

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 2(CtoD) New – EXAMINATION – Winter-2025

Subject Code: C4320002

Date: 12-01-2026

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. 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.

No.	Question Text and Option. પૂર્ણ અને વિકલ્પ.			
1.	$\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix} - \begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix} = \underline{\hspace{2cm}}.$			
	A.	$\begin{bmatrix} 2 & 3 \\ 3 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 3 \\ 3 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & 3 \\ 3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 3 \\ 3 & 0 \end{bmatrix}$
૧.	$\begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix} - \begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix} = \underline{\hspace{2cm}}.$			
	A.	$\begin{bmatrix} 2 & 3 \\ 3 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 3 \\ 3 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 3 & 3 \\ 3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 3 \\ 3 & 01 \end{bmatrix}$
2.	Order of $\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 2 & 3 \end{bmatrix} = \underline{\hspace{2cm}}.$			
	A.	2×2	B.	2×3
	C.	3×2	D.	3×3
૨.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 2 & 3 \end{bmatrix}$ ની કક્ષી = $\underline{\hspace{2cm}}$ છે.			
	A.	2×2	B.	2×3
	C.	3×2	D.	3×3
3.	$\begin{bmatrix} 1 & 4 \\ 0 & 1 \end{bmatrix} \times \begin{bmatrix} 1 & -4 \\ 0 & 1 \end{bmatrix} = \underline{\hspace{2cm}}.$			
	A.	$\begin{bmatrix} 1 & -4 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$
3.	$\begin{bmatrix} 1 & 4 \\ 0 & 1 \end{bmatrix} \times \begin{bmatrix} 1 & -4 \\ 0 & 1 \end{bmatrix} = \underline{\hspace{2cm}}.$			
	A.	$\begin{bmatrix} 1 & -4 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

	C.	$\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & -2 \\ 0 & 1 \end{bmatrix}$
4.	For any matrix B, $(B^T)^T = \underline{\hspace{2cm}}$.			
	A.	$-B$	B.	B^T
	C.	$-B^T$	D.	B
૪.	કોઈ પણ શ્રેણિક B માટે, $(B^T)^T = \underline{\hspace{2cm}}$.			
	A.	$-B$	B.	B^T
	C.	$-B^T$	D.	B
5.	If $A = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \end{bmatrix}$ then $A \times B = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
૫.	જો $A = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$ અને $B = \begin{bmatrix} 1 & 0 \end{bmatrix}$ હોય, તો $A \times B = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 1 \\ 1 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
6.	$\begin{bmatrix} 1 & 2 \\ 2 & 2 \\ 1 & 1 \end{bmatrix}^T = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 2 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 \\ 1 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 1 \end{bmatrix}$
૬.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 1 \end{bmatrix}^T = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 & 1 \\ 2 & 2 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 \\ 1 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 2 \\ 1 & 2 \\ 1 & 1 \end{bmatrix}$
7.	If $\begin{bmatrix} x-1 & 1 \\ 2 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 2 & 3 \end{bmatrix}$, then $x = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	3	D.	4
૭.	જો $\begin{bmatrix} x-1 & 1 \\ 2 & 3 \end{bmatrix} = \begin{bmatrix} 1 & 1 \\ 2 & 3 \end{bmatrix}$ હોય, તો $x = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	3	D.	4
8.	If A is of order 2×1 and B is of order 1×3 then order of matrix AB is ____.			
	A.	2×3	B.	1×3
	C.	3×1	D.	1×1
૮.	જો A ની કક્ષા 2×1 અને B ની કક્ષા 1×3 હોય, તો AB ની કક્ષા ____.			
	A.	2×3	B.	1×3
	C.	3×1	D.	1×1
9.	If $AB = I$ then matrix A = ____.			
	A.	$adj(B)$	B.	B^{-1}

