

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering – SEMESTER – 2(CtoD) New – EXAMINATION – Winter-2024****Subject Code: C4320001****Date: 06-01-2025****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. 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.	Value of matrix $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$ is ____.			
	A.	6	B.	14
	C.	-6	D.	None
૧.	શ્રેણિક $\begin{bmatrix} 5 & 4 \\ 1 & 2 \end{bmatrix}$ ની કિમત ____ છે.			
	A.	6	B.	14
	C.	-6	D.	એક પણ નહિ
2.	Order of matrix $\begin{bmatrix} 2 & -5 & -1 \\ 4 & 7 & -6 \end{bmatrix}$ is ____.			
	A.	2×3	B.	3×2
	C.	3×3	D.	2×2
૨.	શ્રેણિક $\begin{bmatrix} 2 & -5 & -1 \\ 4 & 7 & -6 \end{bmatrix}$ નો ક્રમ ____ છે.			
	A.	2×3	B.	3×2
	C.	3×3	D.	2×2
3.	$\begin{bmatrix} 3 & -2 & 4 \\ -2 & 5 & -1 \\ 4 & -1 & 0 \end{bmatrix}$ is a ____ matrix.			
	A.	Identity	B.	Symmetric
	C.	Skew symmetric	D.	Diagonal
૩.	$\begin{bmatrix} 3 & -2 & 4 \\ -2 & 5 & -1 \\ 4 & -1 & 0 \end{bmatrix}$ એ ____ શ્રેણિક છે.			
	A.	એકમ શ્રેણિક	B.	સંમિત શ્રેણિક
	C.	વિસંમિત શ્રેણિક	D.	વિકર્ણ શ્રેણિક
4.	If $\begin{bmatrix} 4 & x \\ -2 & 0 \end{bmatrix} = \begin{bmatrix} 4 & 1 \\ y & 0 \end{bmatrix}$ then $(x, y) =$ ____.			
	A.	$(-1, 2)$	B.	$(4, -2)$
	C.	$(1, -2)$	D.	$(-2, 4)$

૪.	જો $\begin{bmatrix} 4 & x \\ -2 & 0 \end{bmatrix} = \begin{bmatrix} 4 & 1 \\ y & 0 \end{bmatrix}$ હોય તો $(x, y) = \underline{\hspace{2cm}}$.			
	A.	$(-1, 2)$	B.	$(4, -2)$
	C.	$(1, -2)$	D.	$(-2, 4)$
5.	For $A = \begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$, $2A - B = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 2 & 1 \\ 4 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & -1 \\ 4 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -2 & 1 \\ -4 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -2 & 1 \\ -4 & -1 \end{bmatrix}$
૫.	$A = \begin{bmatrix} 2 & 1 \\ 4 & 3 \end{bmatrix}$ અને $B = \begin{bmatrix} 2 & 1 \\ 4 & 5 \end{bmatrix}$ માટે $2A - B = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 2 & 1 \\ 4 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & -1 \\ 4 & -1 \end{bmatrix}$
	C.	$\begin{bmatrix} -2 & 1 \\ -4 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} -2 & 1 \\ -4 & -1 \end{bmatrix}$
6.	If $A = \begin{bmatrix} 4 & -1 \\ 0 & 0 \end{bmatrix}$ then $A + A^T = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 4 & -1 \\ -1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 8 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 8 & -1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 8 & 1 \\ -1 & 0 \end{bmatrix}$
૬.	જો $A = \begin{bmatrix} 4 & -1 \\ 0 & 0 \end{bmatrix}$ હોય તો $A + A^T = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 4 & -1 \\ -1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 8 & -1 \\ -1 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 8 & -1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 8 & 1 \\ -1 & 0 \end{bmatrix}$
7.	If the order of matrices A and B are 3×5 and 5×2 respectively then the order of matrix AB is $\underline{\hspace{2cm}}$.			
