

GUJARAT TECHNOLOGICAL UNIVERSITY

Diploma Engineering – SEMESTER – 2(CtoD) – EXAMINATION – Winter-2024

Subject Code: C320002

Date: 03-01-2025

Subject Name: ADVANCED MATHEMATICS (GROUP-1)

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.	$z\bar{z} = \underline{\hspace{2cm}}$			
	A.	$ z ^2$	B.	$ \bar{z} $
	C.	$ z $	D.	1
૧.	$z\bar{z} = \underline{\hspace{2cm}}$			
	A.	$ z ^2$	A.	$ \bar{z} $
	C.	$ z $	C.	1
2.	If complex number $z = 3 + 4i$ then $ z = \underline{\hspace{2cm}}$.			
	A.	1/5	B.	5
	C.	-5	D.	25
૨.	જો સંકર સંખ્યા $z = 3 + 4i$ હોય તો $ z = \underline{\hspace{2cm}}$.			
	A.	1/5	B.	5
	C.	-5	D.	25
3.	$\arg(1+i) = \underline{\hspace{2cm}}$.			
	A.	π	B.	0
	C.	$\frac{\pi}{4}$	D.	2π
૩.	$\arg(1+i) = \underline{\hspace{2cm}}$.			
	A.	π	B.	0
	C.	$\frac{\pi}{4}$	D.	2π
4.	If z is a complex number then $z - \bar{z} = \underline{\hspace{2cm}}$			
	A.	$2i\operatorname{Re}(z)$	B.	$2\operatorname{Re}(z)$
	C.	$2i\operatorname{Im}(z)$	D.	$2\operatorname{Im}(z)$
૪.	જો z એક સંકર સંખ્યા હોય તો $z - \bar{z} = \underline{\hspace{2cm}}$			
	A.	$2i\operatorname{Re}(z)$	B.	$2\operatorname{Re}(z)$
	C.	$2i\operatorname{Im}(z)$	D.	$2\operatorname{Im}(z)$
5.	If $z_1 = 2 + i$ and $z_2 = 3 - i$ then $\operatorname{Re}(z_1 + z_2) = \underline{\hspace{2cm}}$			
	A.	-5	B.	5
	C.	1/5	D.	-1/5
૫.	જો $z_1 = 2 + i$ અને $z_2 = 3 - i$ હોય, તો $\operatorname{Re}(z_1 + z_2) = \underline{\hspace{2cm}}$			
	A.	5	B.	1
	C.	2	D.	0
6.	If $z_1 = 3 - i$, $z_2 = 1 + 5i$ then $z_1 - z_2 = \underline{\hspace{2cm}}$			
	A.	$2-4i$	B.	$2+4i$
	C.	$4+4i$	D.	$2-6i$

૬.	જો $z_1 = 3 - i, z_2 = 1 + 5i$ હોય તો $z_1 - z_2 =$ _____			
	A.	2-4i	B.	2+4i
	C.	4+4i	D.	2-6i
7.	$\sqrt{-9} =$ _____.			
	A.	3	B.	± 3
	C.	-3	D.	$\pm 3i$
૭.	$\sqrt{-9} =$ _____.			
	A.	3	B.	± 3
	C.	-3	D.	$\pm 3i$
8.	If $z = 5 - 3i$ then $\bar{z} =$ ____			
	A.	5-3i	B.	-5+3i
	C.	5+3i	D.	-5-3i
૮.	જો $z = 5 - 3i$ હોય તો $\bar{z} =$ ____			
	A.	5-3i	B.	-5+3i
	C.	5+3i	D.	-5-3i
9.	If $z = 2 + 3i$ then $\operatorname{Re}(z) =$ _____			
	A.	2	B.	3
	C.	1	D.	5
૯.	જો $z = 2 + 3i$ હોય તો $\operatorname{Re}(z) =$ _____			
	A.	2	B.	3
	C.	1	D.	5
10.	$i^3 =$ _____			
	A.	1	B.	-1
	C.	i	D.	$-i$
૧૦.	$i^3 =$ _____			
	A.	1	B.	-1
	C.	i	D.	$-i$
11.	If $f(x) = x^2$ then $f(2) =$ ____			
	A.	0	B.	2
	C.	1	D.	4
૧૧.	જો $f(x) = x^2$ હોય તો $f(2) =$ ____			
	A.	0	B.	2
	C.	1	D.	4
12.	If $f(x) = \sin x$ then $f(x) + f(-x) =$ ____			
	A.	$2 \sin x$	B.	0
	C.	1	D.	$-2 \sin x$
૧૨.	જો $f(x) = \sin x$ હોય તો $f(x) + f(-x) =$ _____			
	A.	$2 \sin x$	B.	0
	C.	1	D.	$-2 \sin x$
13.	If $f(x) = e^x$ then $f(x + y) =$ _____			
	A.	$f(x)f(y)$	B.	$f(x) + f(y)$
	C.	$f(x) - f(y)$	D.	$\frac{f(x)}{f(y)}$
૧૩.	જો $f(x) = e^x$ હોય તો $f(x + y) =$ _____			
	A.	$f(x)f(y)$	B.	$f(x) + f(y)$
	C.	$f(x) - f(y)$	D.	$\frac{f(x)}{f(y)}$
14.	If $f(x) = \sin x$ then $f\left(\frac{\pi}{2} - x\right) =$ _____			