	C.	B^T	D.	$2B$
૯.	જો $AB = I$ હોય, તો શ્રેણિક $A = \underline{\hspace{2cm}}$.			
	A.	$adj(B)$	B.	B^{-1}
	C.	B^T	D.	$2B$
10.	A matrix A is called a ____ matrix if $\det(A) = 0$.			
	A.	Symmetric	B.	Skew-Symmetric
	C.	Singular	D.	Non-Singular
૧૦.	જો $\det(A) = 0$ હોય, તો શ્રેણિક A ____ થાય.			
	A.	સંમિત	B.	વિસંમિત
	C.	અસામાન્ય	D.	સામાન્ય
11.	If $\begin{bmatrix} 2x & x-2 \\ 0 & 1 \end{bmatrix}$ is symmetric matrix then $x = \underline{\hspace{2cm}}$.			
	A.	$x = 2$	B.	$x = 11$
	C.	$x = 0$	D.	$x = 2$
૧૧.	જો શ્રેણિક $\begin{bmatrix} 2x & x-2 \\ 0 & 1 \end{bmatrix}$ સંમિત શ્રેણિક હોય, તો $x = \underline{\hspace{2cm}}$.			
	A.	$x = 2$	B.	$x = 11$
	C.	$x = 0$	D.	$x = 2$
12.	If $\begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix} = \begin{bmatrix} x-2 & 1 \\ 0 & y-6 \end{bmatrix}$, then $x = \underline{\hspace{2cm}}$ and $y = \underline{\hspace{2cm}}$.			
	A.	1 and 1	B.	2 and 2
	C.	3 and 3	D.	4 and 4
૧૨.	જો $\begin{bmatrix} 2 & 1 \\ 0 & -2 \end{bmatrix} = \begin{bmatrix} x-2 & 1 \\ 0 & y-6 \end{bmatrix}$ હોય, તો $x = \underline{\hspace{2cm}}$ and $y = \underline{\hspace{2cm}}$.			
	A.	1 અને 1	B.	2 અને 2
	C.	3 અને 3	D.	4 અને 4
13.	If $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ then $adj(A) = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$
૧૩.	જો $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$ હોય, તો $adj(A) = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & -2 \\ -3 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 4 & 3 \\ 2 & 1 \end{bmatrix}$
14.	If $A = \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$ then $A^{-1} = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$	B.	Does not exists
	C.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D.	$\frac{1}{8} \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$
૧૪.	જો $A = \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$ હોય, તો $A^{-1} = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$	B.	A^{-1} નું અસ્તિત્વ નથી
	C.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	D.	$\frac{1}{8} \begin{bmatrix} 1 & 2 \\ 2 & 4 \end{bmatrix}$
15.	$I_2 = \underline{\hspace{2cm}}$.			

	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
14.	$I_2 = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$
16.	If $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$, then $A^2 = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
15.	જો $A = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ હોય, તો $A^2 = \underline{\hspace{2cm}}$.			
	A.	$\begin{bmatrix} 0 & 1 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 1 & 1 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
17.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	$\sin x$	D.	$\cos x$
19.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	$\sin x$	D.	$\cos x$
18.	$\frac{d}{dx}(20) = \underline{\hspace{2cm}}$.			
	A.	20	B.	21
	C.	0	D.	1
16.	$\frac{d}{dx}(20) = \underline{\hspace{2cm}}$.			
	A.	20	B.	21
	C.	0	D.	1
19.	If $f(x) = x + 2023$, then $f'(0) = \underline{\hspace{2cm}}$.			
	A.	1	B.	x
	C.	0	D.	2023
16.	જો $f(x) = x + 2023$ હોય, તો $f'(0) = \underline{\hspace{2cm}}$.			
	A.	1	B.	x
	C.	0	D.	2023
20.	If $f(x) = 2^x$, then $f'(1) = \underline{\hspace{2cm}}$.			
	A.	2	B.	$\frac{1}{2}$
	C.	$2\log_e 2$	D.	$\log_e 2$
20.	જો $f(x) = 2^x$ હોય, તો $f'(1) = \underline{\hspace{2cm}}$.			
	A.	2	B.	$\frac{1}{2}$
	C.	$2\log_e 2$	D.	$\log_e 2$
21.	If $y = e^{2x}$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	1	B.	$\frac{e^{2x}}{2}$

