

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering – SEMESTER – 2(CtoD) New – EXAMINATION – Winter-2025****Subject Code: C4320001****Date: 12-01-2026****Subject Name: Applied Mathematics****Time: 10:30 AM TO 12:00 PM****Total Marks: 70****Instructions:**

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

1.	If $\begin{bmatrix} x-y & -5 \\ 3 & x+y \end{bmatrix} = \begin{bmatrix} 2 & -5 \\ 3 & 4 \end{bmatrix}$ then value of x = _____ and y = _____			
	A.	3 and 1	B.	1 and 3
	C.	2 and 4	D.	-5 and 3
૧.	જો $\begin{bmatrix} x-y & -5 \\ 3 & x+y \end{bmatrix} = \begin{bmatrix} 2 & -5 \\ 3 & 4 \end{bmatrix}$ હોય તો x = _____ અને y = _____			
	A.	3 અને 1	B.	1 અને 3
	C.	2 અને 4	D.	-5 અને 3
2.	Order of matrix $\begin{bmatrix} -2 & 7 & 0 \end{bmatrix}$ is = _____			
	A.	1X3	B.	3X1
	C.	1X1	D.	1X2
૨.	શ્રેણિક $\begin{bmatrix} -2 & 7 & 0 \end{bmatrix}$ ની કક્ષા = _____			
	A.	1X3	B.	3X1
	C.	1X1	D.	1X2
3.	If $A = \begin{bmatrix} 1 & 4 \\ 3 & -2 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 0 \\ 1 & 2 \end{bmatrix}$ then $A + B =$ _____			
	A.	$\begin{bmatrix} -3 & 4 \\ 4 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 4 \\ 4 & -3 \end{bmatrix}$
	C.	$\begin{bmatrix} 0 & 4 \\ 4 & 3 \end{bmatrix}$	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 $A + B =$ _____			
	A.	$\begin{bmatrix} -3 & 4 \\ 4 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 4 \\ 4 & -3 \end{bmatrix}$

	C.	$\begin{bmatrix} 0 & 4 \\ 4 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 3 & 4 \\ 4 & 0 \end{bmatrix}$
4.	If $A = \begin{bmatrix} 3 & -2 & 1 \\ -6 & 5 & 4 \end{bmatrix}$ then $A^T =$ _____			
	A.	$\begin{bmatrix} 3 & -6 \\ -2 & 5 \\ 1 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} -6 & 3 \\ 5 & -2 \\ 4 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} -3 & 6 \\ 2 & -5 \\ -1 & -4 \end{bmatrix}$	D.	$\begin{bmatrix} 6 & -3 \\ -5 & 2 \\ -4 & -1 \end{bmatrix}$
૪.	જો $A = \begin{bmatrix} 3 & -2 & 1 \\ -6 & 5 & 4 \end{bmatrix}$ હોય તો $A^T =$ _____			
	A.	$\begin{bmatrix} 3 & -6 \\ -2 & 5 \\ 1 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} -6 & 3 \\ 5 & -2 \\ 4 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} -3 & 6 \\ 2 & -5 \\ -1 & -4 \end{bmatrix}$	D.	$\begin{bmatrix} 6 & -3 \\ -5 & 2 \\ -4 & -1 \end{bmatrix}$
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 2X3 and order of matrix B is 3X4 then order of matrix AB = ____			
	A.	2X4	B.	4X2
	C.	3X3	D.	2X3
૬.	જો શ્રેણિક A ની કક્ષા 2X3 અને શ્રેણિક B ની કક્ષા 3X4 હોય તો શ્રેણિક AB ની કક્ષા = ____			
	A.	2X4	B.	4X2
	C.	3X3	D.	2X3
7.	If $A = \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 3 \\ 5 \end{bmatrix}$ then $AB =$ _____			
	A.	$\begin{bmatrix} 4 & 8 & 12 \\ 3 & 6 & 9 \\ 5 & 10 & 15 \end{bmatrix}$	B.	[0]
	C.	[25]	D.	[-25]
9.	જો $A = \begin{bmatrix} 1 & 2 & 3 \end{bmatrix}$ અને $B = \begin{bmatrix} 4 \\ 3 \\ 5 \end{bmatrix}$ હોય તો $AB =$ _____			
	A.	$\begin{bmatrix} 4 & 8 & 12 \\ 3 & 6 & 9 \\ 5 & 10 & 15 \end{bmatrix}$	B.	[0]
	C.	[25]	D.	[-25]