	A.	2×3	B.	2×5
	C.	3×2	D.	5×2
૭.	જો શ્રેણિક A નો ક્રમ 3×5 અને B નો ક્રમ 5×2 હોય તો શ્રેણિક AB નો ક્રમ $\underline{\hspace{2cm}}$ થાય.			
	A.	2×3	B.	2×5
	C.	3×2	D.	5×2
8.	$I^7 = \underline{\hspace{2cm}}$			
	A.	$7I$	B.	8
	C.	7	D.	I
૮.	$I^7 = \underline{\hspace{2cm}}$			
	A.	$7I$	B.	8
	C.	7	D.	I
9.	If the order of matrices A and AB are 3×5 and 3×4 respectively then the order of matrix B is $\underline{\hspace{2cm}}$.			
	A.	5×4	B.	4×5
	C.	3×3	D.	3×5
૯.	જો શ્રેણિક A નો ક્રમ 3×5 અને શ્રેણિક AB નો ક્રમ 3×4 હોય તો શ્રેણિક B નો ક્રમ $\underline{\hspace{2cm}}$ થાય.			
	A.	5×4	B.	4×5
	C.	3×3	D.	3×5

10.	$(A^T)^T = \underline{\hspace{2cm}}$.			
	A.	A^T	B.	A
	C.	$-A$	D.	$-A^T$
૧૦.	$(A^T)^T = \underline{\hspace{2cm}}$.			
	A.	A^T	B.	A
	C.	$-A$	D.	$-A^T$
11.	If $A = \begin{bmatrix} 0 & 0 \\ 2 & 1 \end{bmatrix}$ then $A^2 = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 0 & 0 \\ 4 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 4 & 1 \\ 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 0 & 0 \\ 2 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 1 \\ 0 & 0 \end{bmatrix}$
૧૧.	જો $A = \begin{bmatrix} 0 & 0 \\ 2 & 1 \end{bmatrix}$ હોય તો $A^2 = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 0 & 0 \\ 4 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 4 & 1 \\ 0 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 0 & 0 \\ 2 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 1 \\ 0 & 0 \end{bmatrix}$
12.	If $A = \begin{bmatrix} 2 & 5 \\ -1 & 3 \end{bmatrix}$ then $\text{adj } A = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} -3 & -5 \\ -1 & -2 \end{bmatrix}$	B.	$\begin{bmatrix} -3 & 5 \\ -1 & -2 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & -5 \\ -1 & 2 \end{bmatrix}$	D.	$\begin{bmatrix} 3 & -5 \\ 1 & 2 \end{bmatrix}$
૧૨.	જો $A = \begin{bmatrix} 2 & 5 \\ -1 & 3 \end{bmatrix}$ હોય તો $\text{adj } A = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} -3 & -5 \\ -1 & -2 \end{bmatrix}$	B.	$\begin{bmatrix} -3 & 5 \\ -1 & -2 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & -5 \\ -1 & 2 \end{bmatrix}$	D.	$\begin{bmatrix} 3 & -5 \\ 1 & 2 \end{bmatrix}$
13.	$(AB)^{-1} = \underline{\hspace{2cm}}$.			
	A.	$A^{-1}B^{-1}$	B.	$-AB$
	C.	$B^{-1}A^{-1}$	D.	I
૧૩.	$(AB)^{-1} = \underline{\hspace{2cm}}$.			
	A.	$A^{-1}B^{-1}$	B.	$-AB$
	C.	$B^{-1}A^{-1}$	D.	I
14.	If $ A \neq 0$ then ____.			
	A.	A^{-1} exists.	B.	A^{-1} does not exist.
	C.	A^T does not exist.	D.	None
૧૪.	જો $ A \neq 0$ હોય તો ____.			
