Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 2(CtoD) New EXAMINATION – Summer-2023

Subject Code: C4320001 **Date: 03-08-2023**

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 programmable and 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.	The order of the matrix $\begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ is _____.			
	A.	2×3	B.	3×2
	C.	2×2	D.	None of these
૧.	$\begin{bmatrix} 1 & 2 \\ 3 & 1 \end{bmatrix}$ શ્રેણિક ની કક્ષા ____ છે.			
	A.	2×3	B.	3×2
	C.	2×2	D.	આમાથી એક પણ નહીં
2.	The order of the matrix $\begin{bmatrix} 2 & -2 & 3 \\ 0 & -1 & 1 \end{bmatrix}$ is _____.			
	A.	2×3	B.	3×2
	C.	2×2	D.	None of these
૨.	$\begin{bmatrix} 2 & -2 & 3 \\ 0 & -1 & 1 \end{bmatrix}$ શ્રેણિક ની કક્ષા ____ છે.			
	A.	2×3	B.	3×2
	C.	2×2	D.	આમાથી એક પણ નહીં
3.	2×2 is the order of the matrix _____ .			
	A.	$\begin{bmatrix} 3 & 2 & 1 \\ 0 & 1 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$	D.	$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$
૩.	2×2 કક્ષા ____ શ્રેણિક ની છે.			
	A.	$\begin{bmatrix} 3 & 2 & 1 \\ 0 & 1 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$	D.	$\begin{bmatrix} 1 \\ 2 \end{bmatrix}$
4.	$(A+B)^T =$ _____ .			
	A.	$(AB)^T$	B.	$A^T + B^T$
	C.	$A^T - B^T$	D.	None of these

૪.	$(A+B)^T = \_\_\_\_\_$.			
	A.	$(AB)^T$	B.	$A^T + B^T$
	C.	$A^T - B^T$	D.	આમાથી એક પણ નહીં
5.	$(A \cdot B)^T = \_\_\_\_\_$.			
	A.	$(A+B)^T$	B.	$A^T + B^T$
	C.	$B^T \cdot A^T$	D.	None of these
૫.	$(A \cdot B)^T = \_\_\_\_\_$.			
	A.	$(A+B)^T$	B.	$A^T + B^T$
	C.	$B^T \cdot A^T$	D.	આમાથી એક પણ નહીં
6.	$A \cdot A^{-1} = \_\_\_\_\_$.			
	A.	A^T	B.	$A + A^{-1}$
	C.	I (Identity or unit matrix)	D.	None of these
૬.	$A \cdot A^{-1} = \_\_\_\_\_$.			
	A.	A^T	B.	$A + A^{-1}$
	C.	I (એકમ શ્રેણિક)	D.	આમાથી એક પણ નહીં
7.	If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & -2 \\ -3 & -4 \end{bmatrix}$ then $A+B = \_\_\_\_\_$.			
	A.	A	B.	B
	C.	I (Identity or unit matrix)	D.	O (Zero or Null matrix)
૭.	જો $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ અને $B = \begin{bmatrix} -1 & -2 \\ -3 & -4 \end{bmatrix}$ હોય તો $A+B = \_\_\_\_\_$.			
	A.	A	B.	B
	C.	I (એકમ શ્રેણિક)	D.	O (શૂન્ય શ્રેણિક)
8.	If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ then $A-B = \_\_\_\_\_$.			
	A.	A	B.	B
	C.	$\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$	D.	O (Zero or Null matrix)
૮.	જો $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ અને $B = \begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$ હોય તો $A-B = \_\_\_\_\_$.			
	A.	A	B.	B
	C.	$\begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$	D.	O (શૂન્ય શ્રેણિક)
9.	If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ then $A^2 = \_\_\_\_\_$.			
	A.	A	B.	$2A$
	C.	$-A$	D.	O (Zero or Null matrix)
૯.	જો $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ હોય તો $A^2 = \_\_\_\_\_$.			
	A.	A	B.	$2A$
	C.	$-A$	D.	O (શૂન્ય શ્રેણિક)
10.	Find x and y if $\begin{bmatrix} x+y & 3 \\ -7 & x-y \end{bmatrix} = \begin{bmatrix} 8 & 3 \\ -7 & 2 \end{bmatrix}$.			
	A.	$x=6,\ y=2$	B.	$x=5,\ y=3$