8.	Matrix $7I_2 = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 7 & 2 \\ 2 & 7 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 1 \\ 1 & 7 \end{bmatrix}$
	C.	$\begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 7 \\ 7 & 0 \end{bmatrix}$
૮.	શ્રેણિક $7I_2 = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 7 & 2 \\ 2 & 7 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 1 \\ 1 & 7 \end{bmatrix}$
	C.	$\begin{bmatrix} 7 & 0 \\ 0 & 7 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 7 \\ 7 & 0 \end{bmatrix}$
9.	If $A = \begin{bmatrix} 1 & -3 \\ 3 & -1 \end{bmatrix}$ then $\text{adj} \cdot A = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} -1 & -3 \\ -3 & -1 \end{bmatrix}$	B.	$\begin{bmatrix} -1 & 3 \\ -3 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & -3 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -1 & 3 \\ -3 & 1 \end{bmatrix}$
૯.	જો $A = \begin{bmatrix} 1 & -3 \\ 3 & -1 \end{bmatrix}$ હોય તો $\text{adj} \cdot A = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} -1 & -3 \\ -3 & -1 \end{bmatrix}$	B.	$\begin{bmatrix} -1 & 3 \\ -3 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -1 & -3 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -1 & 3 \\ -3 & 1 \end{bmatrix}$
10.	If $A = \begin{bmatrix} -8 & 4 \\ -6 & 3 \end{bmatrix}$ then inverse of A = $\underline{\hspace{2cm}}$			
	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 = $\underline{\hspace{2cm}}$			
	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 $A = \begin{bmatrix} 5x & 7 \\ 3 & 2 \end{bmatrix}$, if $ A = 9$ then value of x = $\underline{\hspace{2cm}}$			
	A.	21	B.	10
	C.	3	D.	-3
૧૧.	$A = \begin{bmatrix} 5x & 7 \\ 3 & 2 \end{bmatrix}$ માટે, જો $ A = 9$ હોયતો, x ની કિંમત = $\underline{\hspace{2cm}}$			
	A.	21	B.	10
	C.	3	D.	-3
12.	If A is singular matrix then $\underline{\hspace{2cm}}$			
	A.	$A = A^T$	B.	$A^T = -A$
	C.	$ A = 0$	D.	$ A \neq 0$

૧૨.	જો A એ સામાન્ય 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.	$\begin{bmatrix} -4 & -4 \\ -4 & -4 \\ -4 & -4 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 4 \\ 4 & 4 \\ 4 & 4 \end{bmatrix}$	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.	$\begin{bmatrix} -4 & -4 \\ -4 & -4 \\ -4 & -4 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 4 \\ 4 & 4 \\ 4 & 4 \end{bmatrix}$	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 $\begin{bmatrix} 2 & 3 \\ -2 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 5 \end{bmatrix}$ then $(x, y) =$ _____			
	A.	(-2, 1)	B.	(2, -1)
	C.	(-2, -1)	D.	(2, 1)