	A.	A^{-1} અસ્તિત્વ ધરાવે	B.	A^{-1} અસ્તિત્વ ધરાવે નહીં.
	C.	A^T અસ્તિત્વ ધરાવે નહીં.	D.	એક પણ નહિ

15.	If $A = \begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$ then $A^{-1} = \underline{\hspace{2cm}}$.		
	A.	$\frac{-1}{2} \begin{bmatrix} 1 & -3 \\ -2 & 4 \end{bmatrix}$	B. $\frac{-1}{2} \begin{bmatrix} -1 & -3 \\ -2 & -4 \end{bmatrix}$
	C.	$\frac{-1}{2} \begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$	D. $\frac{-1}{2} \begin{bmatrix} -1 & 3 \\ 2 & -4 \end{bmatrix}$
૧૫.	જો $A = \begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$ હોય તો $A^{-1} = \underline{\hspace{2cm}}$.		
	A.	$\frac{-1}{2} \begin{bmatrix} 1 & -3 \\ -2 & 4 \end{bmatrix}$	B. $\frac{-1}{2} \begin{bmatrix} -1 & -3 \\ -2 & -4 \end{bmatrix}$
	C.	$\frac{-1}{2} \begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$	D. $\frac{-1}{2} \begin{bmatrix} -1 & 3 \\ 2 & -4 \end{bmatrix}$
16.	$AA^{-1} = \underline{\hspace{2cm}}$.		
	A.	A^{-1}	B. A
	C.	A^2	D. I
૧૬.	$AA^{-1} = \underline{\hspace{2cm}}$.		
	A.	A^{-1}	B. A
	C.	A^2	D. I
17.	If $f(x) = x^2 + 5x - 7$ then $f'(3) = \underline{\hspace{2cm}}$.		
	A.	10	B. 11
	C.	22	D. 18
18.	If $f(x) = e^{2x}$ then $f'(x) = \underline{\hspace{2cm}}$.		
	A.	$2e^{2x}$	B. $2e^x$
	C.	$3e^{2x}$	D. $3e^x$
૧૮.	જો $f(x) = e^{2x}$ હોય તો $f'(x) = \underline{\hspace{2cm}}$.		
	A.	$2e^{2x}$	B. $2e^x$
	C.	$3e^{2x}$	D. $3e^x$
19.	If $y = \log 5$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$		
	A.	5	B. -5
	C.	1	D. 0
૧૯.	જો $y = \log 5$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$		
	A.	5	B. -5
	C.	1	D. 0
20.	$\frac{d}{dx}(a^x) = \underline{\hspace{2cm}}$		
	A.	a^x	B. xa^{x-1}
	C.	$a^x \log_e a$	D. a^{x-1}
૨૦.	$\frac{d}{dx}(a^x) = \underline{\hspace{2cm}}$		
	A.	a^x	B. xa^{x-1}
	C.	$a^x \log_e a$	D. a^{x-1}
21.	$\frac{d}{dx}(\sec x) = \underline{\hspace{2cm}}$		
	A.	$\sec x$	B. $\sec x \tan x$

	C.	$\sec^2 x$	D.	$\sec 2x$
૨૧.	$\frac{d}{dx}(\sec x) = \underline{\hspace{2cm}}$			
	A.	$\sec x$	B.	$\sec x \tan x$
	C.	$\sec^2 x$	D.	$\sec 2x$
22.	$\frac{d}{dx}(\sin x) = \underline{\hspace{2cm}}$			
	A.	$-\sin x$	B.	$\cos x$
	C.	x	D.	1
૨૨.	$\frac{d}{dx}(\sin x) = \underline{\hspace{2cm}}$			
	A.	$-\sin x$	B.	$\cos x$
	C.	x	D.	1
23.	If $y = \frac{1}{x}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\frac{-2}{x^2}$	B.	$\frac{-2}{x}$
	C.	$\frac{-1}{x^2}$	D.	$\frac{2}{(x-1)^2}$
૨૩.	જો $y = \frac{1}{x}$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\frac{-2}{x^2}$	B.	$\frac{-2}{x}$
	C.	$\frac{-1}{x^2}$	D.	$\frac{2}{(x-1)^2}$
24.	$\frac{d}{dx}(\cot^{-1} x) = \underline{\hspace{2cm}}$			