	C.	e^{2x}	D.	$2e^{2x}$
૨૧.	જો $y = e^{2x}$, હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	1	B.	$\frac{e^{2x}}{2}$
	C.	e^{2x}	D.	$2e^{2x}$
22.	If $y = \sin 3x$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\sin 3x$	B.	$3\cos 3x$
	C.	$3 \sin 3x$	D.	$\cos 3x$
૨૨.	જો $y = \sin 2x$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\sin 3x$	B.	$3\cos 3x$
	C.	$3 \sin 3x$	D.	$\cos 3x$
23.	$\frac{d}{dx}(\sin^{-1} x) = \underline{\hspace{2cm}}$.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1+x^2}$	D.	$\frac{-1}{1+x^2}$
૨૩.	$\frac{d}{dx}(\sin^{-1} x) = \underline{\hspace{2cm}}$.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1+x^2}$	D.	$\frac{-1}{1+x^2}$
24.	If $y = e^{\sin x}$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$e^{\sin x}$	B.	$\cos x e^{\sin x}$
	C.	$-\cos x e^{\sin x}$	D.	$e^{\cos x}$
૨૪.	જો $y = e^{\sin x}$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$e^{\sin x}$	B.	$\cos x e^{\sin x}$
	C.	$-\cos x e^{\sin x}$	D.	$e^{\cos x}$
25.	$\frac{d}{dx}(\sin^{-1} x + \cos^{-1} x) = \underline{\hspace{2cm}}$.			
	A.	0	B.	$\sin^{-1} x$
	C.	-1	D.	1
૨૫.	$\frac{d}{dx}(\sin^{-1} x + \cos^{-1} x) = \underline{\hspace{2cm}}$.			
	A.	0	B.	$\sin^{-1} x$
	C.	-1	D.	1
26.	If $xy = 2$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{1}{x^2}$	B.	1
	C.	$\frac{-2}{x^2}$	D.	0
૨૬.	જો $xy = 2$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{1}{x^2}$	B.	1
	C.	$\frac{-2}{x^2}$	D.	0
27.	If $x = \cos t$, $y = \sin t$, then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$-\cot t$	B.	$\cot t$
	C.	$\tan t$	D.	$\cos t$
૨૭.	જો $x = \cos t$, $y = \sin t$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			

	A.	$-\cot t$	B.	$\cot t$
	C.	$\tan t$	D.	$\cos t$
28.	If $f(x) = 2x^2$, then $f''(0) = \underline{\hspace{1cm}}$.			
	A.	0	B.	1
	C.	2	D.	4
୨୮.	જો $f(x) = 2x^2$ હોય, તો $f''(0) = \underline{\hspace{1cm}}$.			
	A.	0	B.	1
	C.	2	D.	4
29.	$\frac{d^2}{dx^2}(2023) = \underline{\hspace{1cm}}$.			
	A.	1	B.	0
	C.	2022	D.	2023
୨୯.	$\frac{d^2}{dx^2}(2023) = \underline{\hspace{1cm}}$.			
	A.	1	B.	0
	C.	2022	D.	2023
30.	$\frac{d^2}{dx^2}(\cos x) = \underline{\hspace{1cm}}$.			
	A.	$\sin x$	B.	$-\cos x$
	C.	$\cos x$	D.	$-\sin x$
3୦.	$\frac{d^2}{dx^2}(\cos x) = \underline{\hspace{1cm}}$.			
	A.	$\sin x$	B.	$-\cos x$
	C.	$\cos x$	D.	$-\sin x$
31.	$f(x)$ has maxima at $x = a$ if ____.			
	A.	$f'(a) = 0, f''(a) = 0$	B.	$f'(a) = 0, f''(a) > 0$
	C.	$f'(a) = 0, f''(a) < 0$	D.	$f'(a) < 0, f''(a) < 0$
31.	જો $x = a$ ଧାରାରେ $f(x)$ ની ક୍ରିମିତ મહତ୍ତମ હોય, તો ____.			
	A.	$f'(a) = 0, f''(a) = 0$	B.	$f'(a) = 0, f''(a) > 0$
	C.	$f'(a) = 0, f''(a) < 0$	D.	$f'(a) < 0, f''(a) < 0$
32.	$f(x)$ has minima at $x = a$ if ____.			
	A.	$f'(a) = 0, f''(a) = 0$	B.	$f'(a) = 0, f''(a) > 0$
	C.	$f'(a) = 0, f''(a) < 0$	D.	$f'(a) < 0, f''(a) < 0$
3୨.	જો $x = a$ ଧାରାରେ $f(x)$ ની କ୍ରିମିତ ન୍ୟୁନତମ હોય, તો ____.			
	A.	$f'(a) = 0, f''(a) = 0$	B.	$f'(a) = 0, f''(a) > 0$
	C.	$f'(a) = 0, f''(a) < 0$	D.	$f'(a) < 0, f''(a) < 0$
33.	$\int dx = \underline{\hspace{1cm}}$.			
	A.	0	B.	$x + c$
	C.	1	D.	$1 + c$
33.	$\int dx = \underline{\hspace{1cm}}$.			
	A.	0	B.	$x + c$
	C.	1	D.	$1 + c$
34.	$\int 3x^2 dx = \underline{\hspace{1cm}} + c$.			
	A.	x^3	B.	$4x^4$
	C.	$2x^3$	D.	x^4
3୪.	$\int 3x^2 dx = \underline{\hspace{1cm}} + c$.			
	A.	x^3	B.	$4x^4$