	A.	$-\cos x$	B.	$-\sin x$
	C.	$\cos x$	D.	$\sin x$
૧૪.	જો $f(x) = \sin x$ હોય તો $f\left(\frac{\pi}{2} - x\right) = \underline{\hspace{2cm}}$			
	A.	$-\cos x$	B.	$-\sin x$
	C.	$\cos x$	D.	$\sin x$
15.	If $f(x) = \log x$ then $f(1) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	-1	D.	None of these
૧૫.	જો $f(x) = \log x$ હોય તો $f(1) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	-1	D.	આ પૈકી એક પણ નહીં
16.	If $f(x) = \log_2 x$ and $g(x) = x^2$ then $gof(2) = \underline{\hspace{2cm}}$			
	A.	-1	B.	2
	C.	1	D.	0
૧૬.	જો $f(x) = \log_2 x$ અને $g(x) = x^2$ હોય તો $gof(2) = \underline{\hspace{2cm}}$			
	A.	-1	B.	2
	C.	1	D.	0
17.	$\lim_{x \rightarrow 0} \frac{7^x - 1}{x} = \underline{\hspace{2cm}}$			
	A.	$\log_7 e$	B.	1
	C.	0	D.	$\log_e 7$
૧૭.	$\lim_{x \rightarrow 0} \frac{7^x - 1}{x} = \underline{\hspace{2cm}}$			
	A.	$\log_7 e$	B.	1
	C.	0	D.	$\log_e 7$
18.	$\lim_{x \rightarrow 0} \frac{\sin x}{x} = \underline{\hspace{2cm}}$			
	A.	0	B.	$\sin x$
	C.	$\cos x$	D.	1
૧૮.	$\lim_{x \rightarrow 0} \frac{\sin x}{x} = \underline{\hspace{2cm}}$			
	A.	0	B.	$\sin x$
	C.	$\cos x$	D.	1
19.	$\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1} = \underline{\hspace{2cm}}$			
	A.	2	B.	1
	C.	0	D.	-2
૧૯.	$\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1} = \underline{\hspace{2cm}}$			
	A.	2	B.	1
	C.	0	D.	-2
20.	$\lim_{n \rightarrow \infty} \frac{n+1}{n-1} = \underline{\hspace{2cm}}$			
	A.	0	B.	1
	C.	n	D.	∞
૨૦.	$\lim_{n \rightarrow \infty} \frac{n+1}{n-1} = \underline{\hspace{2cm}}$			
	A.	0	B.	1
	C.	n	D.	∞
21.	$\lim_{x \rightarrow 0} \frac{x}{\tan x} = \underline{\hspace{2cm}}$			
	A.	0	B.	1
	C.	$\tan x$	D.	$\cot x$

