

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering – SEMESTER – 2(CtoD) New – EXAMINATION – Summer-2024****Subject Code: C4320002****Date: 11-06-2024****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. Figures to the right indicate full marks.
4. Use of programmable & Communication aids are strictly prohibited.
5. Use of non-programmable scientific calculator is permitted.
6. English version is authentic.
7. Use only OMR to answer this question paper.

No.	Question Text and Option. પ્રશ્ન અને વિકલ્પો.			
1.	If A is singular matrix then ____.			
	A.	$A = A^T$	B.	$ A = 0$
	C.	$ A \neq 0$	D.	$A = -A^T$
૧.	જો A અસામાન્ય શ્રેણિક હોય તો ____.			
	A.	$A = A^T$	B.	$ A = 0$
	C.	$ A \neq 0$	D.	$A = -A^T$
2.	If $A = \begin{bmatrix} -3 & -5 \\ 1 & 2 \end{bmatrix}$ then $adj(A) = \underline{\hspace{1cm}}$.			
	A.	$\begin{bmatrix} 2 & 5 \\ -1 & -3 \end{bmatrix}$	B.	$\begin{bmatrix} -2 & -5 \\ -1 & -3 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & -5 \\ 1 & -3 \end{bmatrix}$
૨.	If $A = \begin{bmatrix} -3 & -5 \\ 1 & 2 \end{bmatrix}$ then $adj(A) = \underline{\hspace{1cm}}$.			
	A.	$\begin{bmatrix} 2 & 5 \\ -1 & -3 \end{bmatrix}$	B.	$\begin{bmatrix} -2 & -5 \\ -1 & -3 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & -5 \\ 1 & -3 \end{bmatrix}$
3.	$\frac{dy}{dx}(e^x + 3) = \underline{\hspace{1cm}}$.			
	A.	1	B.	3
	C.	e^x	D.	$\sin x$
3.	$\frac{dy}{dx}(e^x + 3) = \underline{\hspace{1cm}}$.			
	A.	1	B.	3
	C.	e^x	D.	$\sin x$
4.	If $\begin{bmatrix} x & 2 \\ 1 & -1 \end{bmatrix} = \begin{bmatrix} 3 & 2 \\ 1 & y \end{bmatrix}$ then $x = \underline{\hspace{1cm}}$ and $y = \underline{\hspace{1cm}}$.			

	A.	$x = 1$ and $y = 1$	B.	$x = 3$ and $y = 1$
	C.	$x = 0$ and $y = -1$	D.	$x = 3$ and $y = -1$
૪.	જો $\begin{bmatrix} x & 2 \\ 1 & -1 \end{bmatrix} = \begin{bmatrix} 3 & 2 \\ 1 & y \end{bmatrix}$ તો $x = \underline{\hspace{1cm}}$ અને $y = \underline{\hspace{1cm}}$.			
	A.	$x = 1$ and $y = 1$	B.	$x = 3$ and $y = 1$
	C.	$x = 0$ and $y = -1$	D.	$x = 3$ and $y = -1$
5.	Order of the differential equation $\left(\frac{d^2y}{dx^2}\right)^3 - 5\frac{dy}{dx} + 6y = 0$ is ____.			
	A.	1	B.	3
	C.	2	D.	4
૫.	વિકલ સમીકરણ $\left(\frac{d^2y}{dx^2}\right)^3 - 5\frac{dy}{dx} + 6y = 0$ ની કક્ષા ____ છે.			
	A.	1	B.	3
	C.	2	D.	4
6.	If $z = 3 - 2i$ then $\text{Im}(z) = \underline{\hspace{1cm}}$.			
	A.	1	B.	i
	C.	$-i$	D.	-2
૬.	$z = 3 - 2i$ માટે $\text{Im}(z) = \underline{\hspace{1cm}}$.			
