & 3 \end{bmatrix}$
	C. $\begin{bmatrix} 3 & -4 \\ -6 & -8 \end{bmatrix}$	D. શક્ય નથી.
11.	For $A = \begin{bmatrix} 3x & 6 \\ 3 & 1 \end{bmatrix}$, if $ A = 9$ then value of $x =$ _____	
	A. 9	B. -9
	C. 3	D. -3
૧૧.	$A = \begin{bmatrix} 3x & 6 \\ 3 & 1 \end{bmatrix}$ માટે, જો $ A = 9$ હોયતો, x ની કિમત = _____	
	A. 9	B. -9
	C. 3	D. -3
12.	If A is non-singular matrix then	
	A. $A = A^T$	B. $A^T = -A$
	C. $ A = 0$	D. $ A \neq 0$
૧૨.	જો A એ અસામાન્ય શ્રેણિક હોય તો, _____	
	A. $A = A^T$	B. $A^T = -A$
	C. $ A = 0$	D. $ A \neq 0$
13.	If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then $A^2 =$ _____	
	A. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B. $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$
	C. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D. $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$
૧૩.	જો $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ હોય તો, $A^2 =$ _____	
	A. $\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B. $\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$
	C. $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D. $\begin{bmatrix} 0 & 1 \\ 0 & 1 \end{bmatrix}$
14.	$\begin{bmatrix} 1 & -2 \\ 3 & 4 \\ 1 & -2 \end{bmatrix} - \begin{bmatrix} 5 & 6 \\ 7 & 8 \\ 5 & 6 \end{bmatrix} =$ _____	
	A. $\begin{bmatrix} 6 & 8 \\ 10 & 12 \\ 6 & 8 \end{bmatrix}$	B. $\begin{bmatrix} -4 & -8 \\ -4 & -4 \\ -4 & -8 \end{bmatrix}$
	C. $\begin{bmatrix} 4 & 8 \\ 4 & 4 \\ 4 & 8 \end{bmatrix}$	D. None of these
૧૪.	$\begin{bmatrix} 1 & -2 \\ 3 & 4 \\ 1 & -2 \end{bmatrix} - \begin{bmatrix} 5 & 6 \\ 7 & 8 \\ 5 & 6 \end{bmatrix} =$ _____	
	A. $\begin{bmatrix} 6 & 8 \\ 10 & 12 \\ 6 & 8 \end{bmatrix}$	B. $\begin{bmatrix} -4 & -8 \\ -4 & -4 \\ -4 & -8 \end{bmatrix}$
	C. $\begin{bmatrix} 4 & 8 \\ 4 & 4 \\ 4 & 8 \end{bmatrix}$	D. એકપણ નહિ

15.	If $A = \begin{bmatrix} -2 & 3 \\ 1 & 4 \end{bmatrix}$ then determinant of matrix A = _____			
	A.	5	B.	-5
	C.	11	D.	-11
૧૫.	જો $A = \begin{bmatrix} -2 & 3 \\ 1 & 4 \end{bmatrix}$ હોયતો, શ્રેણિક A નો નિશ્ચાયક = _____			
	A.	5	B.	-5
	C.	11	D.	-11
16.	If $\begin{bmatrix} 1 & 1 \\ 2 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 4 \end{bmatrix}$ then $(x, y) =$ _____			
	A.	(-2, 1)	B.	(2, -1)
	C.	(-1, -2)	D.	(1, -2)
૧૬.	જો $\begin{bmatrix} 1 & 1 \\ 2 & -1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 4 \end{bmatrix}$ હોયતો $(x, y) =$ _____			
	A.	(-2, 1)	B.	(2, -1)
	C.	(-1, -2)	D.	(1, -2)
17.	$\frac{d}{dx}(3x^2 - 2x + 1) =$ _____			
	A.	$6x + 2$	B.	$6x - 2$
	C.	$3x - 2$	D.	$3x + 2$