	C.	$x=4,\ y=4$	D.	$x=7,\ y=1$
૧૦.	જો $\begin{bmatrix} x+y & 3 \\ -7 & x-y \end{bmatrix}=\begin{bmatrix} 8 & 3 \\ -7 & 2 \end{bmatrix}$ હોય તો x અને y શોધો.			
	A.	$x=6,\ y=2$	B.	$x=5,\ y=3$
	C.	$x=4,\ y=4$	D.	$x=7,\ y=1$
11.	If $A=\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ then $A^T=$_____.			
	A.	A	B.	$\begin{bmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$	D.	O (Zero or Null matrix)
૧૧.	જો $A=\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$ હોય તો $A^T=$_____.			
	A.	A	B.	$\begin{bmatrix} 4 & 5 & 6 \\ 1 & 2 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 4 \\ 2 & 5 \\ 3 & 6 \end{bmatrix}$	D.	O (શૂન્ય શ્રેણિક)
12.	If $A=\begin{bmatrix} 1 & -2 \\ 2 & 3 \end{bmatrix}$ then $adj.A=$_____.			
	A.	$\begin{bmatrix} 1 & -2 \\ 2 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & -2 \\ 2 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 2 \\ -2 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 3 & 2 \\ -2 & 1 \end{bmatrix}$
૧૨.	જો $A=\begin{bmatrix} 1 & -2 \\ 2 & 3 \end{bmatrix}$ હોય તો $adj.A=$_____.			
	A.	$\begin{bmatrix} 1 & -2 \\ 2 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & -2 \\ 2 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 2 \\ -2 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 3 & 2 \\ -2 & 1 \end{bmatrix}$
13.	If $A=\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ then $A^{-1}=$_____.			
	A.	$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
	C.	$\frac{1}{4}\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	D.	O (Zero or Null matrix)
૧૩.	જો $A=\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$ હોય તો $A^{-1}=$_____.			
	A.	$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
	C.	$\frac{1}{4}\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	D.	O (શૂન્ય શ્રેણિક)

14.	If $A=\begin{bmatrix}2 & -1\\ -1 & 1\end{bmatrix}$ and $B=\begin{bmatrix}0 & 1\\ 1 & 0\end{bmatrix}$ then $2A+3B=$ _____ .			
	A.	$\begin{bmatrix}4 & 1\\ 1 & 2\end{bmatrix}$	B.	$\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}1 & 1\\ 1 & 1\end{bmatrix}$	D.	$\begin{bmatrix}4 & 2\\ 1 & 1\end{bmatrix}$
૧૪.	જો $A=\begin{bmatrix}2 & -1\\ -1 & 1\end{bmatrix}$ અને $B=\begin{bmatrix}0 & 1\\ 1 & 0\end{bmatrix}$ હોય તો $2A+3B=$ _____ .			
	A.	$\begin{bmatrix}4 & 1\\ 1 & 2\end{bmatrix}$	B.	$\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}1 & 1\\ 1 & 1\end{bmatrix}$	D.	$\begin{bmatrix}4 & 2\\ 1 & 1\end{bmatrix}$
15.	If $A=\begin{bmatrix}1 & 0\\ 1 & 1\end{bmatrix}$ and $B=\begin{bmatrix}1 & 1\\ 1 & 0\end{bmatrix}$ then $A\cdot B=$ _____ .			
	A.	$\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$	B.	$\begin{bmatrix}1 & 1\\ 2 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}1 & 2\\ 1 & 1\end{bmatrix}$	D.	$\begin{bmatrix}1 & 1\\ 1 & 1\end{bmatrix}$
૧૫.	જો $A=\begin{bmatrix}1 & 0\\ 1 & 1\end{bmatrix}$ અને $B=\begin{bmatrix}1 & 1\\ 1 & 0\end{bmatrix}$ હોય તો $A\cdot B=$ _____ .			
	A.	$\begin{bmatrix}1 & 0\\ 0 & 1\end{bmatrix}$	B.	$\begin{bmatrix}1 & 1\\ 2 & 1\end{bmatrix}$
	C.	$\begin{bmatrix}1 & 2\\ 1 & 1\end{bmatrix}$	D.	$\begin{bmatrix}1 & 1\\ 1 & 1\end{bmatrix}$
16.	$(A\cdot B)^{-1}=$ _____ .			
	A.	$(A+B)^{-1}$	B.	$A^{-1}+B^{-1}$
	C.	$B^{-1}\cdot A^{-1}$	D.	None of these
૧૬.	$(A\cdot B)^{-1}=$ _____ .			
	A.	$(A+B)^{-1}$	B.	$A^{-1}+B^{-1}$
	C.	$B^{-1}\cdot A^{-1}$	D.	આમાથી એક પણ નહીં
17.	$\frac{d}{dx}\sin x=$ _____ .			
	A.	$\sin x$	B.	$\cos x$
	C.	$\sec x$	D.	$\cos ecx$
૧૭.	$\frac{d}{dx}\sin x=$ _____ .			
	A.	$\sin x$	B.	$\cos x$
	C.	$\sec x$	D.	$\cos ecx$
18.	$\frac{d}{dx}\cos x=$ _____ .			
	A.	$\cos x$	B.	$-\cos x$
	C.	$\sin x$	D.	$-\sin x$
૧૮.	$\frac{d}{dx}\cos x=$ _____ .			
	A.	$\cos x$	B.	$-\cos x$