૧૬.	જો $\begin{bmatrix} 2 & 3 \\ -2 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -1 \\ 5 \end{bmatrix}$ હોય તો $(x, y) = \underline{\hspace{2cm}}$			
	A.	$(-2, 1)$	B.	$(2, -1)$
	C.	$(-2, -1)$	D.	$(2, 1)$
17.	$\frac{d}{dx}(2x^2 + 3) = \underline{\hspace{2cm}}$			
	A.	$4x$	B.	$4x + 3$
	C.	$2x$	D.	$2x + 3$
૧૭.	$\frac{d}{dx}(2x^2 + 3) = \underline{\hspace{2cm}}$			
	A.	$4x$	B.	$4x + 3$
	C.	$2x$	D.	$2x + 3$
18.	$\frac{d}{dx}(7^x) = \underline{\hspace{2cm}}$			
	A.	x^7	B.	7^x
	C.	$7^x \log_e 7$	D.	$x7^{x-1}$
૧૮.	$\frac{d}{dx}(7^x) = \underline{\hspace{2cm}}$			
	A.	x^7	B.	7^x
	C.	$7^x \log_e 7$	D.	$x7^{x-1}$
19.	If $y = e^{2x}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	e^{2x}	B.	$2e^{2x}$
	C.	$\frac{e^{2x}}{2}$	D.	$e^{2x} \log 2$
૧૯.	જો $y = e^{2x}$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	e^{2x}	B.	$2e^{2x}$
	C.	$\frac{e^{2x}}{2}$	D.	$e^{2x} \log 2$
20.	If $f(x) = 2x^2 - 5$ then $f'(5) = \underline{\hspace{2cm}}$			
	A.	20	B.	-20
	C.	5	D.	15
૨૦.	જો $f(x) = 2x^2 - 5$ હોય તો, $f'(5) = \underline{\hspace{2cm}}$			
	A.	20	B.	-20
	C.	5	D.	15
21.	If $y = e^x + 5$ then $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$			
	A.	e^x	B.	$e^x + 5$
	C.	0	D.	xe^{x-1}
૨૧.	જો $y = e^x + 5$ હોય તો, $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$			

	A.	e^x	B.	$e^x + 5$
	C.	0	D.	xe^{x-1}
22.	If $xy = 1$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	$-\frac{1}{x^2}$	D.	$\frac{1}{x}$
૨૨.	જો $xy = 1$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	$-\frac{1}{x^2}$	D.	$\frac{1}{x}$
23.	$\frac{d}{dx}(uv) = \underline{\hspace{2cm}}$			
	A.	$u \frac{dv}{dx} - v \frac{du}{dx}$	B.	$\frac{du}{dx} + \frac{dv}{dx}$
	C.	$\frac{du}{dx} \cdot \frac{dv}{dx}$	D.	$u \frac{dv}{dx} + v \frac{du}{dx}$
૨૩.	$\frac{d}{dx}(uv) = \underline{\hspace{2cm}}$			
	A.	$u \frac{dv}{dx} - v \frac{du}{dx}$	B.	$\frac{du}{dx} + \frac{dv}{dx}$
	C.	$\frac{du}{dx} \cdot \frac{dv}{dx}$	D.	$u \frac{dv}{dx} + v \frac{du}{dx}$
24.	$\frac{d}{dx}(\sin^{-1}x + \cos^{-1}x) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{2}$	B.	-1
	C.	1	D.	0
૨૪.	$\frac{d}{dx}(\sin^{-1}x + \cos^{-1}x) = \underline{\hspace{2cm}}$			
	A.	$\frac{\pi}{2}$	B.	-1
	C.	1	D.	0
25.	If $y = \sin(x^2)$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$-2\sin x \cos x$	B.	$2x \cos(x^2)$
	C.	$2\sin x \cos x$	D.	$-2x \cos(x^2)$
૨૫.	If $y = \sin(x^2)$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$-2\sin x \cos x$	B.	$2x \cos(x^2)$
	C.	$2\sin x \cos x$	D.	$-2x \cos(x^2)$
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.	$\frac{d}{dx}(x \log x) = \underline{\hspace{2cm}}$			
	A.	$1 + \log x$	B.	$1 - \log x$
	C.	$x + \log x$	D.	1
૨૮.	$\frac{d}{dx}(x \log x) = \underline{\hspace{2cm}}$			
	A.	$1 + \log x$	B.	$1 - \log x$
	C.	$x + \log x$	D.	1
29.	If $x = at^2$ and $y = 2at$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	t	B.	-t
	C.	$\frac{1}{t}$	D.	$-\frac{1}{t}$
૨૯.	જો $x = at^2$ અને $y = 2at$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	t	B.	-t
	C.	$\frac{1}{t}$	D.	$-\frac{1}{t}$
30.	If $\sqrt{x} + \sqrt{y} = 2$ 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 $\sqrt{x} + \sqrt{y} = 2$ 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 $s = t^3 + 2t^2 - t + 3$ then its velocity at $t = 1$ second = _____			
	A.	6 m/Sec.	B.	-6 m/Sec.
	C.	8 m/Sec.	D.	-8 m/Sec.
3૧.	એક ગતિ કરતાં કણ નું સમીકરણ $s = t^3 + 2t^2 - t + 3$ હોય તો, $t = 1$ સેકન્ડે તેનો વેગ = _____			
	A.	6 મી/સેકન્ડ	B.	-6 મી/સેકન્ડ
	C.	8 મી/સેકન્ડ	D.	-8 મી/સેકન્ડ
32.	If $f(x) = x^3 - 12x$ then minimum value of f at $x = 2$ is = _____			
	A.	-16	B.	16
	C.	32	D.	-32
3૨.	જો $f(x) = x^3 - 12x$ હોય તો $x = 2$ અગળ f ની ન્યૂનતમ કિંમત = _____			
	A.	-16	B.	16
	C.	32	D.	-32
33.	$\int x^5 dx = \text{_____} + C$			
	A.	$\frac{x^6}{6}$	B.	$\frac{x^4}{4}$
	C.	$5x^4$	D.	$x^5 \log 5$
3૩.	$\int x^5 dx = \text{_____} + C$			
	A.	$\frac{x^6}{6}$	B.	$\frac{x^4}{4}$
	C.	$5x^4$	D.	$x^5 \log 5$
34.	$\int \frac{e^x}{e^x + 1} dx = \text{_____} + C$			
	A.	$\log e^x $	B.	$\log 1 $
	C.	$\log e^x + 1 $	D.	$\log x $
3૪.	$\int \frac{e^x}{e^x + 1} dx = \text{_____} + C$			
	A.	$\log e^x $	B.	$\log 1 $
	C.	$\log e^x + 1 $	D.	$\log x $
35.	$\int (\sin^2 x + \cos^2 x) dx = \text{_____} + C$			
	A.	1	B.	x
	C.	$2\sin x + 2\cos x$	D.	$2x$
3૫.	$\int (\sin^2 x + \cos^2 x) dx = \text{_____} + C$			
	A.	1	B.	x