૧૭.	$\frac{d}{dx}(3x^2 - 2x + 1) =$ _____			
	A.	$6x + 2$	B.	$6x - 2$
	C.	$3x - 2$	D.	$3x + 2$
18.	$\frac{d}{dx}(5^x) =$ _____			
	A.	x^5	B.	5^x
	C.	$5^x \log_e 5$	D.	$x5^{x-1}$
૧૮.	$\frac{d}{dx}(5^x) =$ _____			
	A.	x^5	B.	5^x
	C.	$5^x \log_e 5$	D.	$x5^{x-1}$
19.	If $y = e^x \sin x$ then $\frac{dy}{dx} =$ _____			
	A.	$e^x(-\sin x - \cos x)$	B.	$e^x(-\sin x + \cos x)$
	C.	$e^x(\sin x - \cos x)$	D.	$e^x(\sin x + \cos x)$
૧૯.	If $y = e^x \sin x$ then $\frac{dy}{dx} =$ _____			
	A.	$e^x(-\sin x - \cos x)$	B.	$e^x(-\sin x + \cos x)$
	C.	$e^x(\sin x - \cos x)$	D.	$e^x(\sin x + \cos x)$
20.	If $f(x) = \frac{\log x}{x}$ then, $f'(1) =$ _____			
	A.	-1	B.	0
	C.	1	D.	2
૨૦.	જો $f(x) = \frac{\log x}{x}$ હોય તો, $f'(1) =$ _____			
	A.	-1	B.	0
	C.	1	D.	2
21.	If $y = e^x + 5x - 2$ then $\frac{d^2y}{dx^2} =$ _____			
	A.	e^x	B.	$e^x + 5$
	C.	0	D.	xe^{x-1}
૨૧.	If $y = e^x + 5x - 2$ then $\frac{d^2y}{dx^2} =$ _____			
	A.	e^x	B.	$e^x + 5$
	C.	0	D.	xe^{x-1}
22.	$\frac{d}{dx}(\sin^2 x) =$ _____			

	A.	$2\cos x$	B.	$2\sin x$
	C.	$-\sin 2x$	D.	$\sin 2x$
૨૨.	$\frac{d}{dx}(\sin^2 x) = \underline{\hspace{2cm}}$			
	A.	$2\cos x$	B.	$2\sin x$
	C.	$-\sin 2x$	D.	$\sin 2x$
23.	If $y = \log(\sec x + \tan x)$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\sec x$	B.	$\tan x$
	C.	$\frac{1}{\sec x + \tan x}$	D.	$\frac{-1}{\sec x + \tan x}$
૨૩.	જો $y = \log(\sec x + \tan x)$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\sec x$	B.	$\tan x$
	C.	$\frac{1}{\sec x + \tan x}$	D.	$\frac{-1}{\sec x + \tan x}$
24.	$\frac{d}{dx}(\tan^{-1}x + \cot^{-1}x) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{2}$	B.	-1
	C.	1	D.	0
૨૪.	$\frac{d}{dx}(\tan^{-1}x + \cot^{-1}x) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{2}$	B.	-1
	C.	1	D.	0
25.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$			
	A.	-1	B.	0
	C.	1	D.	$2\sin x + 2\cos x$
૨૫.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$			
	A.	-1	B.	0
	C.	1	D.	$2\sin x + 2\cos x$
26.	If $f(x) = \log \sqrt{x^2 + 1}$ then $f'(-1) = \underline{\hspace{2cm}}$			
	A.	0	B.	$\log 1$
	C.	1	D.	$\frac{-1}{2}$
૨૬.	જો $f(x) = \log \sqrt{x^2 + 1}$ હોય તો, $f'(-1) = \underline{\hspace{2cm}}$			
	A.	0	B.	$\log 1$
	C.	1	D.	$\frac{-1}{2}$
27.	$\frac{d}{dx}(\tan^{-1} x) = \underline{\hspace{2cm}}$			
	A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{1+x^2}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{-1}{1-x^2}$
૨૭.	$\frac{d}{dx}(\tan^{-1} x) = \underline{\hspace{2cm}}$			
	A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{1+x^2}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{-1}{1-x^2}$