	C.	$\sin x$	D.	$-\sin x$
19.	$\frac{d}{dx}\sec x =$ _____ .			
	A.	$\tan x$	B.	$\sec x \tan x$
	C.	$\cos ecx$	D.	$\cos ecx \cot x$
૧૯.	$\frac{d}{dx}\sec x =$ _____ .			
	A.	$\tan x$	B.	$\sec x \tan x$
	C.	$\cos ecx$	D.	$\cos ecx \cot x$
20.	$\frac{d}{dx}\sin^{75}\left(\frac{\pi}{2}\right) =$ _____ .			
	A.	75	B.	0
	C.	76	D.	1
૨૦.	$\frac{d}{dx}\sin^{75}\left(\frac{\pi}{2}\right) =$ _____ .			
	A.	75	B.	0
	C.	76	D.	1
21.	If $y = 3^x$ then $\frac{dy}{dx} =$ _____ .			
	A.	3^x	B.	$3^x \log_e 3$
	C.	1	D.	0
૨૧.	જો $y = 3^x$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	3^x	B.	$3^x \log_e 3$
	C.	1	D.	0
22.	If $y = x^3$ then $\frac{dy}{dx} =$ _____ .			
	A.	$3x$	B.	$3x^2$
	C.	3	D.	0
૨૨.	જો $y = x^3$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	$3x$	B.	$3x^2$
	C.	3	D.	0
23.	If $y = x^2$ then $\frac{d^2y}{dx^2} =$ _____ .			
	A.	2	B.	$2x$
	C.	1	D.	0
૨૩.	જો $y = x^2$ હોય તો $\frac{d^2y}{dx^2} =$ _____ .			
	A.	2	B.	$2x$
	C.	1	D.	0
24.	$\frac{d^2}{dx^2}\sin x =$ _____			
	A.	$\cos x$	B.	$-\cos x$
	C.	$\sin x$	D.	$-\sin x$
૨૪.	$\frac{d^2}{dx^2}\sin x =$ _____			
	A.	$\cos x$	B.	$-\cos x$
	C.	$\sin x$	D.	$-\sin x$