	A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{\sqrt{x^2-1}}$	D.	$\frac{-1}{1-x^2}$
૨૪.	$\frac{d}{dx}(\cot^{-1} x) = \underline{\hspace{2cm}}$			
	A.	$\frac{-1}{1+x^2}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{\sqrt{x^2-1}}$	D.	$\frac{-1}{1-x^2}$
25.	If $y = 3 + \log x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{1}{x}$	B.	$3x + \frac{1}{x}$
	C.	$3 + x$	D.	3
૨૫.	જો $y = 3 + \log x$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{1}{x}$	B.	$3x + \frac{1}{x}$
	C.	$3 + x$	D.	3

26.	If $y = x \log x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\log x$	B.	$\log x + 1$
	C.	1	D.	x
૨૬.	જો $y = x \log x$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\log x$	B.	$\log x + 1$
	C.	1	D.	x
27.	If $y = x^e - e^x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	e^x	B.	$ex^{e-1} - e^x$
	C.	$x^e - e^x$	D.	x^e
૨૭.	જો $y = x^e - e^x$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	e^x	B.	$ex^{e-1} - e^x$
	C.	$x^e - e^x$	D.	x^e
28.	If $y = \sin 3x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$3 \sin 3x$	B.	$3 \cos 3x$
	C.	$\cos 3x$	D.	$3 \cos x$
૨૮.	જો $y = \sin 3x$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$3 \sin 3x$	B.	$3 \cos 3x$
	C.	$\cos 3x$	D.	$3 \cos x$
29.	If $x = \sin \theta, y = \cos \theta$ where a is a constant then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$-\tan \theta$	B.	$\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
૨૯.	જો $x = \sin \theta, y = \cos \theta$ જ્યાં a અચલ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$-\tan \theta$	B.	$\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
30.	If $5x + 5y = 2$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	1	B.	-1
	C.	2	D.	-2
૩૦.	જો $5x + 5y = 2$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	1	B.	-1
	C.	2	D.	-2
31.	If the equation of motion is $S = 3t^2 + 2t - 4$ then velocity $v = \underline{\hspace{2cm}}$ at $t = 2$.			
	A.	14	B.	-14
	C.	12	D.	-12
૩૧.	ગતિસૂત્ર $S = 3t^2 + 2t - 4$ હોય તો $t=2$ માટે વેગ $v = \underline{\hspace{2cm}}$.			
	A.	14	B.	-14
	C.	12	D.	-12
32.	The condition for the maximum value of $f(x)$ at $x = x_1$ is $\underline{\hspace{2cm}}$.			
	A.	$f''(x_1) > 0$	B.	$f''(x_1) = 0$
	C.	$f''(x_1) < 0$	D.	None of these

32.	$x = x_1$ આગળ વિધેય $f(x)$ ની મહત્તમ કિંમત મળવાની શરત _____ છે .			
	A.	$f''(x_1) > 0$	B.	$f''(x_1) = 0$
	C.	$f''(x_1) < 0$	D.	એક પણ નહિ
33.	$\int \frac{1}{x} dx = \text{_____} + c$			
	A.	$-\log x$	B.	$-x$
	C.	x	D.	$\log x$
33.	$\int \frac{1}{x} dx = \text{_____} + c$			