28.	$\frac{d}{dx}(xe^{-x}) = \underline{\hspace{2cm}}$			
	A.	e^x	B.	xe^{x-1}
	C.	$e^{-x}(1-x)$	D.	$e^{-x}(x+1)$
૨૮.	$\frac{d}{dx}(xe^{-x}) = \underline{\hspace{2cm}}$			

	A.	e^x	B.	xe^{x-1}
	C.	$e^{-x}(1-x)$	D.	$e^{-x}(x+1)$
29.	If $y = at^2$ and $x = 2at$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	t	B.	$-t$
	C.	$\frac{1}{t}$	D.	$-\frac{1}{t}$
૨૯.	જો $y = at^2$ અને $x = 2at$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	t	B.	$-t$
	C.	$\frac{1}{t}$	D.	$-\frac{1}{t}$
30.	If $\sqrt{x} - \sqrt{y} = 1$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\sqrt{\frac{x}{y}}$	B.	$-\sqrt{\frac{x}{y}}$
	C.	$\sqrt{\frac{y}{x}}$	D.	$-\sqrt{\frac{y}{x}}$
૩૦.	જો $\sqrt{x} - \sqrt{y} = 1$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\sqrt{\frac{x}{y}}$	B.	$-\sqrt{\frac{x}{y}}$
	C.	$\sqrt{\frac{y}{x}}$	D.	$-\sqrt{\frac{y}{x}}$
31.	The equation of motion of a particle is $s = t^3 - 2t^2 - t + 2$ then its velocity at $t = 2$ second =			
	A.	3 m/Sec.	B.	-3 m/Sec.
	C.	0	D.	None of these
૩૧.	એક ગતિ કરતાં કણ નું સમીકરણ $s = t^3 - 2t^2 - t + 2$ હોય તો, $t = 2$ સેકન્ડે તેનો વેગ $\underline{\hspace{2cm}}$ થાય.			
	A.	૩ મી/સેકન્ડ	B.	-૩ મી/સેકન્ડ
	C.	0	D.	એક પણ નહિ
32.	If $f(x) = x^3 - 3x + 11$ then maximum value of f at $x = -1$ is =			
	A.	-13	B.	13
	C.	15	D.	-15
૩૨.	જો $f(x) = x^3 - 3x + 11$ હોય તો $x = -1$ આગળ f ની મહત્તમ કિંમત =			
	A.	-13	B.	13
	C.	15	D.	-15
33.	$\int 4x^5 dx = \underline{\hspace{2cm}} + C$			
	A.	$\frac{x^6}{6}$	B.	$\frac{2x^6}{3}$
	C.	$20x^4$	D.	$x^5 \log 5$
૩૩.	$\int 4x^5 dx = \underline{\hspace{2cm}} + C$			
	A.	$\frac{x^6}{6}$	B.	$\frac{2x^6}{3}$
	C.	$20x^4$	D.	$x^5 \log 5$
34.	$\int \frac{\cos x - \sin x}{\cos x + \sin x} dx = \underline{\hspace{2cm}} + C$			
	A.	$\log \sin x + \cos x $	B.	$\log \cos x - \sin x $
	C.	$\log \cos x $	D.	$\log \sin x $
૩૪.	$\int \frac{\cos x - \sin x}{\cos x + \sin x} dx = \underline{\hspace{2cm}} + C$			
	A.	$\log \sin x + \cos x $	B.	$\log \cos x - \sin x $

	C.	$\log \cos x $	D.	$\log \sin x $
35.	$\int (\sec^2 x - \tan^2 x) dx = \text{_____} + C$			
	A.	1	B.	-1
	C.	$2\sec x - 2\tan x$	D.	x
34.	$\int (\sec^2 x - \tan^2 x) dx = \text{_____} + C$			
	A.	1	B.	-1
	C.	$2\sec x - 2\tan x$	D.	x
36.	$\int \operatorname{cosec} x \, dx = \text{_____} + C$			
	A.	$\log \operatorname{cosec} x + \cot x $	B.	$\log \operatorname{cosec} x - \cot x $
	C.	$-\operatorname{cosec} x \cot x$	D.	$-\operatorname{cosec}^2 x$
35.	$\int \operatorname{cosec} x \, dx = \text{_____} + C$			
	A.	$\log \operatorname{cosec} x + \cot x $	B.	$\log \operatorname{cosec} x - \cot x $