25.	If $y = \log \sin x$ then $\frac{dy}{dx} =$ _____ .			
	A.	$\tan x$	B.	$\sin x$
	C.	$\cot x$	D.	$\cos x$
૨૫.	જો $y = \log \sin x$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	$\tan x$	B.	$\sin x$
	C.	$\cot x$	D.	$\cos x$
26.	If $y = e^{\log x}$ then $\frac{dy}{dx} =$ _____ .			
	A.	1	B.	0
	C.	$\log x$	D.	e
૨૬.	જો $y = e^{\log x}$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	1	B.	0
	C.	$\log x$	D.	e
27.	If $y = \sin^2 x$ then $\frac{dy}{dx} =$ _____ .			
	A.	$\sin x$	B.	$\cos x$
	C.	$\sin 2x$	D.	$\cos 2x$
૨૭.	જો $y = \sin^2 x$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	$\sin x$	B.	$\cos x$
	C.	$\sin 2x$	D.	$\cos 2x$
28.	If $y = x^x$ then $\frac{dy}{dx} =$ _____ .			
	A.	x^x	B.	$x^x (1 + \log x)$
	C.	$x^x \cdot \log x$	D.	0
૨૮.	જો $y = x^x$ હોય તો $\frac{dy}{dx} =$ _____ .			
	A.	x^x	B.	$x^x (1 + \log x)$
	C.	$x^x \cdot \log x$	D.	0
29.	$\frac{d}{dx}\left(\tan^{-1} x + \cot^{-1} x\right) =$ _____ .			
	A.	1	B.	0
	C.	$\frac{\pi}{2}$	D.	$-\frac{\pi}{2}$
૨૯.	$\frac{d}{dx}\left(\tan^{-1} x + \cot^{-1} x\right) =$ _____ .			
	A.	1	B.	0
	C.	$\frac{\pi}{2}$	D.	$-\frac{\pi}{2}$
30.	If $f(x) = \log x$ then $f'(1) =$ _____ .			
	A.	1	B.	2
	C.	0	D.	-1
૩૦.	જો $f(x) = \log x$ હોય તો $f'(1) =$ _____ .			
	A.	1	B.	2
	C.	0	D.	-1
31.	The equation of motion of a particle is $s = t^3 + t + 4,\ t > 0$, then the velocity =_____ at $t = 1$.			

	A.	1	B.	2
	C.	3	D.	4
૩૧.	જો પદાર્થ ની ગતિ નું સમીકરણ $s = t^3 + t + 4,\ t > 0$, હોય તો $t = 1$ વખતે વેગ=____.			
	A.	1	B.	2
	C.	3	D.	4
32.	Maximum value of the function $f(x) = 2x^3 - 3x^2 - 12x + 5$ is _____.			
	A.	10	B.	11
	C.	12	D.	15
૩૨.	વિધેય $f(x) = 2x^3 - 3x^2 - 12x + 5$ ની મહત્તમ કિંમત ____ છે.			
	A.	10	B.	11
	C.	12	D.	15
33.	$\int \sin x dx =$ _____ .			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
૩૩.	$\int \sin x dx =$ _____ .			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
34.	$\int \cos x dx =$ _____ .			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
૩૪.	$\int \cos x dx =$ _____ .			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
35.	$\int \frac{1}{x} dx =$ _____ .			
	A.	$\frac{1}{x} + c$	B.	$e^x + c$
	C.	$\log x + c$	D.	0
૩૫.	$\int \frac{1}{x} dx =$ _____ .			
	A.	$\frac{1}{x} + c$	B.	$e^x + c$
	C.	$\log x + c$	D.	0
36.	$\int e^x dx =$ _____ .			
	A.	$e^x + c$	B.	1
	C.	$\log x + c$	D.	0
૩૬.	$\int e^x dx =$ _____ .			
	A.	$e^x + c$	B.	1
	C.	$\log x + c$	D.	0
37.	$\int 5^x dx =$ _____ .			
	A.	$\frac{5^x}{\log 5^x} + c$	B.	$\frac{5}{\log 5^x} + c$
	C.	$\frac{5^x}{\log 5} + c$	D.	$\frac{5}{\log 5} + c$
૩૭.	$\int 5^x dx =$ _____ .			