	A.	$-\log x$	B.	$-x$
	C.	x	D.	$\log x$
34.	$\int dx = \text{_____} + c$			
	A.	0	B.	1
	C.	$-x$	D.	x
38.	$\int dx = \text{_____} + c$			
	A.	0	B.	1
	C.	$-x$	D.	x
35.	$\int \cos x dx = \text{_____} + c$			
	A.	$\sin x$	B.	$-\sin x$
	C.	$\cos x$	D.	$-\cos x$
34.	$\int \cos x dx = \text{_____} + c$			
	A.	$\sin x$	B.	$-\sin x$
	C.	$\cos x$	D.	$-\cos x$
36.	$\int e^x dx = \text{_____} + c$			
	A.	$-x$	B.	$-e^x$
	C.	e^x	D.	$-x$
35.	$\int e^x dx = \text{_____} + c$			
	A.	$-x$	B.	$-e^x$
	C.	e^x	D.	$-x$
37.	$\int (\sin^2 x + \cos^2 x) dx = \text{_____} + c$			
	A.	$2 \sin x$	B.	$2 \cos x$
	C.	1	D.	x
39.	$\int (\sin^2 x + \cos^2 x) dx = \text{_____} + c$			
	A.	$2 \sin x$	B.	$2 \cos x$
	C.	1	D.	x
38.	$\int \operatorname{cosec}^2 x dx = \text{_____} + c$			
	A.	$-\cot x$	B.	$\operatorname{cosec} x$
	C.	$\tan x$	D.	$\operatorname{cosec} x \tan x$
36.	$\int \operatorname{cosec}^2 x dx = \text{_____} + c$			
	A.	$-\cot x$	B.	$\operatorname{cosec} x$
	C.	$\tan x$	D.	$\operatorname{cosec} x \tan x$
39.	$\int \frac{1}{1+x^2} dx = \text{_____} + c$			
	A.	$\sin^{-1} x$	B.	$\cos^{-1} x$
	C.	$\cot^{-1} x$	D.	$\tan^{-1} x$

36.	$\int \frac{1}{1+x^2} dx = \text{_____} + c$			
	A.	$\sin^{-1}x$	B.	$\cos^{-1}x$
	C.	$\cot^{-1}x$	D.	$\tan^{-1}x$
40.	$\int (4x^3 + 3x^2 - 1) dx = \text{_____} + c$			
	A.	$4x^4 + 3x^3 - x$	B.	$4x^4 + 6x^3 - x$
	C.	$4x^2 + 6x - 1$	D.	$x^4 + x^3 - x$
40.	$\int (4x^3 + 3x^2 - 1) dx = \text{_____} + c$			
	A.	$4x^4 + 3x^3 - x$	B.	$4x^4 + 6x^3 - x$
	C.	$4x^2 + 6x - 1$	D.	$x^4 + x^3 - x$
41.	$\int f'(x) dx = \text{_____} + c$			
	A.	$f'(x)$	B.	$f(x)$
	C.	$-f(x)$	D.	$f''(x)$
41.	$\int f'(x) dx = \text{_____} + c$			
	A.	$f'(x)$	B.	$f(x)$
	C.	$-f(x)$	D.	$f''(x)$
42.	$\int \frac{1}{2\sqrt{x}} dx = \text{_____} + c$			
	A.	$\sqrt{x}$	B.	$2\sqrt{x}$
	C.	$-\sqrt{x}$	D.	$-2\sqrt{x}$
42.	$\int \frac{1}{2\sqrt{x}} dx = \text{_____} + c$			
	A.	$\sqrt{x}$	B.	$2\sqrt{x}$
	C.	$-\sqrt{x}$	D.	$-2\sqrt{x}$
43.	$\int (x^2 + x - 2)(2x + 1) dx = \text{_____} + c$			
	A.	$(x^2 + x - 2)^2$	B.	$x^2 + x - 2$
	C.	$\frac{(x^2 + x - 2)^2}{2}$	D.	$2x + 1$
43.	$\int (x^2 + x - 2)(2x + 1) dx = \text{_____} + c$			
	A.	$(x^2 + x - 2)^2$	B.	$x^2 + x - 2$
	C.	$\frac{(x^2 + x - 2)^2}{2}$	D.	$2x + 1$
44.	$\int \frac{\cos x}{\sin x} dx = \text{_____} + c$			
	A.	$\sin x$	B.	$\cos x$
	C.	$\cos x - \sin x$	D.	$\log(\sin x)$
44.	$\int \frac{\cos x}{\sin x} dx = \text{_____} + c$			
	A.	$\sin x$	B.	$\cos x$
	C.	$\cos x - \sin x$	D.	$\log(\sin x)$
45.	$\int_1^2 3x^2 dx = \text{_____}$			
	A.	7	B.	8
	C.	-7	D.	-8