	C.	$-\operatorname{cosec} x \cot x$	D.	$-\operatorname{cosec}^2 x$
37.	$\int \sin(3x + 2) \, dx = \text{_____} + C$			
	A.	$-\frac{1}{2} \cos(3x + 2)$	B.	$\frac{1}{2} \cos(3x + 2)$
	C.	$-\frac{1}{3} \cos(3x + 2)$	D.	$\frac{1}{3} \cos(3x + 2)$
39.	$\int \sin(3x + 2) \, dx = \text{_____} + C$			
	A.	$-\frac{1}{2} \cos(3x + 2)$	B.	$\frac{1}{2} \cos(3x + 2)$
	C.	$-\frac{1}{3} \cos(3x + 2)$	D.	$\frac{1}{3} \cos(3x + 2)$
38.	$\int \frac{1}{\sqrt{4-x^2}} \, dx = \text{_____} + C$			
	A.	$\tan^{-1}\left(\frac{x}{2}\right)$	B.	$\sin^{-1}\left(\frac{x}{2}\right)$
	C.	$\cot^{-1}\left(\frac{x}{2}\right)$	D.	$\cos^{-1}\left(\frac{x}{2}\right)$
36.	$\int \frac{1}{\sqrt{4-x^2}} \, dx = \text{_____} + C$			
	A.	$\tan^{-1}\left(\frac{x}{2}\right)$	B.	$\sin^{-1}\left(\frac{x}{2}\right)$
	C.	$\cot^{-1}\left(\frac{x}{2}\right)$	D.	$\cos^{-1}\left(\frac{x}{2}\right)$
39.	$\int_1^5 \frac{dx}{x} = \text{_____}$			
	A.	1	B.	$\log 1$
	C.	$\log 5$	D.	$-\log 5$
36.	$\int_1^5 \frac{dx}{x} = \text{_____}$			
	A.	1	B.	$\log 1$
	C.	$\log 5$	D.	$-\log 5$
40.	$\int_0^1 \frac{2}{1+x^2} \, dx = \text{_____}$			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{4}$
	C.	π	D.	2π
40.	$\int_0^1 \frac{2}{1+x^2} \, dx = \text{_____}$			
	A.	$\frac{\pi}{2}$	B.	$\frac{\pi}{4}$
	C.	π	D.	2π

41.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}$			
	A.	0	B.	6
	C.	-6	D.	2
૪૧.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}$			
	A.	0	B.	6
	C.	-6	D.	2
42.	$\int_1^e \log x dx = \underline{\hspace{2cm}}$			
	A.	0	B.	e
	C.	1	D.	e - 1
૪૨.	$\int_1^e \log x dx = \underline{\hspace{2cm}}$			
	A.	0	B.	e
	C.	1	D.	e - 1
43.	$\int_0^1 (x+1) dx = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	$\frac{3}{2}$	D.	$\frac{2}{3}$
૪૩.	$\int_0^1 (x+1) dx = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	$\frac{3}{2}$	D.	$\frac{2}{3}$
44.	$\int_1^2 \frac{3x}{1+x^3} dx = \underline{\hspace{2cm}}$			
	A.	$\log 11$	B.	$\log 7$
	C.	$3\log \frac{3}{2}$	D.	$2\log \frac{3}{2}$
૪૪.	$\int_1^2 \frac{3x}{1+x^3} dx = \underline{\hspace{2cm}}$			
	A.	$\log 11$	B.	$\log 7$
	C.	$3\log \frac{3}{2}$	D.	$2\log \frac{3}{2}$
45.	$\int \cos x dx = \underline{\hspace{2cm}} + C$			
	A.	$\cos x$	B.	$\sin x$
	C.	$-\cos x$	D.	$-\sin x$
૪૫.	$\int \cos x dx = \underline{\hspace{2cm}} + C$			
	A.	$\cos x$	B.	$\sin x$
	C.	$-\cos x$	D.	$-\sin x$
46.	Area of the region bounded by curve $x^2 + y^2 = 16$ is =			
	A.	9π	B.	4π
	C.	16π	D.	16
૪૬.	વક્ર $x^2 + y^2 = 16$ દ્વારા આવૃત્ત પ્રદેશનું ક્ષેત્રફળ $\underline{\hspace{2cm}}$ છે.			