	A.	$\frac{5^x}{\log 5^x}+c$	B.	$\frac{5}{\log 5^x}+c$
	C.	$\frac{5^x}{\log 5}+c$	D.	$\frac{5}{\log 5}+c$
38.	$\int \frac{dx}{\sqrt{x^2+a^2}} =$ _____ .			
	A.	$\log\left(x^2+a^2\right)+c$	B.	$\log\left(x+\sqrt{x^2+a^2}\right)+c$
	C.	$\log\left(\sqrt{x^2+a^2}\right)+c$	D.	$\log\left(x+\sqrt{x^2-a^2}\right)+c$
৩৮.	$\int \frac{dx}{\sqrt{x^2+a^2}} =$ _____ .			
	A.	$\log\left(x^2+a^2\right)+c$	B.	$\log\left(x+\sqrt{x^2+a^2}\right)+c$
	C.	$\log\left(\sqrt{x^2+a^2}\right)+c$	D.	$\log\left(x+\sqrt{x^2-a^2}\right)+c$
39.	$\int\left(x^2+x+1\right)dx =$ _____			
	A.	$2x+1$	B.	4
	C.	$\frac{x^3}{3}+\frac{x^2}{2}+x+c$	D.	0
৩৯.	$\int\left(x^2+x+1\right)dx =$ _____			
	A.	$2x+1$	B.	4
	C.	$\frac{x^3}{3}+\frac{x^2}{2}+x+c$	D.	0
40.	$\int \sec^2 x\cdot \operatorname{cosec}^2 x\,dx =$ _____ .			
	A.	$\sec^2 x\cdot \operatorname{cosec}^2 x+c$	B.	$\sec^2 x+\operatorname{cosec}^2 x+c$
	C.	$\tan x+\cot x+c$	D.	$\tan x-\cot x+c$
৪০.	$\int \sec^2 x\cdot \operatorname{cosec}^2 x\,dx =$ _____ .			
	A.	$\sec^2 x\cdot \operatorname{cosec}^2 x+c$	B.	$\sec^2 x+\operatorname{cosec}^2 x+c$
	C.	$\tan x+\cot x+c$	D.	$\tan x-\cot x+c$
41.	$\int \frac{6x+2}{3x^2+2x+5}dx =$ _____ .			
	A.	$\log(6x+2)+c$	B.	$\log\left(3x^2+2x+5\right)+c$
	C.	$6x+2$	D.	$3x^2+2x+5$
৪১.	$\int \frac{6x+2}{3x^2+2x+5}dx =$ _____ .			
	A.	$\log(6x+2)+c$	B.	$\log\left(3x^2+2x+5\right)+c$
	C.	$6x+2$	D.	$3x^2+2x+5$
42.	$\int \sin^4 x\cdot \cos x\,dx =$ _____ .			
	A.	$\frac{\sin x}{x}+c$	B.	$\frac{\sin^5 x}{5}+c$
	C.	$\frac{\cos x}{x}+c$	D.	$\frac{\cos^5 x}{5}+c$
৪২.	$\int \sin^4 x\cdot \cos x\,dx =$ _____ .			
	A.	$\frac{\sin x}{x}+c$	B.	$\frac{\sin^5 x}{5}+c$

	C.	$\frac{\cos x}{x}+c$	D.	$\frac{\cos^5 x}{5}+c$
43.	$\int \frac{dx}{\sqrt{a^2-x^2}} =$ _____ .			
	A.	$\sin^{-1}\frac{x}{a}+c$	B.	$\frac{1}{a}\tan^{-1}\frac{x}{a}+c$
	C.	$\log\left(x+\sqrt{x^2-a^2}\right)+c$	D.	$\log\left(x+\sqrt{x^2+a^2}\right)+c$
૪૩.	$\int \frac{dx}{\sqrt{a^2-x^2}} =$ _____ .			
	A.	$\sin^{-1}\frac{x}{a}+c$	B.	$\frac{1}{a}\tan^{-1}\frac{x}{a}+c$
	C.	$\log\left(x+\sqrt{x^2-a^2}\right)+c$	D.	$\log\left(x+\sqrt{x^2+a^2}\right)+c$
44.	$\int_0^4 x^3 dx =$ _____ .			
	A.	16	B.	32
	C.	64	D.	12
૪૪.	$\int_0^4 x^3 dx =$ _____ .			
	A.	16	B.	32
	C.	64	D.	12
45.	$\int_{-4}^4 x^3 dx =$ _____			
	A.	1	B.	0
	C.	12	D.	-12
૪૫.	$\int_{-4}^4 x^3 dx =$ _____			
	A.	1	B.	0
	C.	12	D.	-12
46.	The area bounded by the lines $x+y=1$, the y-axis and the x-axis is _____.			
	A.	1	B.	0
	C.	2	D.	$\frac{1}{2}$
૪૬.	રેખાઓ $x+y=1$, $y-$અક્ષ અને $x-$અક્ષ વડે ઘેરાયેલા પ્રદેશનું ક્ષેત્રફળ____થાય.			
	A.	1	B.	0
	C.	2	D.	$\frac{1}{2}$
47.	The order of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2+\left(\frac{d^2y}{dx^2}\right)^4+x\sin y=0$ is _____.			
	A.	2	B.	3
	C.	4	D.	1
૪૭.	વિકલ સમીકરણ $\left(\frac{d^3y}{dx^3}\right)^2+\left(\frac{d^2y}{dx^2}\right)^4+x\sin y=0$ ની કક્ષા ____ છે.			
	A.	2	B.	3
	C.	4	D.	1
48.	The degree of the differential equation $\frac{d^2y}{dx^2}+\left(\frac{dy}{dx}\right)^2=xy$ is _____.			
	A.	1	B.	2
	C.	3	D.	0