	A.	1	B.	i
	C.	$-i$	D.	-2
7.	$\begin{bmatrix} 6 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 4 \end{bmatrix} = \underline{\hspace{1cm}}$			
	A.	$\begin{bmatrix} 6 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 5 \end{bmatrix}$
	C.	$\begin{bmatrix} 5 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 1 \end{bmatrix}$
૭.	$\begin{bmatrix} 6 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 4 \end{bmatrix} = \underline{\hspace{1cm}}$			
	A.	$\begin{bmatrix} 6 & 1 \end{bmatrix}$	B.	$\begin{bmatrix} 7 & 5 \end{bmatrix}$
	C.	$\begin{bmatrix} 5 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 1 \end{bmatrix}$
8.	$(\cos 2\theta + i \sin 2\theta)^3 = \underline{\hspace{1cm}}$			
	A.	$\cos 2\theta + i \sin 2\theta$	B.	$\cos 2\theta - i \sin 2\theta$
	C.	$\cos 6\theta + i \sin 6\theta$	D.	$\sin 3\theta - i \cos 3\theta$
૮.	$(\cos 2\theta + i \sin 2\theta)^3 = \underline{\hspace{1cm}}$			
	A.	$\cos 2\theta + i \sin 2\theta$	B.	$\cos 2\theta - i \sin 2\theta$
	C.	$\cos 6\theta + i \sin 6\theta$	D.	$\sin 3\theta - i \cos 3\theta$
9.	If order of matrix is 4×3 then it has ____ elements.			
	A.	2	B.	3
	C.	6	D.	12
૯.	શ્રેણિકની કક્ષા 4×3 હોય તો તેમાં કુલ ____ ઘટકો હોય.			
	A.	2	B.	3
	C.	6	D.	12
10.	If $f(x) = 3x^2 + 7x + 11$ then $f'(0) = \underline{\hspace{1cm}}$.			
	A.	6	B.	7
	C.	5	D.	11
૧૦.	જો $f(x) = 3x^2 + 7x + 11$ તો $f'(0) = \underline{\hspace{1cm}}$.			
	A.	6	B.	7
	C.	5	D.	11

11.	Order of the matrix $A = \begin{bmatrix} -5 & 0 & 1 \\ 1 & 4 & 2 \end{bmatrix}$ is ____ .			
	A.	3x3	B.	3x2
	C.	2x2	D.	2x3
૧૧.	$A = \begin{bmatrix} -5 & 0 & 1 \\ 1 & 4 & 2 \end{bmatrix}$ હોય તો A નો ક્રમ ____ છે.			
	A.	3x3	B.	3x2
	C.	2x2	D.	2x3
12.	If $z_1 = 3+8i$ and $z_2 = 2+3i$ then $z_1 - z_2 =$ ____.			
	A.	$1+5i$	B.	$5+i$
	C.	$5-i$	D.	5
૧૨.	જો $z_1 = 3+8i$ અને $z_2 = 2+3i$ તો $z_1 - z_2 =$ ____.			
	A.	$1+5i$	B.	$5+i$
	C.	$5-i$	D.	5
13.	If $A = \begin{bmatrix} 1 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 4 \\ 0 \end{bmatrix}$ then $AB =$ ____.			
	A.	$\begin{bmatrix} 4 & 2 \\ 2 & 4 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & 2 \\ 4 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 1 \end{bmatrix}$	D.	$\begin{bmatrix} 4 \end{bmatrix}$
14.	$\frac{d}{dx} \left(\frac{34}{11} \right) =$ ____.			
	A.	11	B.	0
	C.	$\frac{34}{11}$	D.	$\frac{11}{34}$
૧૪.	$\frac{d}{dx} \left(\frac{34}{11} \right) =$ ____.			
	A.	11	B.	0
	C.	$\frac{34}{11}$	D.	$\frac{11}{34}$
15.	For $A = \begin{bmatrix} 8 & 4 \\ 2 & 6 \end{bmatrix}$, $\frac{1}{2}A =$ ____.			
	A.	$\begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 8 & 4 \\ 2 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 8 & 4 \\ 4 & 6 \end{bmatrix}$
૧૫.	$A = \begin{bmatrix} 8 & 4 \\ 2 & 6 \end{bmatrix}$ માટે $\frac{1}{2}A =$ ____			
	A.	$\begin{bmatrix} 2 & 1 \\ 1 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 8 & 4 \\ 2 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} 4 & 2 \\ 1 & 3 \end{bmatrix}$	D.	$\begin{bmatrix} 8 & 4 \\ 4 & 6 \end{bmatrix}$
16.	If $z = 2+7i$ then $\text{Re}(z) =$ ____.			
	A.	2	B.	7
	C.	4	D.	0
૧૬.	$z = 2+7i$ માટે $\text{Re}(z) =$ ____.			