	C.	$2\sin x + 2\cos x$	D.	$2x$
36.	$\int \sec x \, dx = ____ + C$			
	A.	$\log \sec x + \tan x $	B.	$\log \tan x $
	C.	$\sec x \tan x$	D.	$\sec^2 x$
37.	$\int \sec x \, dx = ____ + C$			
	A.	$\log \sec x + \tan x $	B.	$\log \tan x $
	C.	$\sec x \tan x$	D.	$\sec^2 x$
38.	$\int \sin(2x + 3) \, dx = ____ + C$			
	A.	$\frac{-1}{2} \cos(2x + 3)$	B.	$\frac{1}{2} \cos(2x + 3)$
	C.	$2 \cos(2x + 3)$	D.	$-\cos(2x + 3)$
39.	$\int \sin(2x + 3) \, dx = ____ + C$			
	A.	$\frac{-1}{2} \cos(2x + 3)$	B.	$\frac{1}{2} \cos(2x + 3)$
	C.	$2 \cos(2x + 3)$	D.	$-\cos(2x + 3)$
40.	$\int \frac{1}{\sqrt{a^2 - x^2}} \, dx = ____ + C$			
	A.	$\tan^{-1}\left(\frac{x}{a}\right)$	B.	$\sin^{-1}\left(\frac{x}{a}\right)$
	C.	$\cot^{-1}\left(\frac{x}{a}\right)$	D.	$\cos^{-1}\left(\frac{x}{a}\right)$
41.	$\int \frac{1}{\sqrt{a^2 - x^2}} \, dx = ____ + C$			
	A.	$\tan^{-1}\left(\frac{x}{a}\right)$	B.	$\sin^{-1}\left(\frac{x}{a}\right)$
	C.	$\cot^{-1}\left(\frac{x}{a}\right)$	D.	$\cos^{-1}\left(\frac{x}{a}\right)$
42.	$\int_2^5 (x^2 + 2x + 1) \, dx = ____$			
	A.	63	B.	-63
	C.	$\log 63$	D.	$-\log 63$
43.	$\int_2^5 (x^2 + 2x + 1) \, dx = ____$			
	A.	63	B.	-63
	C.	$\log 63$	D.	$-\log 63$
44.	$\int \tan^2 x \, dx = ____ + C$			
	A.	$\tan x + x$	B.	$2 \tan x + x$
	C.	$\tan x - x$	D.	$-2 \tan x - x$
45.	$\int \tan^2 x \, dx = ____ + C$			