૪૫.	$\int_1^2 3x^2 dx = \underline{\hspace{2cm}}$			
	A.	7	B.	8
	C.	-7	D.	-8
46.	$\int_{-2}^2 (x^3 - x) dx = \underline{\hspace{2cm}}$			
	A.	-1	B.	1
	C.	0	D.	4
૪૬.	$\int_{-2}^2 (x^3 - x) dx = \underline{\hspace{2cm}}$			
	A.	-1	B.	1
	C.	0	D.	4
47.	Order of $x^6 \frac{d^3 y}{dx^3} + 5 \frac{dy}{dx} + 2x = 0$ is ____.			
	A.	0	B.	1
	C.	2	D.	3
૪૭.	$x^6 \frac{d^3 y}{dx^3} + 5 \frac{dy}{dx} + 2x = 0$ ની કક્ષા ____.			
	A.	0	B.	1
	C.	2	D.	3
48.	Degree of $\left(\frac{d^2 y}{dx^2}\right)^3 + \left(\frac{dy}{dx}\right)^4 + 2 = 0$ is ____.			
	A.	1	B.	2
	C.	3	D.	4
૪૮.	$\left(\frac{d^2 y}{dx^2}\right)^3 + \left(\frac{dy}{dx}\right)^4 + 2 = 0$ નું પરિમાણ ____.			
	A.	1	B.	2
	C.	3	D.	4
49.	Order of $x - \frac{dy}{dx} = \sqrt{1 - \left(\frac{dy}{dx}\right)^3}$ is ____.			
	A.	1	B.	2
	C.	3	D.	4
૪૯.	$x - \frac{dy}{dx} = \sqrt{1 - \left(\frac{dy}{dx}\right)^3}$ ની કક્ષા ____.			
	A.	1	B.	2
	C.	3	D.	4
50.	Degree of $\left(\frac{dy}{dx}\right)^4 + \left(\frac{d^2 y}{dx^2}\right)^3 + \cos\left[\frac{dy}{dx}\right] = 0$ is ____.			
	A.	2	B.	3
	C.	4	D.	Not Defined
૫૦.	$\left(\frac{dy}{dx}\right)^4 + \left(\frac{d^2 y}{dx^2}\right)^3 + \cos\left[\frac{dy}{dx}\right] = 0$ નું પરિમાણ ____.			
	A.	2	B.	3
	C.	4	D.	અવ્યાખ્યાયિત
51.	Which of the following is not a differential equation?			

	A.	$x + \frac{dy}{dx} = 0$	B.	$e^x - e^y = \frac{dy}{dx}$
	C.	$x \sin y + y \cos x = 0$	D.	$y = \cos \left[\frac{dy}{dx} \right]$
૫૧.	નીચેનામાંથી કયું વિકલ સમીકરણ નથી?			
	A.	$x + \frac{dy}{dx} = 0$	B.	$e^x - e^y = \frac{dy}{dx}$
	C.	$x \sin y + y \cos x = 0$	D.	$y = \cos \left[\frac{dy}{dx} \right]$
52.	The solution of $\frac{dy}{dx} = 1$ is ____.			
	A.	1	B.	0
	C.	y	D.	x
૫૨.	$\frac{dy}{dx} = 1$ નો ઉકેલ ____ થાય.			
	A.	1	B.	0
	C.	y	D.	x
53.	$y = e^x$ is a solution of which differential equation?			
	A.	$\frac{dy}{dx} + y = 0$	B.	$\frac{dy}{dx} - y = e^x$
	C.	$\frac{dy}{dx} - y = 0$	D.	$\frac{dy}{dx} + y = e^x$
૫૩.	નીચેનામાંથી કયા વિકલ સમીકરણ નો ઉકેલ $y = e^x$ થાય?			
	A.	$\frac{dy}{dx} + y = 0$	B.	$\frac{dy}{dx} - y = e^x$
	C.	$\frac{dy}{dx} - y = 0$	D.	$\frac{dy}{dx} + y = e^x$
54.	Which of the following is a linear differential equation?			
	A.	$\frac{dy}{dx} + y^3 = 0$	B.	$\frac{dy}{dx} + y = x^3$
	C.	$\frac{dy}{dx} + xy^2 = 0$	D.	$\frac{dx}{dy} + y = x^3$
૫૪.	નીચેનામાંથી કયું સુરેખ વિકલ સમીકરણ છે?			