	A.	9π	B.	4π
	C.	16π	D.	16
47.	Degree of differential equation $5 \frac{d^2 y}{dx^2} - 2 \left(\frac{dy}{dx} \right)^3 - xy = 5$ is =			
	A.	3	B.	1
	C.	0	D.	2
૪૭.	વિકલ સમીકરણ $5 \frac{d^2 y}{dx^2} - 2 \left(\frac{dy}{dx} \right)^3 - xy = 5$ નું પરિમાણ =			
	A.	3	B.	1
	C.	0	D.	2

48.	Order of differential equation $\left(\frac{d^2y}{dx^2}\right)^3 + 5\left(\frac{d^3y}{dx^3}\right)^2 - 3y = 0$ is = _____			
	A.	2	B.	3
	C.	1	D.	6
૪૮.	વિકલ સમીકરણ $\left(\frac{d^2y}{dx^2}\right)^3 + 5\left(\frac{d^3y}{dx^3}\right)^2 - 3y = 0$ ની કક્ષા = _____			
	A.	2	B.	3
	C.	1	D.	6
49.	Order of differential equation $\frac{d^3y}{dx^3} + e^{\frac{dy}{dx}} + y = 0$ is = _____			
	A.	0	B.	e
	C.	1	D.	3
૪૯.	વિકલ સમીકરણ $\frac{d^3y}{dx^3} + e^{\frac{dy}{dx}} + y = 0$ ની કક્ષા = _____			
	A.	0	B.	e
	C.	1	D.	3
50.	Degree of differential equation $x^2 \frac{dy}{dx} + \cos\left(\frac{d^2y}{dx^2}\right) = 10$ is = _____			
	A.	1	B.	2
	C.	0	D.	undefined
૫૦.	વિકલ સમીકરણ $x^2 \frac{dy}{dx} + \cos\left(\frac{d^2y}{dx^2}\right) = 10$ નું પરિમાણ = _____			
	A.	1	B.	2
	C.	0	D.	અવ્યાખ્યાયિત છે.
51.	Degree of differential equation $\sqrt{\frac{d^2y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ is = _____			
	A.	3	B.	2
	C.	$\frac{1}{3}$	D.	$\frac{1}{2}$
૫૧.	વિકલ સમીકરણ $\sqrt{\frac{d^2y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ નું પરિમાણ _____ છે.			
	A.	3	B.	2
	C.	$\frac{1}{3}$	D.	$\frac{1}{2}$
52.	Solution of differential equation $\frac{dy}{dx} = -\frac{y}{x}$ is = _____			
	A.	$y = cx$	B.	$y = x^2 + c$
	C.	$xy = c$	D.	None of these
૫૨.	વિકલ સમીકરણ $\frac{dy}{dx} = -\frac{y}{x}$ નો ઉકેલ _____ થાય.			