	A.	$\tan x + x$	B.	$2\tan x + x$
	C.	$\tan x - x$	D.	$-2\tan x - x$
41.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}$			
	A.	0	B.	6
	C.	-6	D.	2
౪౧.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}$			
	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
౪౨.	$\int_1^e \log x dx = \underline{\hspace{2cm}}$			
	A.	0	B.	e
	C.	1	D.	e - 1
43.	$\int_0^1 2x dx = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	3	D.	2
౪౩.	$\int_0^1 2x dx = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	3	D.	2
44.	$\int_1^2 \frac{2x}{1+x^2} dx = \underline{\hspace{2cm}}$			
	A.	$\log 5$	B.	$\log 2$
	C.	$\log \frac{2}{5}$	D.	$\log \frac{5}{2}$
౪౪.	$\int_1^2 \frac{2x}{1+x^2} dx = \underline{\hspace{2cm}}$			
	A.	$\log 5$	B.	$\log 2$
	C.	$\log \frac{2}{5}$	D.	$\log \frac{5}{2}$
45.	$\int \sin x dx = \underline{\hspace{2cm}} + C$			
	A.	$\cos x$	B.	$\sin x$
	C.	$-\cos x$	D.	$-\sin x$
౪౫.	$\int \sin x dx = \underline{\hspace{2cm}} + C$			
	A.	$\cos x$	B.	$\sin x$
	C.	$-\cos x$	D.	$-\sin x$
46.	Area of the region bounded by curve $x^2 + y^2 = 4$ is = $\underline{\hspace{2cm}}$			
	A.	9π	B.	4π

	C.	16π	D.	16
૪૬.	વક્ર $x^2 + y^2 = 4$ દ્વારા આવૃત્ત પ્રદેશનું ક્ષેત્રફળ ____ છે.			
	A.	9π	B.	4π
	C.	16π	D.	16
47.	Order of differential equation $5\frac{d^2y}{dx^2} - 2\left(\frac{dy}{dx}\right)^3 - xy = 10$ is = ____			
	A.	3	B.	1
	C.	0	D.	2
૪૭.	વિકલ સમીકરણ $5\frac{d^2y}{dx^2} - 2\left(\frac{dy}{dx}\right)^3 - xy = 10$ ની કક્ષા = ____			
	A.	3	B.	1
	C.	0	D.	2
48.	Degree 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 $\left(\frac{d^2y}{dx^2}\right)^3 + 5\left(\frac{d^3y}{dx^3}\right)^2 - 3y = 0$ નું પરિમાણ = ____			
	A.	2	B.	3
	C.	1	D.	6
49.	Order of differential equation $\frac{d^2y}{dx^2} + e^{\frac{dy}{dx}} + y = 0$ is = ____			
	A.	0	B.	e
	C.	1	D.	2
૪૯.	વિકલ સમીકરણ $\frac{d^2y}{dx^2} + e^{\frac{dy}{dx}} + y = 0$ ની કક્ષા = ____			
	A.	0	B.	e
	C.	1	D.	2
50.	Degree of differential equation $x^2 \frac{dy}{dx} + \sin\left(\frac{d^2y}{dx^2}\right) = 1$ is = ____			
	A.	1	B.	2
	C.	0	D.	undefined
૫૦.	વિકલ સમીકરણ $x^2 \frac{dy}{dx} + \sin\left(\frac{d^2y}{dx^2}\right) = 1$ નું પરિમાણ = ____			
	A.	1	B.	2
	C.	0	D.	અવ્યાખ્યાયિત છે.
51.	Order of differential equation $\sqrt{\frac{d^2y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ is = ____			
	A.	2	B.	3
	C.	$\frac{1}{3}$	D.	$\frac{1}{2}$