૪૮.	વિકલ સમીકરણ $\frac{d^2y}{dx^2}+\left(\frac{dy}{dx}\right)^2=xy$ નું પરિમાણ ____ છે.			
	A.	1	B.	2
	C.	3	D.	0
49.	Which of the following is not a differential equation?			
	A.	$\left(\frac{d^2y}{dx^2}\right)^2+\left(\frac{dy}{dx}\right)^3+xy=0$	B.	$\frac{d^2y}{dx^2}-5\frac{dy}{dx}+6=0$
	C.	$x^2\frac{d^2y}{dx^2}-5\left(\frac{dy}{dx}\right)^3-2y=0$	D.	$\sin y=x\sin x$
૪૯.	નીચે આપેલા માથી કયું સમીકરણ વિકલ સમીકરણ નથી?			
	A.	$\left(\frac{d^2y}{dx^2}\right)^2+\left(\frac{dy}{dx}\right)^3+xy=0$	B.	$\frac{d^2y}{dx^2}-5\frac{dy}{dx}+6=0$
	C.	$x^2\frac{d^2y}{dx^2}-5\left(\frac{dy}{dx}\right)^3-2y=0$	D.	$\sin y=x\sin x$
50.	The order of the differential equation $\frac{d^2y}{dx^2}+\left(\frac{dy}{dx}\right)^2=xy$ is _____.			
	A.	2	B.	3
	C.	4	D.	1
૫૦.	વિકલ સમીકરણ $\frac{d^2y}{dx^2}+\left(\frac{dy}{dx}\right)^2=xy$ ની કક્ષા ____ છે.			
	A.	2	B.	3
	C.	4	D.	1
51.	The degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2+\left(\frac{d^2y}{dx^2}\right)^4+x\sin y=0$ is _____.			
	A.	2	B.	3
	C.	4	D.	1
૫૧.	વિકલ સમીકરણ $\left(\frac{d^3y}{dx^3}\right)^2+\left(\frac{d^2y}{dx^2}\right)^4+x\sin y=0$ નું પરિમાણ ____ છે.			
	A.	2	B.	3
	C.	4	D.	1
52.	Integrating factor of the differential equation $\frac{dy}{dx}+y=2x$ is _____.			
	A.	1	B.	2
	C.	e^x	D.	logx
૫૨.	વિકલ સમીકરણ $\frac{dy}{dx}+y=2x$ નો સંકલ્ય અવયવ ____ છે.			
	A.	1	B.	2
	C.	e^x	D.	logx
53.	Integrating factor of the differential equation $\frac{dy}{dx}+y=\sin x$ is _____.			
	A.	0	B.	1
	C.	e^x	D.	logx
૫૩.	વિકલ સમીકરણ $\frac{dy}{dx}+y=\sin x$ નો સંકલ્ય અવયવ ____ છે.			
	A.	0	B.	1
	C.	e^x	D.	logx