	A.	2	B.	7
	C.	4	D.	0
17.	For complex number $z = -1 + 2i$, $ z ^2 = \underline{\hspace{1cm}}$.			
	A.	0	B.	5
	C.	-5	D.	25
૧૭.	સંકર સંખ્યા $z = -1 + 2i$ માટે $ z ^2 = \underline{\hspace{1cm}}$.			
	A.	0	B.	5
	C.	-5	D.	25
18.	$x = b \cos \theta, y = b \sin \theta$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}$.			
	A.	$-\cot \theta$	B.	$a \cot \theta$
	C.	$\tan \theta$	D.	$a \tan \theta$
૧૮.	$x = b \cos \theta, y = b \sin \theta$ માટે $\frac{dy}{dx} = \underline{\hspace{1cm}}$.			
	A.	$-\cot \theta$	B.	$a \cot \theta$
	C.	$\tan \theta$	D.	$a \tan \theta$
19.	Degree of the differential equation $\frac{dy}{dx} + y = \sin x$ is ____.			
	A.	0	B.	2
	C.	1	D.	3
૧૯.	વિકલ સમીકરણ $\frac{dy}{dx} + y = \sin x$ નું પરિમાણ ____ છે.			
	A.	0	B.	2
	C.	1	D.	3
20.	If $f(x) = 5^x$ then $f'(x) = \underline{\hspace{1cm}}$.			
	A.	$\log_e 5$	B.	$5^x \log_e 5$
5^x	C.	$5 \log 5$	D.	5^x
૨૦.	જો $f(x) = 5^x$ તો $f'(x) = \underline{\hspace{1cm}}$.			
	A.	$\log_e 5$	B.	$5^x \log_e 5$
	C.	$5 \log 5$	D.	5^x
21.	$\frac{d}{dx} \sin(2x - 5) = \underline{\hspace{1cm}}$.			
	A.	$\sin(2x - 5)$	B.	$2 \sin(2x - 5)$
	C.	$\cos(2x - 5)$	D.	$2 \cos(2x - 5)$
૨૧.	$\frac{d}{dx} \sin(2x - 5) = \underline{\hspace{1cm}}$.			
	A.	$\sin(2x - 5)$	B.	$2 \sin(2x - 5)$
	C.	$\cos(2x - 5)$	D.	$2 \cos(2x - 5)$
22.	For $z = 3i$, $\arg(z) = \underline{\hspace{1cm}}$.			
	A.	2π	B.	0
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
૨૨.	સંકર સંખ્યા $z = 3i$ માટે $\arg(z) = \underline{\hspace{1cm}}$.			
	A.	2π	B.	0
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
23.	$\frac{d}{dx} (x^4 + 3x) = \underline{\hspace{1cm}}$.			
	A.	$x^4 + 3$	B.	$4x^3 + 3$
	C.	$x^3 + 3$	D.	$4x^3 + 3x$

૨૩.	$\frac{d}{dx}(x^4 + 3x) = \underline{\hspace{2cm}}.$			
	A.	$x^4 + 3$	B.	$4x^3 + 3$
	C.	$x^3 + 3$	D.	$4x^3 + 3x$
24.	Degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2 - \frac{dy}{dx} + y = e^x$ is ____.			
	A.	2	B.	3
	C.	1	D.	4
૨૪.	વિકલ સમીકરણ $\left(\frac{d^3y}{dx^3}\right)^2 - \frac{dy}{dx} + y = e^x$ ની પરિમાણ ____ છે.			
	A.	2	B.	3
	C.	1	D.	4
25.	For $A = \begin{bmatrix} 2 & 4 \\ 2 & 6 \end{bmatrix}$, $A^T = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 1 & -1 \\ 0 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & -2 \\ -4 & 6 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 2 \\ 4 & 6 \end{bmatrix}$
૨૫.	$A = \begin{bmatrix} 2 & 4 \\ 2 & 6 \end{bmatrix}$ માટે $A^T = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 1 & -1 \\ 0 & 3 \end{bmatrix}$	B.	$\begin{bmatrix} 1 & -1 \\ 2 & 3 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & -2 \\ -4 & 6 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 2 \\ 4 & 6 \end{bmatrix}$
26.	$\int (1) dx = \underline{\hspace{2cm}} + c$			
	A.	0	B.	1
	C.	θ	D.	x
૨૬.	$\int (1) dx = \underline{\hspace{2cm}} + c$			
	A.	0	B.	1
	C.	θ	D.	x
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.	$\frac{d}{dx}[\log(\cos x)] = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{\sin x}$	B.	$\frac{1}{\cos x}$
	C.	$-\tan \theta$	D.	$-\cot \theta$

૨૮.	$\frac{d}{dx}[\log(\cos x)] = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{\sin x}$	B.	$\frac{1}{\cos x}$