	C.	$2x^3$	D.	x^4
35.	$\int \frac{1}{1+x^2} dx = ____ + c.$			
	A.	$\cot^{-1} x$	B.	$-\cot^{-1} x$
	C.	$\tan^{-1} x$	D.	$-\tan^{-1} x$
34.	$\int \frac{1}{1+x^2} dx = ____ + c.$			
	A.	$\cot^{-1} x$	B.	$-\cot^{-1} x$
	C.	$\tan^{-1} x$	D.	$-\tan^{-1} x$
36.	$\int \frac{1}{2+x} dx = ____ + c.$			
	A.	$\log x$	B.	$\log(x+2)$
	C.	$x+1$	D.	x
35.	$\int \frac{1}{2+x} dx = ____ + c.$			
	A.	$\log x$	B.	$\log(x+2)$
	C.	$x+1$	D.	x
37.	$\int \log x dx = ____ + c.$			
	A.	$\log x$	B.	$x \log x - x$
	C.	$x \log x$	D.	$x \log x + x$
39.	$\int \log x dx = ____ + c.$			
	A.	$\log x$	B.	$x \log x - x$
	C.	$x \log x$	D.	$x \log x + x$
38.	$\int_1^e \frac{1}{x} dx = ____.$			
	A.	$(e-1)$	B.	$\log(e-1)$
	C.	1	D.	0
36.	$\int_1^e \frac{1}{x} dx = ____.$			
	A.	$(e-1)$	B.	$\log(e-1)$
	C.	1	D.	0
39.	$\int_0^1 e^x dx = ____.$			
	A.	e	B.	$(e-1)$
	C.	1	D.	0
36.	$\int_0^1 e^x dx = ____.$			
	A.	e	B.	$(e-1)$
	C.	1	D.	0
40.	$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \tan x dx = ____.$			
	A.	0	B.	$\frac{\pi}{2}$
	C.	$\frac{-\pi}{2}$	D.	1
38.	$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \tan x dx = ____.$			
	A.	0	B.	$\frac{\pi}{2}$
	C.	$\frac{-\pi}{2}$	D.	1
41.	$\int_{-1}^1 x dx = ____.$			
	A.	0	B.	1
	C.	2	D.	-1