	A.	$y = cx$	B.	$y = x^2 + c$
	C.	$xy = c$	D.	એક પણ નહિ.
53.	Integrating factor of differential equation $\frac{1}{y} \frac{dy}{dx} + 1 = \frac{2x}{y}$ is = _____			
	A.	e	B.	e^x
	C.	x	D.	1
૫૩.	વિકલ સમીકરણ $\frac{1}{y} \frac{dy}{dx} + 1 = \frac{2x}{y}$ નો સંકલ્પકારક અવયવ = _____			
	A.	e	B.	e^x
	C.	x	D.	1
54.	Integrating factor of differential equation $\frac{dy}{dx} + Py = Q$ is = _____			
	A.	$e^{\int P(x)dx}$	B.	$e^{\int Q(x)dx}$
	C.	$e^{-\int P(x)dx}$	D.	$e^{-\int Q(x)dx}$
૫૪.	વિકલ સમીકરણ $\frac{dy}{dx} + P(x)y = Q(x)$ નો સંકલ્પકારક અવયવ = _____			

	A.	$e^{\int P(x)dx}$	B.	$e^{\int Q(x)dx}$
	C.	$e^{-\int P(x)dx}$	D.	$e^{-\int Q(x)dx}$
55.	Integrating factor of differential equation $\frac{dy}{dx} + y \tan x = e^{3x}$ is = _____			
	A.	$\cos x$	B.	$\sec x$
	C.	$\log(\sec x)$	D.	$e^{\sec x}$
૫૫.	વિકલ સમીકરણ $\frac{dy}{dx} + y \tan x = e^{3x}$ નો સંકલ્પકારક અવયવ = _____			
	A.	$\cos x$	B.	$\sec x$
	C.	$\log(\sec x)$	D.	$e^{\sec x}$
56.	Solution of differential equation $\frac{dy}{dx} + y = 1$ is = _____			
	A.	$e^x(y - 1) = c$	B.	$ye^x = c$
	C.	$yx = c$	D.	$y = cx$
૫૬.	વિકલ સમીકરણ $\frac{dy}{dx} + y = 1$ નો ઉકેલ = _____			
	A.	$e^x(y - 1) = c$	B.	$ye^x = c$
	C.	$yx = c$	D.	$y = cx$
57.	Which one is first order Linear differential equation of the following?			
	A.	$\frac{d^2y}{dx^2} + y = 3x$	B.	$x \frac{dy}{dx} + y = 3$
	C.	$y - x = 2xy$	D.	None of these
૫૭.	નીચેનાં માંથી પ્રથમ કક્ષાનું એકઘાત વિકલ સમીકરણ કયું છે?			
	A.	$\frac{d^2y}{dx^2} + y = 3x$	B.	$x \frac{dy}{dx} + y = 3$
	C.	$y - x = 2xy$	D.	એક પણ નહિ
58.	Order of the differential equation $2xdx - 3ydy = 0$ is = _____			
	A.	2	B.	0
	C.	1	D.	None of these
૫૮.	વિકલ સમીકરણ $2xdx - 3ydy = 0$ ની કક્ષા = _____			
	A.	2	B.	0
	C.	1	D.	એક પણ નહિ
59.	$\sqrt{-16} =$ _____			
	A.	$4i$	B.	$-4i$
	C.	4	D.	-4
૫૯.	$\sqrt{-16} =$ _____			
	A.	$4i$	B.	$-4i$
	C.	4	D.	-4
60.	$i^{13} =$ _____			
	A.	1	B.	-1
	C.	i	D.	$-i$
૬૦.	$i^{13} =$ _____			
	A.	1	B.	-1
	C.	i	D.	$-i$
61.	$ 3 - 4i =$ _____			
	A.	12	B.	25
	C.	5	D.	9
૬૧.	$ 3 - 4i =$ _____			
	A.	12	B.	25
	C.	5	D.	9
62.	$\frac{1+i}{1-i} =$ _____			
	A.	1	B.	-1

	C.	i	D.	$-i$