	C.	$-\tan \theta$	D.	$-\cot \theta$
29.	Which is a differential equation from given equations?			
	A.	$3x + y = 3$	B.	$xy = c$
	C.	$\frac{dy}{dx} + y = x$	D.	$x - \sin x = 0$
૨૯.	નીચેના માંથી કયું સમીકરણ એ વિકલ સમીકરણ છે?			
	A.	$3x + y = 3$	B.	$xy = c$
	C.	$\frac{dy}{dx} + y = x$	D.	$x - \sin x = 0$
30.	$i^2 + 1 + i = \underline{\hspace{2cm}}.$			
	A.	0	B.	i
	C.	$-i$	D.	-1
3૦.	$i^2 + 1 + i = \underline{\hspace{2cm}}.$			
	A.	0	B.	i
	C.	$-i$	D.	-1
31.	If $z_1 = 4 + 2i$ and $z_2 = 2 + 3i$ then $z_1 \cdot z_2 = \underline{\hspace{2cm}}.$			
	A.	$2 + 16i$	B.	$2 - 16i$
	C.	$6 + 5i$	D.	$3 - 7i$
3૧.	જો $z_1 = 4 + 2i$ અને $z_2 = 2 + 3i$ તો $z_1 \cdot z_2 = \underline{\hspace{2cm}}.$			
	A.	$2 + 16i$	B.	$2 - 16i$
	C.	$6 + 5i$	D.	$3 - 7i$
32.	$\begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix} + \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix} = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 2 & 0 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & 4 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & 4 \\ 1 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 4 \\ 1 & 1 \end{bmatrix}$
3૨.	$\begin{bmatrix} 1 & 1 \\ 1 & 0 \end{bmatrix} + \begin{bmatrix} 1 & 3 \\ 0 & 1 \end{bmatrix} = \underline{\hspace{2cm}}$			
	A.	$\begin{bmatrix} 2 & 0 \\ 1 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 2 & 4 \\ 0 & 1 \end{bmatrix}$
	C.	$\begin{bmatrix} 2 & 4 \\ 1 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 2 & 4 \\ 1 & 1 \end{bmatrix}$
33.	If $A = \begin{bmatrix} 2 & 1 \\ 0 & 0 \end{bmatrix}$ and $B = \begin{bmatrix} 0 & 3 \\ 0 & 1 \end{bmatrix}$ then $AB = \underline{\hspace{2cm}}.$			
	A.	$\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$	B.	$\begin{bmatrix} 0 & 7 \\ 2 & 0 \end{bmatrix}$
	C.	$\begin{bmatrix} 0 & 7 \\ 0 & 0 \end{bmatrix}$	D.	$\begin{bmatrix} 0 & 7 \\ 0 & 3 \end{bmatrix}$
34.	$\frac{d}{dx}(\pi) = \underline{\hspace{2cm}}.$			
	A.	0	B.	e

	C.	1	D.	π
38.	$\frac{d}{dx}(\pi) = \underline{\hspace{1cm}}$.			
	A.	0	B.	e
	C.	1	D.	π
35.	$\frac{d}{dx}(\tan x) = \underline{\hspace{1cm}}$.			
	A.	$\tan x$	B.	$\sec x + \tan x$
	C.	$\sec^2 x$	D.	$\sec x \cdot \tan x$
34.	$\frac{d}{dx}(\tan x) = \underline{\hspace{1cm}}$.			
	A.	$\tan x$	B.	$\sec x + \tan x$
	C.	$\sec^2 x$	D.	$\sec x \cdot \tan x$
36.	$\int_{-2}^2 x^3 dx = \underline{\hspace{1cm}}$.			