૪૧.	$\int_{-1}^1 x \, dx = \underline{\hspace{2cm}}.$			
	A.	0	B.	1
	C.	2	D.	-1
42.	$\int_{-2}^2 x^3 \, dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	3
	C.	2	D.	0
૪૨.	$\int_{-2}^2 x^3 \, dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	3
	C.	2	D.	0
43.	$\int_1^{81} \frac{1}{x} \, dx = \underline{\hspace{2cm}}.$			
	A.	$\log 9$	B.	$\log 8$
	C.	$-\log 8$	D.	2
૪૩.	$\int_1^{81} \frac{1}{x} \, dx = \underline{\hspace{2cm}}.$			
	A.	$\log 9$	B.	$\log 8$
	C.	$-\log 8$	D.	2
44.	Area of the region bounded by the curve $x^2 + y^2 = 4$ is $\underline{\hspace{2cm}}.$			
	A.	4	B.	-1
	C.	4π	D.	8π
૪૪.	વર્તુળ $x^2 + y^2 = 4$ દ્વારા ઘેરાતા પ્રદેશ નું ક્ષેત્રફળ $\underline{\hspace{2cm}}.$			
	A.	4	B.	-1
	C.	4π	D.	8π
45.	$\int_0^1 x \, dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{2}$
	C.	2	D.	$-\frac{1}{2}$
૪૫.	$\int_0^1 x \, dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{2}$
	C.	2	D.	$-\frac{1}{2}$
46.	$\int \sin(ax + b) \, dx = \underline{\hspace{2cm}} + c.$			
	A.	$\sin(ax + b)$	B.	$\frac{1}{a} \cos(ax + b)$
	C.	$\frac{1}{b} \sin(ax + b)$	D.	$-\frac{1}{a} \cos(ax + b)$
૪૬.	$\int \sin(ax + b) \, dx = \underline{\hspace{2cm}} + c.$			
	A.	$\sin(ax + b)$	B.	$\frac{1}{a} \cos(ax + b)$
	C.	$\frac{1}{b} \sin(ax + b)$	D.	$-\frac{1}{a} \cos(ax + b)$
47.	The order of a differential equation $\left(\frac{dy}{dx}\right)^3 + 2y = x$ is $\underline{\hspace{2cm}}.$			
	A.	1	B.	2
	C.	0	D.	4
૪૭.	વિકલ સમીકરણ $\left(\frac{dy}{dx}\right)^3 + 2y = x$ ની કક્ષા $\underline{\hspace{2cm}}.$			
	A.	1	B.	2
	C.	0	D.	4

48.	The degree of a differential equation $\frac{d^3y}{dy^3} + \left(\frac{dy}{dx}\right)^3 - y = 0$ is ____.			
	A.	0	B.	2
	C.	1	D.	4
૪૮.	વિકલ સમીકરણ $\frac{d^3y}{dy^3} + \left(\frac{dy}{dx}\right)^3 - y = 0$ નું પરિમાણ ____.			
	A.	0	B.	2
	C.	1	D.	4
49.	The order and degree of a differential equation $x dx + y dy = 2$ is ____ respectively.			
	A.	1 and 1	B.	2 and 1
	C.	2 and 2	D.	1 and 2
૪૯.	વિકલ સમીકરણ $x dx + y dy = 2$ ની કક્ષા અને પરીમાણ અનુક્રમે ____.			
	A.	1 and 1	B.	2 and 1
	C.	2 and 2	D.	1 and 2
50.	The degree of a differential equation $\left(\frac{d^2y}{dy^2}\right)^2 + \left(\frac{dy}{dx}\right)^3 + 3y = 0$ is ____.			
	A.	1	B.	3
	C.	2	D.	4
૫૦.	વિકલ સમીકરણ $\left(\frac{d^2y}{dy^2}\right)^2 + \left(\frac{dy}{dx}\right)^3 + 3y = 0$ નું પરિમાણ ____.			
	A.	1	B.	3
	C.	2	D.	4
51.	The order of a differential equation $x \frac{d^2y}{dx^2} - 6 \left(\frac{dy}{dx}\right)^3 + 3y = 30$ is ____.			
	A.	3	B.	0
	C.	2	D.	1
૫૧.	વિકલ સમીકરણ $x \frac{d^2y}{dx^2} - 6 \left(\frac{dy}{dx}\right)^3 + 3y = 30$ ની કક્ષા ____.			
	A.	3	B.	0
	C.	2	D.	1
52.	The order and degree of $x \left(\frac{d^2y}{dx^2}\right)^3 - 6 \left(\frac{dy}{dx}\right)^3 - y = 0$ is ____ respectively.			
	A.	3,2	B.	2,2
	C.	2,3	D.	1,2
૫૨.	$x \left(\frac{d^2y}{dx^2}\right)^3 - 6 \left(\frac{dy}{dx}\right)^3 - y = 0$ ની કક્ષા અને પરીમાણ અનુક્રમે ____.			
	A.	3,2	B.	2,2
	C.	2,3	D.	1,2
53.	The order of a differential equation $\frac{d^2y}{dx^2} = \left(5 + \frac{dy}{dx}\right)^3$ is ____.			
	A.	2	B.	3
	C.	1	D.	6
૫૩.	વિકલ સમીકરણ $\frac{d^2y}{dx^2} = \left(5 + \frac{dy}{dx}\right)^3$ ની કક્ષા ____.			
	A.	2	B.	3
	C.	1	D.	6
54.	Integrating factor of the differential equation $\frac{dy}{dx} + \frac{y}{x} = x$ is ____.			
	A.	$\log x$	B.	$\log \frac{1}{x}$