	A.	$\frac{dy}{dx} + y^3 = 0$	B.	$\frac{dy}{dx} + y = x^3$
	C.	$\frac{dy}{dx} + xy^2 = 0$	D.	$\frac{dx}{dy} + y = x^3$
55.	Which of the following is NOT a linear differential equation?			
	A.	$\frac{dx}{dy} - 3x = y^2$	B.	$\frac{dy}{dx} + x^3 = 3y$
	C.	$\frac{dy}{dx} - y \cos x = \sin x$	D.	$\frac{dy}{dx} + 5y^2 = 3x$
૫૫.	નીચેનામાંથી કયું સુરેખ વિકલ સમીકરણ નથી?			
	A.	$\frac{dx}{dy} - 3x = y^2$	B.	$\frac{dy}{dx} + x^3 = 3y$
	C.	$\frac{dy}{dx} - y \cos x = \sin x$	D.	$\frac{dy}{dx} + 5y^2 = 3x$

56.	Integrating factor of $\frac{dx}{dy} + x = \cos y$ is ____.			
	A.	$-e^x$	B.	$-e^y$
	C.	e^x	D.	e^y
૫૬.	$\frac{dx}{dy} + x = \cos y$ નું સંકલ્પકારક અવયવ ____ થાય.			
	A.	$-e^x$	B.	$-e^y$
	C.	e^x	D.	e^y
57.	Integrating factor of $\frac{dy}{dx} + 3x^4 = 2y$ is ____.			
	A.	e^{2x}	B.	e^{-2x}
	C.	e^{3x}	D.	e^{-3x}
૫૭.	$\frac{dy}{dx} + 3x^4 = 2y$ નું સંકલ્પકારક અવયવ ____ થાય.			
	A.	e^{2x}	B.	e^{-2x}
	C.	e^{3x}	D.	e^{-3x}
58.	Integrating factor of $\frac{dy}{dx} + \frac{y}{x} = 4x$ is ____.			
	A.	x	B.	y
	C.	$\log x$	D.	$\log y$
૫૮.	$\frac{dy}{dx} + \frac{y}{x} = 4x$ નું સંકલ્પકારક અવયવ ____ થાય.			
	A.	x	B.	y
	C.	$\log x$	D.	$\log y$
59.	The mean of observations 1, 2, 3, 4, ...n is ____.			
	A.	$\frac{n+1}{2}$	B.	$\frac{n(n+1)}{2}$
	C.	$n+1$	D.	$n(n+1)$
૫૯.	અવલોકનો 1, 2, 3, 4, ...n નો મધ્યક ____ છે.			
	A.	$\frac{n+1}{2}$	B.	$\frac{n(n+1)}{2}$
	C.	$n+1$	D.	$n(n+1)$
60.	The mean of first five even numbers is ____.			
	A.	30	B.	5
	C.	6	D.	10
૬૦.	પ્રથમ પાંચ યુગ્મ સંખ્યાઓનો મધ્યક ____ છે.			
	A.	30	B.	5
	C.	6	D.	10
61.	The mean of first five prime numbers is ____.			
	A.	6	B.	5
	C.	28	D.	5.6
૬૧.	પ્રથમ પાંચ અવિભાજ્ય સંખ્યાઓનો મધ્યક ____ છે.			
	A.	6	B.	5
	C.	28	D.	5.6
62.	If the mean of 2, 3, 5, x, 8, -2 is 5 then $x =$ ____.			
	A.	8	B.	9
	C.	14	D.	15
૬૨.	જો અવલોકનો 2, 3, 5, x, 8, -2 નો મધ્યક 5 હોય તો $x =$ ____.			