	A.	9	B.	6
	C.	1	D.	0
35.	$\int_{-2}^2 x^3 dx = \underline{\hspace{1cm}}$.			
	A.	9	B.	6
	C.	1	D.	0
37.	$\int (4x+5) dx = \underline{\hspace{1cm}} + c$.			
	A.	$2x^2 + 5x$	B.	$4x^2 + 5x^2$
	C.	4	D.	$(2x-3)^2$
39.	$\int (4x+5) dx = \underline{\hspace{1cm}} + c$.			
	A.	$2x^2 + 5x$	B.	$4x^2 + 5x^2$
	C.	4	D.	$(2x-3)^2$
38.	$\int (\sin^2 x + \cos^2 x) dx = \underline{\hspace{1cm}}$.			
	A.	$\cos x - \sin x + c$	B.	$x + c$
	C.	$-\sin x - \cos x + c$	D.	0
36.	$\int (\sin^2 x + \cos^2 x) dx = \underline{\hspace{1cm}}$.			
	A.	$\cos x - \sin x + c$	B.	$x + c$
	C.	$-\sin x - \cos x + c$	D.	0
39.	If $y = 2e^{3x}$ then $\frac{d^2 y}{dx^2} = \underline{\hspace{1cm}}$.			
	A.	$2e^x$	B.	$18e^{3x}$
	C.	$2e^{9x}$	D.	$6e^{2x}$
36.	જો $y = 2e^{3x}$ તો $\frac{d^2 y}{dx^2} = \underline{\hspace{1cm}}$.			
	A.	$2e^x$	B.	$18e^{3x}$
	C.	$2e^{9x}$	D.	$6e^{2x}$
40.	Equation of the motion of moving particle is given by $s = 2t^2 - 3t + 7$, then velocity at $t = 2$ seconds is $\underline{\hspace{1cm}}$.			
	A.	2 units	B.	1 units
	C.	5 units	D.	6 units
૪૦.	એક ગતિ કરતા કણનું સમીકરણ $s = 2t^2 - 3t + 7$ છે, $t = 2$ સેકન્ડે તેનો વેગ $\underline{\hspace{1cm}}$ હશે.			
	A.	2 એકમ	B.	1 એકમ
	C.	5 એકમ	D.	6 એકમ

41.	$x = t + 5, y = 2t$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	2	B.	$2t$
	C.	$3t$	D.	0
૪૧.	$x = t + 5, y = 2t$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	2	B.	$2t$
	C.	$3t$	D.	0
42.	Let be I an identity matrix then $(I)^2 = \underline{\hspace{2cm}}$.			
	A.	$2I$	B.	$-I$
	C.	I	D.	0
૪૨.	જો I એ એકમ શ્રેણિક હોય તો $(I)^2 = \underline{\hspace{2cm}}$.			
	A.	$2I$	B.	$-I$
	C.	I	D.	0
43.	For $y = \sin x$, $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$.			
	A.	$\cos x$	B.	$-\sin x$
	C.	$-\cos x$	D.	$\sin x$
૪૩.	$y = \sin x$ માટે $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$.			
	A.	$\cos x$	B.	$-\sin x$
	C.	$-\cos x$	D.	$\sin x$
44.	$\int \frac{1}{\sqrt{1-x^2}} dx = \underline{\hspace{2cm}}$.			
	A.	$\tan^{-1} x + c$	B.	$\cot^{-1} x + c$
	C.	$\cos^{-1} x + c$	D.	$\sin^{-1} x + c$
૪૪.	$\int \frac{1}{\sqrt{1-x^2}} dx = \underline{\hspace{2cm}}$.			
	A.	$\tan^{-1} x + c$	B.	$\cot^{-1} x + c$
	C.	$\cos^{-1} x + c$	D.	$\sin^{-1} x + c$
45.	$\int \sec x \cdot \tan x dx = \underline{\hspace{2cm}}$.			
	A.	$\tan x + c$	B.	$\sec x + \tan x + c$
	C.	$\sec x + c$	D.	$\sec x \cdot \tan x + c$
૪૫.	$\int \sec x \cdot \tan x dx = \underline{\hspace{2cm}}$.			
	A.	$\tan x + c$	B.	$\sec x + \tan x + c$
	C.	$\sec x + c$	D.	$\sec x \cdot \tan x + c$
46.	$\int 4^x dx = \underline{\hspace{2cm}} + c$.			