	C.	$\frac{1}{x}$	D.	x
૫૪.	વિકલ સમીકરણ $\frac{dy}{dx} + \frac{y}{x} = x$ નો સંકલ્પકારક અવયવ _____ છે.			
	A.	$\log x$	B.	$\log \frac{1}{x}$
	C.	$\frac{1}{x}$	D.	x
55.	Integrating factor of the differential equation $\frac{dy}{dx} + Py = Q$ is _____.			
	A.	$e^{-\int P dx}$	B.	$e^{\int P dx}$
	C.	$e^{\int Q dx}$	D.	None of these
૫૫.	વિકલ સમીકરણ $\frac{dy}{dx} + Py = Q$ નો સંકલ્પકારક અવયવ _____ છે.			
	A.	$e^{-\int P dx}$	B.	$e^{\int P dx}$
	C.	$e^{\int Q dx}$	D.	કોઈ પણ નહીં
56.	Integrating factor of the differential equation $\frac{dy}{dx} = y \tan x + x$ is _____.			
	A.	$\sin x$	B.	$\cos x$
	C.	e^x	D.	$\tan x$
૫૬.	વિકલ સમીકરણ $\frac{dy}{dx} = y \tan x + x$ નો સંકલ્પકારક અવયવ _____ છે.			
	A.	$\sin x$	B.	$\cos x$
	C.	e^x	D.	$\tan x$
57.	Integrating factor of the differential equation $\frac{dy}{dx} + 2y = 0$ is _____.			
	A.	e^{2x}	B.	y
	C.	e^x	D.	x
૫૭.	વિકલ સમીકરણ $\frac{dy}{dx} + 2y = 0$ નો સંકલ્પકારક અવયવ _____ છે.			
	A.	e^{2x}	B.	y
	C.	e^x	D.	x
58.	The general solution of $\frac{dy}{dx} + y = 0$ is _____.			
	A.	$ye^x = c$	B.	$ye^x = x + c$
	C.	$xy = c$	D.	$y = cx$
૫૮.	વિકલ સમીકરણ $\frac{dy}{dx} + y = 0$ નો વ્યાપક ઉકેલ _____ છે.			
	A.	$ye^x = c$	B.	$ye^x = x + c$
	C.	$xy = c$	D.	$y = cx$
59.	$\sqrt{-25} = \underline{\hspace{1cm}}$.			
	A.	5	B.	$5i$
	C.	-5	D.	$25i$
૫૯.	$\sqrt{-25} = \underline{\hspace{1cm}}$.			
	A.	5	B.	$5i$
	C.	-5	D.	$25i$
60.	$i^4 = \underline{\hspace{1cm}}$.			
	A.	1	B.	i
	C.	-1	D.	-i
૬૦.	$i^4 = \underline{\hspace{1cm}}$.			
	A.	1	B.	i
	C.	-1	D.	-i
61.	$i + i^2 + i^3 + i^4 = \underline{\hspace{1cm}}$.			