૨૧.	$\lim_{x \rightarrow 0} \frac{x}{\tan x} = \underline{\hspace{2cm}}$			
	A.	0	B.	1
	C.	$\tan x$	D.	$\cot x$
22.	$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	e	D.	-e
૨૨.	$\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n}\right)^n = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	e	D.	-e
23.	If $f(x) = x^n$ then $f'(x) = \underline{\hspace{2cm}}$			
	A.	$x^n \log_n x$	B.	n
	C.	$n \log x$	D.	nx^{n-1}
૨૩.	જો $f(x) = x^n$ છેલ્ય તો $f'(x) = \underline{\hspace{2cm}}$			
	A.	$x^n \log_n x$	B.	n
	C.	$n \log x$	D.	nx^{n-1}
24.	$y = \log(\sin x)$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\cot x$	B.	$-\cot x$
	C.	$\operatorname{cosec} x$	D.	$\tan x$
૨૪.	$y = \log(\sin x)$ છેલ્ય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\cot x$	B.	$-\cot x$
	C.	$\operatorname{cosec} x$	D.	$\tan x$
25.	If $f(x) = \tan x$ then $f'(x) = \underline{\hspace{2cm}}$			
	A.	$\sec x$	B.	$\sec^2 x$
	C.	$\cot x$	D.	$\sec x \tan x$
૨૫.	જો $f(x) = \tan x$ છેલ્ય તો $f'(x) = \underline{\hspace{2cm}}$			
	A.	$\sec x$	B.	$\sec^2 x$
	C.	$\cot x$	D.	$\sec x \tan x$
26.	$f(x) = e^{3x}$ then $f'(0) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	3	D.	e^3
૨૬.	$f(x) = e^{3x}$ છેલ્ય તો $f'(0) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	3	D.	e^3
27.	If $y = \cos x$ then $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$			
	A.	y	B.	$-y$
	C.	$\sin x$	D.	$-\sin x$
૨૭.	જો $y = \cos x$ છેલ્ય તો $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$			
	A.	y	B.	$-y$
	C.	$\sin x$	D.	$-\sin x$
28.	$\frac{d}{dx}(4^x) = \underline{\hspace{2cm}}$			
	A.	$4^x \log_e 4$	B.	$4^x \log_4 e$
	C.	$4^x \log_e x$	D.	$\log_e 4$
૨૮.	$\frac{d}{dx}(4^x) = \underline{\hspace{2cm}}$			
	A.	$4^x \log_e 4$	B.	$4^x \log_4 e$
	C.	$4^x \log_e x$	D.	$\log_e 4$

29.	If $y = \log(ax + b)$ then $\frac{dy}{dx} =$ _____			
	A.	$\frac{1}{ax + b}$	B.	$\frac{b}{ax + b}$
	C.	$\frac{a}{ax + b}$	D.	$\frac{a + b}{ax + b}$
૨૯.	જો $y = \log(ax + b)$ હોય તો $\frac{dy}{dx} =$ _____			
	A.	$\frac{1}{ax + b}$	B.	$\frac{b}{ax + b}$
	C.	$\frac{a}{ax + b}$	D.	$\frac{a + b}{ax + b}$
30.	If $xy = 1$ then $\frac{dy}{dx} =$ _____			
	A.	$\frac{-y}{x}$	B.	$-\frac{1}{x^2}$
	C.	$\frac{x}{y}$	D.	$-\frac{1}{x}$
૩૦.	જો $xy = 1$ હોય તો $\frac{dy}{dx} =$ _____			
	A.	$\frac{-y}{x}$	B.	$-\frac{1}{x^2}$
	C.	$\frac{x}{y}$	D.	$-\frac{1}{x}$
31.	If $x = \sin \theta, y = \cos \theta$ then $\frac{dy}{dx} =$ _____			
	A.	$-\tan \theta$	B.	$\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
૩૧.	જો $x = \sin \theta, y = \cos \theta$ હોય તો $\frac{dy}{dx} =$ _____			
	A.	$-\tan \theta$	B.	$\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
32.	$y = \sin^2 x$ then $\frac{dy}{dx} =$ _____			
	A.	$\cos^2 x$	B.	$-\sin 2x$
	C.	$2 \sin x$	D.	$\sin 2x$
૩૨.	$y = \sin^2 x$ હોય તો $\frac{dy}{dx} =$ _____			
	A.	$\cos^2 x$	B.	$-\sin 2x$
	C.	$2 \sin x$	D.	$\sin 2x$
33.	If Equation of motion of a particle is $S(t) = 2t^3 + 3t^2 - 12t + 5$ then velocity at $t = 1$ sec is _____			
	A.	6	B.	0
	C.	2	D.	4
૩૩.	એક કણની ગતિ નું સમીકરણ $S(t) = 2t^3 + 3t^2 - 12t + 5$ હોય તો $t = 1$ સેકન્ડ માટે વેગ = _____			
	A.	6	B.	0
	C.	2	D.	4
34.	For function $f(x)$, if _____ then $f(x)$ has maximum at $x = 3$.			
	A.	$f'(3) = 0, f''(3) > 0$	B.	$f'(3) = 0, f''(3) < 0$
	C.	$f'(3) < 0, f''(3) > 0$	D.	$f'(3) < 0, f''(3) < 0$
૩૪.	વિધેય $f(x)$ માટે જો _____ હોય તો $f(x)$, $x = 3$ આગળ મહત્તમ થાય.			
	A.	$f'(3) = 0, f''(3) > 0$	B.	$f'(3) = 0, f''(3) < 0$
	C.	$f'(3) < 0, f''(3) > 0$	D.	$f'(3) < 0, f''(3) < 0$
35.	If $x + y = 6$ then $\frac{dy}{dx} =$ _____			
	A.	0	B.	$6 - x$