	A.	4^x	B.	$\frac{3^x}{\log_e 4}$
	C.	$\frac{4^x}{\log_e 4}$	D.	$\frac{1}{\log_e 4}$
૪૬.	$\int 4^x dx = \underline{\hspace{2cm}} + c$.			
	A.	4^x	A.	$\frac{3^x}{\log_e 4}$
	C.	$\frac{4^x}{\log_e 4}$	C.	$\frac{1}{\log_e 4}$
47.	If $z_1 = 5 + 7i$ and $z_2 = 1 + 3i$ then $z_1 - z_2 = \underline{\hspace{2cm}}$.			

	A.	$6+4i$	B.	$6-4i$
	C.	$4-6i$	D.	$1-3i$
૪૭.	જો $z_1=5+7i$ અને $z_2=1+3i$ તો $z_1-z_2=$ _____.			
	A.	$6+4i$	B.	$6-4i$
	C.	$4-6i$	D.	$1-3i$
48.	$f(x)$ 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.	$f'(a)=0, f''(a)<0$
૪૮.	$f(x)$ ને $x=a$ પાસે ન્યૂનતમ મુલ્ય હશે જો _____ થાય.			
	A.	$f'(a)=0, f''(a)=0$	B.	$f'(a)=0, f''(a)>0$
	C.	$f'(a)>0, f''(a)<0$	D.	$f'(a)=0, f''(a)<0$
49.	$\int \frac{1}{x-3} dx = \text{_____} + c.$			
	A.	$\log x $	B.	$x-3$
	C.	$\log x-3 $	D.	x
૪૯.	$\int \frac{1}{x-3} dx = \text{_____} + c.$			
	A.	$\log x $	B.	$x-3$
	C.	$\log x-3 $	D.	x
50.	Degree of the differential equation $\log\left(\frac{dy}{dx}\right) + y = 0$ is _____.			
	A.	1	B.	2
	C.	0	D.	Not defined
૫૦.	વિકલ સમીકરણ $\log\left(\frac{dy}{dx}\right) + y = 0$ નું પરિમાણ _____ થશે.			
	A.	1	B.	2
	C.	0	D.	વ્યાખ્યાયિત નથી.
51.	$x-5i=3+yi$ then $x=$ ____, $y=$ ____			
	A.	3, -5	B.	-5, -3
	C.	-4, 3	D.	-5, 3
૫૧.	જો $x-5i=3+yi$ તો $x=$ ____, $y=$ ____			
	A.	3, -5	B.	-5, -3
	C.	-4, 3	D.	-5, 3
52.	Area of the region bounded by the curves $y=2x$, $x=0$ and $x=3$ is _____.			
	A.	4	B.	6
	C.	7	D.	9
૫૨.	વક્રો $y=2x$, $x=0$ અને $x=3$ થી ઘેરાયેલા પ્રદેશ નું ક્ષેત્રફલ _____ થશે.			
	A.	4	B.	6
	C.	7	D.	9
53.	Degree of the differential equation $\left(\frac{d^3y}{dx^3}\right)^3 + \left(\frac{dy}{dx}\right)^3 + y = 0$ is _____.			
	A.	2	B.	4
	C.	3	D.	1
૫૩.	વિકલ સમીકરણ $\left(\frac{d^3y}{dx^3}\right)^3 + \left(\frac{dy}{dx}\right)^3 + y = 0$ ની પરિમાણ _____ છે.			