	A.	8	B.	9

	C.	14	D.	15
63.	If the mean of 1, 4, x, 10, 3, y, 5, 2 is 7 then $x + y = \underline{\hspace{1cm}}$.			
	A.	8	B.	25
	C.	30	D.	31
૬૩.	જો અવલોકનો 1, 4, x, 10, 3, y, 5, 2 નો મધ્યક 7 હોય તો $x + y = \underline{\hspace{1cm}}$.			
	A.	8	B.	25
	C.	30	D.	31
64.	If the mean of 5 observations $x - 2, x - 1, x, x + 3, x + 5$ is 8 then $x = \underline{\hspace{1cm}}$.			
	A.	7	B.	8
	C.	5	D.	10
૬૪.	જો 5 અવલોકનો $x - 2, x - 1, x, x + 3, x + 5$ નો મધ્યક 8 હોય તો $x = \underline{\hspace{1cm}}$.			
	A.	7	B.	8
	C.	5	D.	10
65.	The mean for grouped data with n observations is _____.			
	A.	$\bar{X} = \frac{\sum_{i=1}^n x_i}{n}$	B.	$\bar{X} = \frac{\sum_{i=1}^n f_i x_i}{n}$
	C.	$\bar{X} = \sum_{i=1}^n x_i$	D.	$\bar{X} = \sum_{i=1}^n f_i x_i$
૬૫.	n અવલોકનોની વર્ગીકૃત માહિતીનો મધ્યક _____ છે.			
	A.	$\bar{X} = \frac{\sum_{i=1}^n x_i}{n}$	B.	$\bar{X} = \frac{\sum_{i=1}^n f_i x_i}{n}$
	C.	$\bar{X} = \sum_{i=1}^n x_i$	D.	$\bar{X} = \sum_{i=1}^n f_i x_i$
66.	The class length of class 25 – 30 is _____.			
	A.	5	B.	25
	C.	30	D.	5.5
૬૬.	વર્ગ 25 – 30 ની વર્ગ-લંબાઈ _____ છે.			
	A.	5	B.	25
	C.	30	D.	5.5
67.	The range of the data 18, 20, 12, 25, 31, 16 is _____.			
	A.	16	B.	17
	C.	18	D.	19
૬૭.	માહિતી 18, 20, 12, 25, 31, 16 નો વિસ્તાર _____ છે.			
	A.	16	B.	17
	C.	18	D.	19
68.	The mean of 1.1, 2.5, -3, -4.2, 5.1, 6, 6.5 is _____.			
	A.	2.5	B.	2
	C.	14	D.	14.5
૬૮.	1.1, 2.5, -3, -4.2, 5.1, 6, 6.5 નો મધ્યક _____ છે.			
	A.	2.5	B.	2
	C.	14	D.	14.5
69.	The mean deviation about mean for n observations is _____.			
	A.	$\delta \bar{X} = \sum_{i=1}^n X_i - \bar{X} $	B.	$\delta \bar{X} = X_i - \bar{X} $
	C.	$\delta \bar{X} = \frac{\sum_{i=1}^n X_i - \bar{X} }{n}$	D.	$\delta \bar{X} = \frac{ X_i - \bar{X} }{n}$
૬૯.	n અવલોકનો માટે મધ્યકથી સરેરાશ વિચલન _____ છે.			

	A.	$\delta \bar{X} = \sum_{i=1}^n X_i - \bar{X} $	B.	$\delta \bar{X} = X_i - \bar{X} $
	C.	$\delta \bar{X} = \frac{\sum_{i=1}^n X_i - \bar{X} }{n}$	D.	$\delta \bar{X} = \frac{ X_i - \bar{X} }{n}$
70.	Standard deviation = _____.			
	A.	Variance	B.	$\sqrt{\text{Variance}}$
	C.	$(\text{Variance})^2$	D.	$2 \times \text{Variance}$
90.	પ્રમાણિત વિચલન=_____.			
	A.	વિચરણ	B.	$\sqrt{\text{વિચરણ}}$
	C.	$(\text{વિચરણ})^2$	D.	$2 \times \text{વિચરણ}$