	C.	-1	C.	1
34.	જો $x + y = 6$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	0	B.	$6 - x$
	C.	-1	C.	1
36.	$\frac{d}{dx}(xe^x) = \underline{\hspace{2cm}}$			
	A.	$e^x(x - 1)$	B.	$e^x(x + 1)$
	C.	e^x	D.	$e^x + 1$
35.	$\frac{d}{dx}(xe^x) = \underline{\hspace{2cm}}$			
	A.	$e^x(x - 1)$	B.	$e^x(x + 1)$
	C.	e^x	D.	$e^x + 1$
37.	$\frac{d}{dx}(x^x) = \underline{\hspace{2cm}}$			
	A.	$x + \log x$	B.	$x - \log x$
	C.	$x \cdot x^{x-1}$	D.	$x^x(1 + \log x)$
39.	$\frac{d}{dx}(x^x) = \underline{\hspace{2cm}}$			
	A.	$x + \log x$	B.	$x - \log x$
	C.	$x \cdot x^{x-1}$	D.	$x^x(1 + \log x)$
38.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	-1	D.	none of these
36.	$\frac{d}{dx}(\sin^2 x + \cos^2 x) = \underline{\hspace{2cm}}$			
	A.	1	B.	0
	C.	-1	D.	આ પૈકી એક પણ નહીં
39.	If $y = \log(\sin \frac{\pi}{2})$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\cot \frac{\pi}{2}$	B.	$-\cot \frac{\pi}{2}$
	C.	$\tan \frac{\pi}{2}$	D.	none of these
36.	જો $y = \log(\sin \frac{\pi}{2})$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$			
	A.	$\cot \frac{\pi}{2}$	B.	$-\cot \frac{\pi}{2}$
	C.	$\tan \frac{\pi}{2}$	D.	આ પૈકી એક પણ નહીં
40.	$\frac{d}{dx}(e^{-\log x}) = \underline{\hspace{2cm}}$			
	A.	$\frac{1}{x^2}$	B.	$-\frac{1}{x^2}$
	C.	$\frac{1}{x}$	D.	$-\frac{1}{x}$
૪૦.	$\frac{d}{dx}(e^{-\log x}) = \underline{\hspace{2cm}}$			
	A.	$\frac{1}{x^2}$	B.	$-\frac{1}{x^2}$
	C.	$\frac{1}{x}$	D.	$-\frac{1}{x}$
41.	$\int 8x^7 dx = \underline{\hspace{2cm}} + c$			

	A.	x^8	B.	$\frac{x^7}{7}$
	C.	x^6	D.	$\frac{x^8}{8}$
૪૧.	$\int 8x^7 dx = \text{_____} + c$			
	A.	x^8	B.	$\frac{x^7}{7}$
	C.	x^6	D.	$\frac{x^8}{8}$
42.	$\int_{-2}^2 x^5 dx = \text{_____} + c$			
	A.	128	B.	64
	C.	4	D.	0
૪૨.	$\int_{-2}^2 x^5 dx = \text{_____} + c$			
	A.	128	B.	64
	C.	4	D.	0
43.	$\int (1 + \tan^2 x) dx = \text{_____} + c$			
	A.	x	B.	$\tan x$
	C.	$x + \sec x$	D.	$1 - \sec x$
૪૩.	$\int (1 + \tan^2 x) dx = \text{_____} + c$			
	A.	x	B.	$\tan x$
	C.	$x + \sec x$	D.	$1 - \sec x$
44.	$\int_0^1 2x dx = \text{_____} + c$			
	A.	1	B.	0
	C.	2	D.	-1
૪૪.	$\int_0^1 2x dx = \text{_____} + c$			
	A.	1	B.	0
	C.	2	D.	-1
45.	$\int \frac{\cos x}{\sin x} dx = \text{_____} + c$			
	A.	$\tan x$	B.	$\log x $
	C.	$-\operatorname{cosec}^2 x$	D.	$\log \sin x $
૪૫.	$\int \frac{\cos x}{\sin x} dx = \text{_____} + c$			
	A.	$\tan x$	B.	$\log x $
	C.	$-\operatorname{cosec}^2 x$	D.	$\log \sin x $
46.	$\int a^x dx = \text{_____} + c$			
	A.	a^x	B.	$\frac{a^x}{\log_e a}$
	C.	$\log_e a$	D.	none of these
૪૬.	$\int a^x dx = \text{_____} + c$			
	A.	a^x	B.	$\frac{a^x}{\log_e a}$
	C.	$\log_e a$	D.	આ પૈકી એક પણ નહીં
47.	$\int \frac{1}{1+x^2} dx = \text{_____} + c$			