	A.	2	B.	4

	C.	3	D.	1
54.	$\int_0^1 \frac{3}{1+x^2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{\pi}{4}$	B.	$\frac{3\pi}{4}$
	C.	0	D.	1
૫૪.	$\int_0^1 \frac{3}{1+x^2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{\pi}{4}$	B.	$\frac{3\pi}{4}$
	C.	0	D.	1
55.	$\int uv dx = \underline{\hspace{2cm}} + c.$ (Where u and v are functions of x)			
	A.	$u \int v dx$	B.	$v \int u dx$
	C.	$u \int v dx + \int \left(\frac{du}{dx} \int v dx \right) dx$	D.	$u \int v dx - \int \left(\frac{du}{dx} \int v dx \right) dx$
૫૫.	$\int uv dx = \underline{\hspace{2cm}} + c.$ (જ્યાં u અને v એ x ની વિધેય છે)			
	A.	$u \int v dx$	B.	$v \int u dx$
	C.	$u \int v dx + \int \left(\frac{du}{dx} \int v dx \right) dx$	D.	$u \int v dx - \int \left(\frac{du}{dx} \int v dx \right) dx$
56.	$\int \tan x dx = \underline{\hspace{2cm}} + c.$			
	A.	$\sec x$	B.	$\sec x \cdot \tan x$
	C.	$\log \sec x $	D.	$\log \cos x $
૫૬.	$\int \tan x dx = \underline{\hspace{2cm}} + c.$			
	A.	$\sec x$	B.	$\sec x \cdot \tan x$
	C.	$\log \sec x $	D.	$\log \cos x $
57.	Order of the differential equation $\left(\frac{d^3 y}{dx^3} \right)^2 - \left(\frac{dy}{dx} \right)^5 + 2y = x$ is ____.			
	A.	4	B.	3
	C.	2	D.	5
૫૭.	વિકલ સમીકરણ $\left(\frac{d^3 y}{dx^3} \right)^2 - \left(\frac{dy}{dx} \right)^5 + 2y = x$ ની કક્ષા ____ છે.			
	A.	4	B.	3
	C.	2	D.	5
58.	$\int \frac{dx}{\sqrt{1-x^2}} = \underline{\hspace{2cm}}.$			
	A.	$\sin^{-1} x + c$	B.	$\sin^{-1} \left(\frac{x}{2} \right) + c$
	C.	$\sin^{-1} (2x) + c$	D.	$2 \sin^{-1} (x) + c$
૫૮.	$\int \frac{dx}{\sqrt{1-x^2}} = \underline{\hspace{2cm}}.$			
	A.	$\sin^{-1} x + c$	B.	$\sin^{-1} \left(\frac{x}{2} \right) + c$

	C.	$\sin^{-1}(2x)+c$	D.	$2\sin^{-1}(x)+c$
59.	For non-singular matrix A , $(A^{-1})^{-1} = \underline{\hspace{2cm}}$.			
	A.	A	B.	A^T
	C.	I	D.	0
૫૯.	સામાન્ય શ્રેણિક A માટે $(A^{-1})^{-1} = \underline{\hspace{2cm}}$.			
	A.	A	B.	A^T
	C.	I	D.	0
60.	Which is a solution of differential equation $\frac{dy}{dx} - y = 0$			
	A.	$\sin x$	B.	5
	C.	$\cos x$	D.	e^x
૬૦.	નીચેનામાંથી કયું વિધેય વિકલ સમીકરણ $\frac{dy}{dx} - y = 0$ નું ઉકેલ થશે?			
	A.	$\sin x$	B.	5
	C.	$\cos x$	D.	e^x
61.	If A is of order 4×2 and B is of order 2×3 then order of matrix AB is $\underline{\hspace{2cm}}$.			
	A.	3×3	B.	3×4
	C.	4×3	D.	2×2
૬૧.	શ્રેણિક A નો ક્રમ 4×2 અને B નો ક્રમ 2×3 હોય તો શ્રેણિક AB નો ક્રમ $\underline{\hspace{2cm}}$ થાય.			
	A.	3×3	B.	3×4
	C.	4×3	D.	2×2
62.	Solution of differential equation $ydx - xdy = 0$ is $\underline{\hspace{2cm}}$.			
	A.	$x - y = c$	B.	$x^2 + y^2 = c$
	C.	$x^2 - y^2 = c$	D.	$y = cx$
૬૨.	વિકલ સમીકરણ $ydx - xdy = 0$ નો ઉકેલ $\underline{\hspace{2cm}}$ છે.			
	A.	$x - y = c$	B.	$x^2 + y^2 = c$
	C.	$x^2 - y^2 = c$	D.	$y = cx$
63.	Solution of differential equation $xdx + ydy = 0$ is $\underline{\hspace{2cm}}$.			
	A.	$x + y = c$	B.	$x^2 + y^2 = c$
	C.	$xy = c$	D.	$x^2 - y^2 = c$
૬૩.	વિકલ સમીકરણ $xdx + ydy = 0$ નો ઉકેલ $\underline{\hspace{2cm}}$ છે.			