54.	Integrating factor of the differential equation $\frac{dy}{dx}+\frac{y}{x}=5x$ is _____.			
	A.	1	B.	2
	C.	x	D.	logx
૫૪.	વિકલ સમીકરણ $\frac{dy}{dx}+\frac{y}{x}=5x$ નો સંકલ્ય અવયવ ____ છે.			
	A.	1	B.	2
	C.	x	D.	logx
55.	Integrating factor of the differential equation $\frac{dy}{dx}+2y=e^x$ is _____.			
	A.	2	B.	x
	C.	e^{2x}	D.	log2x
૫૫.	વિકલ સમીકરણ $\frac{dy}{dx}+2y=e^x$ નો સંકલ્ય અવયવ ____ છે.			
	A.	2	B.	x
	C.	e^{2x}	D.	log2x
56.	Integrating factor of the differential equation $x\frac{dy}{dx}+2y=\log x$ is _____.			
	A.	x	B.	x^2
	C.	e^x	D.	None of these
૫૬.	વિકલ સમીકરણ $x\frac{dy}{dx}+2y=\log x$ નો સંકલ્ય અવયવ ____ છે.			
	A.	x	B.	x^2
	C.	e^x	D.	આમાથી એક પણ નહીં
57.	The solution of the differential equation $ydx+xdy=0$ is _____.			
	A.	$x+y=c$	B.	$x^2+y^2=c$
	C.	$xy=c$	D.	None of these
૫૭.	વિકલ સમીકરણ $ydx+xdy=0$ નો ઉકેલ ____ છે.			
	A.	$x+y=c$	B.	$x^2+y^2=c$
	C.	$xy=c$	D.	આમાથી એક પણ નહીં
58.	The solution of the differential equation $\frac{dy}{dx}-\frac{x}{y}=0$ is _____.			
	A.	$x+y=c$	B.	$y=cx$
	C.	$xy=c$	D.	None of these
૫૮.	વિકલ સમીકરણ $\frac{dy}{dx}-\frac{x}{y}=0$ નો ઉકેલ ____ છે.			
	A.	$x+y=c$	B.	$y=cx$
	C.	$xy=c$	D.	આમાથી એક પણ નહીં
59.	If $x_1, x_2, x_3, \ldots, x_n$ are n observations of ungrouped data, then its mean is _____.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum x_i}{x_i}$
	C.	x_i	D.	0
૫૯.	જો $x_1, x_2, x_3, \ldots, x_n$ એ n અવલોકનો અવર્ગીકૃત માહિતી ના હોય તો મધ્યક ____ થાય.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum x_i}{x_i}$
	C.	x_i	D.	0
60.	The mean of first ten natural numbers is _____.			
	A.	10	B.	5

	C.	5.5	D.	55
૬૦.	પ્રથમ દસ પ્રાકૃતિક સંખ્યાઓ નો મધ્યક ____ છે.			
	A.	10	B.	5
	C.	5.5	D.	55
61.	The weights of ten students are 25, 27, 29, 26, 28, 30, 25, 28, 30, 30. Find the mean.			
	A.	27.8	B.	28.7
	C.	30	D.	25
૬૧.	દસ વિધ્યાર્થીઓ નું વજન 25, 27, 29, 26, 28, 30, 25, 28, 30, 30 છે. મધ્યક શોધો.			
	A.	27.8	B.	28.7
	C.	30	D.	25
62.	Mean of the observations 12, 16, 15, 18 and K is 14 then K=_____.			
	A.	8	B.	9
	C.	10	D.	13
૬૨.	અવલોકનો 12, 16, 15, 18 અને K નો મધ્યક 14 હોય તો K=_____.			
	A.	8	B.	9
	C.	10	D.	13
63.	If $x_1, x_2, x_3, \ldots, x_n$ are n observations of ungrouped data, then the formula for mean deviation about mean is _____.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum x_i}{x_i}$
	C.	$\frac{\sum \lvert x_i - \bar{x} \rvert}{n}$	D.	$\frac{\sum (x_i - \bar{x})^2}{n}$
૬૩.	જો $x_1, x_2, x_3, \ldots, x_n$ એ n અવલોકનો અવર્ગીકૃત માહિતી ના હોય તો મધ્યક થી સરેરાશ વિચલન નું સૂત્ર ____ થાય.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum x_i}{x_i}$
	C.	$\frac{\sum \lvert x_i - \bar{x} \rvert}{n}$	D.	$\frac{\sum (x_i - \bar{x})^2}{n}$
64.	The mean deviation about mean for the data 37, 70, 48, 50, 32, 56, 63, 46, 54, 44 is ____.			
	A.	50	B.	86
	C.	8.6	D.	5.0
૬૪.	માહિતી 37, 70, 48, 50, 32, 56, 63, 46, 54, 44 નું મધ્યક થી સરેરાશ વિચલન ____ થાય.			
	A.	50	B.	86
	C.	8.6	D.	5.0
65.	Formula for the mean deviation about mean for the grouped data is _____.			
	A.	$\frac{\sum (x_i - \bar{x})^2}{n}$	B.	$\frac{\sum x_i}{n}$
	C.	$\frac{\sum f_i \lvert x_i - \bar{x} \rvert}{n}$	D.	$\frac{\sum f_i (x_i - \bar{x})^2}{n}$
૬૫.	વર્ગીકૃત માહિતી માટે મધ્યક થી સરેરાશ વિચલન નું સૂત્ર ____ છે.			
	A.	$\frac{\sum (x_i - \bar{x})^2}{n}$	B.	$\frac{\sum x_i}{n}$
	C.	$\frac{\sum f_i \lvert x_i - \bar{x} \rvert}{n}$	D.	$\frac{\sum f_i (x_i - \bar{x})^2}{n}$
66.	The mean deviation about mean for the data 34, 32, 18, 20, 15, 17, 22, 25, 29, 28 is ____.			
	A.	5.6	B.	6.5
	C.	4.5	D.	5.4
૬૬.	માહિતી 34, 32, 18, 20, 15, 17, 22, 25, 29, 28 નું મધ્યક થી સરેરાશ વિચલન ____ થાય.			