	A.	1	B.	i
	C.	0	D.	$-i$
61.	$i + i^2 + i^3 + i^4 = \underline{\hspace{2cm}}$.			
	A.	1	B.	i
	C.	0	D.	$-i$
62.	$ 1 + i = \underline{\hspace{2cm}}$.			
	A.	1	B.	2
	C.	$\sqrt{3}$	D.	$\sqrt{2}$
63.	$(1 - i)^2 = \underline{\hspace{2cm}}$.			
	A.	1	B.	$-2i$
	C.	$2 + 2i$	D.	$2i$
64.	If $z = 1 - i$, then $\bar{z} = \underline{\hspace{2cm}}$.			
	A.	$1 + i$	B.	$1 - i$
	C.	$-1 - i$	D.	$-1 + i$
65.	If $z = 1 - i$ is given, then $\bar{z} = \underline{\hspace{2cm}}$.			
	A.	$1 + i$	B.	$1 - i$
	C.	$-1 - i$	D.	$-1 + i$
66.	$z + \bar{z} = \underline{\hspace{2cm}}$.			
	A.	$Re(z)$	B.	$2i Im(z)$
	C.	$2Re(z)$	D.	$-2Re(z)$
67.	$z + \bar{z} = \underline{\hspace{2cm}}$.			
	A.	$Re(z)$	B.	$2i Im(z)$
	C.	$2Re(z)$	D.	$-2Re(z)$
68.	If $ z = 5$, then $ \bar{z} = \underline{\hspace{2cm}}$.			
	A.	125	B.	25
	C.	5	D.	1
69.	If $ z = 5$ is given, then $ \bar{z} = \underline{\hspace{2cm}}$.			
	A.	125	B.	25
	C.	5	D.	1
70.	$\arg(i) = \underline{\hspace{2cm}}$.			
	A.	π	B.	$\frac{\pi}{2}$
	C.	$-\frac{\pi}{2}$	D.	$-\pi$
71.	$\arg(i) = \underline{\hspace{2cm}}$.			
	A.	π	B.	$\frac{\pi}{2}$
	C.	$-\frac{\pi}{2}$	D.	$-\pi$
72.	$\arg(100) = \underline{\hspace{2cm}}$.			
	A.	π	B.	$\frac{\pi}{2}$
	C.	0	D.	$-\pi$

68.	$\arg(100) = \underline{\hspace{1cm}}$.		
	A.	π	B. $\frac{\pi}{2}$
	C.	0	D. $-\pi$
69.	$(\cos \theta + i \sin \theta)^4 + (\cos \theta + i \sin \theta)^{-4} = \underline{\hspace{1cm}}$.		
	A.	$2 \cos 4\theta$	B. $2i \cos 4\theta$
	C.	$2i \sin 4\theta$	D. $2 \sin 4\theta$
69.	$(\cos \theta + i \sin \theta)^4 + (\cos \theta + i \sin \theta)^{-4} = \underline{\hspace{1cm}}$.		
	A.	$2 \cos 4\theta$	B. $2i \cos 4\theta$
	C.	$2i \sin 4\theta$	D. $2 \sin 4\theta$
70.	If $z = \cos \theta + i \sin \theta$, then $z^3 + \frac{1}{z^3} = \underline{\hspace{1cm}}$.		
	A.	$2 \sin 3\theta$	B. $2i \cos 3\theta$
	C.	$2i \sin 3\theta$	D. $2 \cos 3\theta$
70.	If $z = \cos \theta + i \sin \theta$, then $z^3 + \frac{1}{z^3} = \underline{\hspace{1cm}}$.		
	A.	$2 \sin 3\theta$	B. $2i \cos 3\theta$
	C.	$2i \sin 3\theta$	D. $2 \cos 3\theta$