	A.	$x + y = c$	B.	$x^2 + y^2 = c$
	C.	$xy = c$	D.	$x^2 - y^2 = c$
64.	If $z = 1 + 3i$ then $\bar{z} = \underline{\hspace{2cm}}$.			
	A.	$1 - 3i$	B.	$1 + 3i$
	C.	$3 - i$	D.	$-1 + 3i$
૬૪.	જો $z = 1 + 3i$ તો $\bar{z} = \underline{\hspace{2cm}}$.			
	A.	$1 - 3i$	B.	$1 + 3i$
	C.	$3 - i$	D.	$-1 + 3i$
65.	If $\begin{bmatrix} x+1 & 1 \end{bmatrix} = \begin{bmatrix} 2 & y-1 \end{bmatrix}$ then $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$.			
	A.	$2, 1$	B.	$1, 2$
	C.	$2, 2$	D.	$1, 1$
૬૫.	જો $\begin{bmatrix} x+1 & 1 \end{bmatrix} = \begin{bmatrix} 2 & y-1 \end{bmatrix}$ હોય તો $x = \underline{\hspace{2cm}}$, $y = \underline{\hspace{2cm}}$.			
	A.	$2, 1$	B.	$1, 2$
	C.	$2, 2$	D.	$1, 1$

66.	Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + \frac{y}{x} = \sin x$ is ____.			
	A.	$\log x$	B.	e^x
	C.	$\frac{1}{x}$	D.	x
૬૬.	વિકલ સમીકરણ $\frac{dy}{dx} + \frac{y}{x} = \sin x$ નો સંકલ્પકારક અવયવ ____ છે.			
	A.	$\log x$	B.	e^x
	C.	$\frac{1}{x}$	D.	x
67.	For complex number z , $ z ^2 =$ ____.			
	A.	$ z $	B.	$z \cdot \bar{z}$
	C.	$ \bar{z} $	D.	1
૬૭.	સંકર સંખ્યા z , માટે $ z ^2 =$ ____.			
	A.	$ z $	B.	$z \cdot \bar{z}$
	C.	$ \bar{z} $	D.	1
68.	Formula for solving linear differential equation $\frac{dy}{dx} + P(x)y = Q(x)$ is given by $y \cdot \text{____} = \int Q(x) \cdot (I.F.)dx + c$.			
	A.	$P(x)$	B.	$Q(x)$
	C.	$I.F$	D.	$xP(x)$
૬૮.	સુરેખ વિકલ સમીકરણ $\frac{dy}{dx} + P(x)y = Q(x)$ નો ઉકેલ $y \cdot \text{____} = \int Q(x) \cdot (I.F.)dx + c$ છે.			
	A.	$P(x)$	B.	$Q(x)$
	C.	$I.F$	D.	$xP(x)$
69.	Integrating factor (I.F.) of differential equation $\frac{dy}{dx} + y \tan x = e^x$ is ____.			
	A.	$\sec x$	B.	$\cot x$
	C.	$\tan x$	D.	$\sin x$
૬૯.	વિકલ સમીકરણ $\frac{dy}{dx} + y \tan x = e^x$ નો સંકલ્પકારક અવયવ ____ છે.			
	A.	$\sec x$	B.	$\cot x$
	C.	$\tan x$	D.	$\sin x$
70.	If $A = \begin{bmatrix} -3 & 1 \\ 5 & -2 \end{bmatrix}$ then $A^T =$ ____.			
	A.	$\begin{bmatrix} 3 & 1 \\ 5 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 5 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} -3 & -5 \\ -1 & -2 \end{bmatrix}$	D.	$\begin{bmatrix} -3 & 5 \\ 1 & -2 \end{bmatrix}$
૭૦.	$A = \begin{bmatrix} -3 & 1 \\ 5 & -2 \end{bmatrix}$ માટે $A^T =$ ____.			
	A.	$\begin{bmatrix} 3 & 1 \\ 5 & 2 \end{bmatrix}$	B.	$\begin{bmatrix} 3 & 5 \\ 1 & 2 \end{bmatrix}$
	C.	$\begin{bmatrix} -3 & -5 \\ -1 & -2 \end{bmatrix}$	D.	$\begin{bmatrix} -3 & 5 \\ 1 & -2 \end{bmatrix}$