	A.	5.6	B.	6.5
	C.	4.5	D.	5.4
67.	Formula for the standard deviation for the ungrouped data is _____.			
	A.	$\frac{\sum(x_i-\bar{x})^2}{n}$	B.	$\frac{\sum\lvert x_i-\bar{x}\rvert}{n}$
	C.	$\sqrt{\frac{\sum(x_i-\bar{x})^2}{n}}$	D.	$\sqrt{\frac{\sum\lvert x_i-\bar{x}\rvert}{n}}$
૬૭.	અવર્ગીકૃત માહિતી માટે પ્રમાણિત વિચલન નું સૂત્ર ____ છે.			
	A.	$\frac{\sum(x_i-\bar{x})^2}{n}$	B.	$\frac{\sum\lvert x_i-\bar{x}\rvert}{n}$
	C.	$\sqrt{\frac{\sum(x_i-\bar{x})^2}{n}}$	D.	$\sqrt{\frac{\sum\lvert x_i-\bar{x}\rvert}{n}}$
68.	Formula for the standard deviation for the grouped data is _____.			
	A.	$\frac{\sum f_i\lvert x_i-\bar{x}\rvert}{n}$	B.	$\frac{\sum f_i(x_i-\bar{x})^2}{n}$
	C.	$\sqrt{\frac{\sum f_i(x_i-\bar{x})^2}{n}}$	D.	$\sqrt{\frac{\sum f_i\lvert x_i-\bar{x}\rvert}{n}}$
૬૮.	વર્ગીકૃત માહિતી માટે પ્રમાણિત વિચલન નું સૂત્ર ____ છે.			
	A.	$\frac{\sum f_i\lvert x_i-\bar{x}\rvert}{n}$	B.	$\frac{\sum f_i(x_i-\bar{x})^2}{n}$
	C.	$\sqrt{\frac{\sum f_i(x_i-\bar{x})^2}{n}}$	D.	$\sqrt{\frac{\sum f_i\lvert x_i-\bar{x}\rvert}{n}}$
69.	The standard deviation for the data 6, 7, 10, 12, 13, 4, 8, 12 is _____.			
	A.	9	B.	8
	C.	3.04	D.	4.03
૬૯.	માહિતી 6, 7, 10, 12, 13, 4, 8, 12 માટે પ્રમાણિત વિચલન ____ થાય.			
	A.	9	B.	8
	C.	3.04	D.	4.03
70.	The standard deviation for the data 11, 7, 9, 15, 13 is _____.			
	A.	2.5	B.	2.6
	C.	2.7	D.	2.8
૭૦.	માહિતી 11, 7, 9, 15, 13 માટે પ્રમાણિત વિચલન ____ થાય.			
	A.	2.5	B.	2.6
	C.	2.7	D.	2.8

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