૫૧.	વિકલ સમીકરણ $\sqrt{\frac{d^2y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ ની કક્ષા = ____			
	A.	2	B.	3
	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 $\frac{dy}{dx} + y = 2x$ is = ____			
	A.	e	B.	e^x
	C.	x	D.	1
૫૩.	વિકલ સમીકરણ $\frac{dy}{dx} + y = 2x$ 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.	$e^{\int P dx}$	B.	$e^{\int Q dx}$
	C.	$e^{-\int P dx}$	D.	$e^{-\int Q dx}$
૫૪.	વિકલ સમીકરણ $\frac{dy}{dx} + Py = Q$ નો સંકલ્પકારક અવયવ = ____			
	A.	$e^{\int P dx}$	B.	$e^{\int Q dx}$
	C.	$e^{-\int P dx}$	D.	$e^{-\int Q dx}$
55.	Integrating factor of differential equation $\frac{dy}{dx} + y \tan x = \sec x$ is = ____			
	A.	$\cos x$	B.	$\sec x$
	C.	$\log(\sec x)$	D.	$e^{\sec x}$
૫૫.	વિકલ સમીકરણ $\frac{dy}{dx} + y \tan x = \sec x$ 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.	$ye^x + 1 = c$
	C.	$yx = c$	D.	$y = cx$
૫૬.	વિકલ સમીકરણ $\frac{dy}{dx} + y = 1$ નો ઉકેલ = ____			

	A.	$e^x(y-1) = c$	B.	$ye^x + 1 = c$
	C.	$yx = c$	D.	$y = cx$
57.	Which one is first order Linear differential equation of the following?			
	A.	$x dx + dy = \frac{d^2 y}{dx^2}$	B.	$x \frac{dy}{dx} + y = 3$
	C.	$y + x = 3xy$	D.	None of these
૫૭.	નીચેના માંથી પ્રથમ કક્ષાનું એકઘાત વિકલ સમીકરણ કયુ છે?			
	A.	$x dx + dy = \frac{d^2 y}{dx^2}$	B.	$x \frac{dy}{dx} + y = 3$
	C.	$y + x = 3xy$	D.	એક પણ નહિ
58.	Order of the differential equation $x dx + y dy = 0$ is = _____			
	A.	2	B.	0
	C.	1	D.	None of these
૫૮.	વિકલ સમીકરણ $x dx + y dy = 0$ ની કક્ષા = _____			
	A.	2	B.	0
	C.	1	D.	એક પણ નહિ
59.	If $x_1, x_2, x_3, \dots x_n$ are observations of a grouped data then Mean of these observations is $\bar{x} =$ _____			
	A.	$n \sum x_i$	B.	$\frac{\sum x_i}{n}$
	C.	$\sum x_i$	D.	$\frac{1}{2} \sum x_i$
૫૯.	જો એક વર્ગીકૃત માહિતીના અવલોકનો $x_1, x_2, x_3, \dots x_n$ હોય તો આ અવલોકનોનો મધ્યક $\bar{x} =$ _____			
	A.	$n \sum x_i$	B.	$\frac{\sum x_i}{n}$
	C.	$\sum x_i$	D.	$\frac{1}{2} \sum x_i$
60.	Mean of first seven Natural numbers = _____			
	A.	7	B.	0.7
	C.	28	D.	4
૬૦.	પ્રથમ સાત પ્રાકૃતિક સંખ્યાઓનો મધ્યક _____ છે.			
	A.	7	B.	0.7
	C.	28	D.	4
61.	Mean of observations 3,5,2,6,5 is = _____			
	A.	2	B.	21
	C.	3	D.	$\frac{21}{5}$
૬૧.	અવલોકનો 3,5,2,6,5 નો મધ્યક _____ છે.			
	A.	2	B.	21