52.	$\frac{1+i}{1-i} = \underline{\hspace{2cm}}$			
	A.	1	B.	-1
	C.	i	D.	$-i$
63.	$(2-3i)(3+2i) = \underline{\hspace{2cm}}$			
	A.	$12-5i$	B.	$12+5i$
	C.	$-12+5i$	D.	$-12-5i$
53.	$(2-3i)(3+2i) = \underline{\hspace{2cm}}$			
	A.	$12-5i$	B.	$12+5i$
	C.	$-12+5i$	D.	$-12-5i$
64.	If $z = 4-5i$ then $\bar{z} = \underline{\hspace{2cm}}$			
	A.	$4-5i$	B.	$-4-5i$
	C.	$-4+5i$	D.	$4+5i$
54.	જો $z = 4-5i$ હોય તો $\bar{z} = \underline{\hspace{2cm}}$			
	A.	$4-5i$	B.	$-4-5i$
	C.	$-4+5i$	D.	$4+5i$
65.	$z + \bar{z} = \underline{\hspace{2cm}}$			
	A.	$\text{Re}(z)$	B.	$-\text{Re}(z)$
	C.	$2\text{Re}(z)$	D.	$-2\text{Re}(z)$
55.	$z + \bar{z} = \underline{\hspace{2cm}}$			
	A.	$\text{Re}(z)$	B.	$-\text{Re}(z)$
	C.	$2\text{Re}(z)$	D.	$-2\text{Re}(z)$
66.	Multiplicative inverse of a complex number i is = $\underline{\hspace{2cm}}$			
	A.	i	B.	1
	C.	$-i$	D.	-1
56.	સંકર સંખ્યા i ની વ્યસ્ત સંકર સંખ્યા $\underline{\hspace{2cm}}$ છે.			
	A.	i	B.	1
	C.	$-i$	D.	-1
67.	If $z = 2i$ then $\arg(z) = \underline{\hspace{2cm}}$			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$\frac{-\pi}{2}$
57.	જો $z = 2i$ હોય તો $\arg(z) = \underline{\hspace{2cm}}$			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$\frac{-\pi}{2}$
68.	If $z = \cos \theta + i \sin \theta$ then $z^2 + \frac{1}{z^2} = \underline{\hspace{2cm}}$			
	A.	$2\cos 2\theta$	B.	$2\sin 2\theta$
	C.	$2i\cos 2\theta$	D.	$2i\sin 2\theta$
58.	જો $z = \cos \theta + i \sin \theta$ હોય તો $z^2 + \frac{1}{z^2} = \underline{\hspace{2cm}}$			
	A.	$2\cos 2\theta$	B.	$2\sin 2\theta$
	C.	$2i\cos 2\theta$	D.	$2i\sin 2\theta$
69.	If $2x + 3yi = 4 + 6i$ then $(x, y) = \underline{\hspace{2cm}}$			
	A.	(1, 1)	B.	(2, 3)
	C.	(3, 2)	D.	(2, 2)
59.	જો $2x + 3yi = 4 + 6i$ હોય તો $(x, y) = \underline{\hspace{2cm}}$			
	A.	(1, 1)	B.	(2, 3)
	C.	(3, 2)	D.	(2, 2)
70.	If $z = -1$ then its polar form = $\underline{\hspace{2cm}}$			
	A.	$\cos \pi + i \sin \pi$	B.	$-\cos \pi - i \sin \pi$
	C.	$\cos \pi - i \sin \pi$	D.	Not possible

૭૦.	જો $z = -1$ હોય તો તેનું ધ્રુવીય સ્વરૂપ = _____			
	A.	$\cos \pi + i \sin \pi$	B.	$-\cos \pi - i \sin \pi$
	C.	$\cos \pi - i \sin \pi$	D.	શક્ય નથી.