	C.	3	D.	$\frac{21}{5}$
62.	Mean of first ten even Natural numbers = _____			
	A.	5.5	B.	20
	C.	1.1	D.	11
૬૨.	પ્રથમ દસ યુગ્મ પ્રાકૃતિક સંખ્યાઓનો મધ્યક ____ છે.			
	A.	5.5	B.	20
	C.	1.1	D.	11
63.	Mean of observations 15, k, 6, 4, 3 is 7 then k = _____			
	A.	3	B.	4
	C.	7	D.	6
૬૩.	જો અવલોકનો 15, k, 6, 4, 3 નો મધ્યક 7 હોય તો, k = _____			
	A.	3	B.	4
	C.	7	D.	6
64.	If Mean of observations 11, x, 19, 21, y, 29 is 20 then $x + y =$ _____			
	A.	50	B.	40
	C.	30	D.	20
૬૪.	જો અવલોકનો 11, x, 19, 21, y, 29 નો મધ્યક 20 હોય તો $x + y =$ _____			
	A.	50	B.	40
	C.	30	D.	20
65.	Mean deviation of ungrouped data 58, 52, 45, 48, 57 is = _____			
	A.	52	B.	4.4
	C.	5.2	D.	44
૬૫.	અવર્ગીકૃત માહિતી 58, 52, 45, 48, 57 નું સરેરાશ વિચલન ____ છે.			
	A.	52	B.	4.4
	C.	5.2	D.	44
66.	Standard deviation of the given data 6, 7, 10, 4, 8 is = _____			
	A.	2	B.	35
	C.	7	D.	4
૬૬.	આપેલી માહિતી 6, 7, 10, 4, 8 માટે નું પ્રમાણિત વિચલન ____ છે.			
	A.	2	B.	35
	C.	7	D.	4
67.	Mean deviation about mean $\bar{x}$ of n observations $x_1, x_2, x_3, \dots, x_n$ is = _____			
	A.	$\sum_{i=1}^n x_i - \bar{x} $	B.	$n \sum_{i=1}^n x_i - \bar{x} $

	C.	$\frac{1}{n} \sum_{i=1}^n x_i - \bar{x} $	D.	$\sum_{i=1}^n (x_i - \bar{x})$
૬૭.	n અવલોકનો $x_1, x_2, x_3, \dots, x_n$ નું મધ્યક $\bar{x}$ થી સરેરાશ વિચલન ____ છે.			
	A.	$\sum_{i=1}^n x_i - \bar{x} $	B.	$n \sum_{i=1}^n x_i - \bar{x} $
	C.	$\frac{1}{n} \sum_{i=1}^n x_i - \bar{x} $	D.	$\sum_{i=1}^n (x_i - \bar{x})$
68.	For ungrouped data 42, 40, 42, 35, 26, 32, 41 and 33, its Mean = ____			
	A.	29.1	B.	291
	C.	36.375	D.	None of these
૬૮.	અવર્ગીકૃત માહિતી 42, 40, 42, 35, 26, 32, 41 અને 33 માટે, તેનો મધ્યક ____ છે.			
	A.	29.1	B.	291
	C.	36.375	D.	એક પણ નહિ
69.	Standard deviation of ungrouped data 30, 40, 70, 25, 60, 45 is = ____			
	A.	81.15	B.	15.81
	C.	20	D.	None of these
૬૯.	અવર્ગીકૃત માહિતી 30, 40, 70, 25, 60, 45 માટે નું પ્રમાણિત વિચલન ____ છે.			
	A.	81.15	B.	15.81
	C.	20	D.	એક પણ નહિ
70.	Standard deviation for grouped data is S = ____			
	A.	$\sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n}}$	B.	$\sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{2}}$
	C.	$\frac{1}{2} \sum f_i (x_i - \bar{x})^2$	D.	$\frac{1}{n} \sum f_i (x_i - \bar{x})^2$
૭૦.	વર્ગીકૃત માહિતી માટે પ્રમાણિત વિચલન S = ____ છે.			
	A.	$\sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{n}}$	B.	$\sqrt{\frac{\sum f_i (x_i - \bar{x})^2}{2}}$
	C.	$\frac{1}{2} \sum f_i (x_i - \bar{x})^2$	D.	$\frac{1}{n} \sum f_i (x_i - \bar{x})^2$