	A.	$\sin^{-1} x$	B.	$\cos^{-1} x$
	C.	$\tan^{-1} x$	D.	$\cot^{-1} x$
89.	$\int \frac{1}{1+x^2} dx = \text{_____} + c$			
	A.	$\sin^{-1} x$	B.	$\cos^{-1} x$
	C.	$\tan^{-1} x$	D.	$\cot^{-1} x$
48.	$\int \frac{\log x}{x} dx = \text{_____} + c$			
	A.	$2(\log x)^2$	B.	$(\log x)^2$
	C.	$\frac{1}{2}(\log x)^2$	D.	$\log(x^2)$
86.	$\int \frac{\log x}{x} dx = \text{_____} + c$			
	A.	$2(\log x)^2$	B.	$(\log x)^2$
	C.	$\frac{1}{2}(\log x)^2$	D.	$\log(x^2)$
49.	$\int_2^5 x^2 dx = \text{_____} + c$			
	A.	39	B.	117
	C.	133	D.	125
86.	$\int_2^5 x^2 dx = \text{_____} + c$			
	A.	39	B.	117
	C.	133	D.	125
50.	$\int_0^1 \frac{2}{1+x^2} dx = \text{_____} + c$			
	A.	π	B.	$\frac{\pi}{2}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{8}$
40.	$\int_0^1 \frac{2}{1+x^2} dx = \text{_____} + c$			
	A.	π	B.	$\frac{\pi}{2}$
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{8}$
51.	$\int \sin x dx = \text{_____} + c$			
	A.	$\sin x$	B.	$-\sin x$
	C.	$\cos x$	D.	$-\cos x$
49.	$\int \sin x dx = \text{_____} + c$			
	A.	$\sin x$	B.	$-\sin x$
	C.	$\cos x$	D.	$-\cos x$
52.	$\int \cos(ax + b) dx = \text{_____} + c$			
	A.	$\sin(ax + b)$	B.	$\frac{\sin(ax + b)}{a}$
	C.	$\frac{\sin(ax + b)}{b}$	D.	$\frac{\sin(ax - b)}{b}$
42.	$\int \cos(ax + b) dx = \text{_____} + c$			
	A.	$\sin(ax + b)$	B.	$\frac{\sin(ax + b)}{a}$
	C.	$\frac{\sin(ax + b)}{b}$	D.	$\frac{\sin(ax - b)}{b}$
53.	$\int_0^1 e^x dx = \text{_____} + c$			
	A.	e^{-1}	B.	$e - 1$
	C.	$1 - e$	D.	e

૫૩.	$\int_0^1 e^x dx = \underline{\hspace{2cm}} + c$			
	A.	e^{-1}	B.	$e - 1$
	C.	$1 - e$	D.	e
54.	Area of the region covered by the curve $x^2 + y^2 = 4$ is $\underline{\hspace{2cm}}$			
	A.	2π	B.	16π
	C.	4π	D.	4
૫૪.	વક્ર $x^2 + y^2 = 4$ થી ઘેરાતા પ્રદેશનું ક્ષેત્રફળ $\underline{\hspace{2cm}}$ છે.			
	A.	2π	B.	16π
	C.	4π	D.	4
55.	$\int \frac{1}{\sqrt{a^2 - x^2}} dx = \underline{\hspace{2cm}} + c$			
	A.	$\frac{1}{a} \cos^{-1} \left(\frac{x}{a} \right)$	B.	$\cos^{-1} \left(\frac{x}{a} \right)$
	C.	$\frac{1}{a} \sin^{-1} \left(\frac{x}{a} \right)$	D.	$\sin^{-1} \left(\frac{x}{a} \right)$
૫૫.	$\int \frac{1}{\sqrt{a^2 - x^2}} dx = \underline{\hspace{2cm}} + c$			
	A.	$\frac{1}{a} \cos^{-1} \left(\frac{x}{a} \right)$	B.	$\cos^{-1} \left(\frac{x}{a} \right)$
	C.	$\frac{1}{a} \sin^{-1} \left(\frac{x}{a} \right)$	D.	$\sin^{-1} \left(\frac{x}{a} \right)$
56.	$\int_{-1}^1 (x^2 + 1) dx = \underline{\hspace{2cm}}$			
	A.	$\frac{8}{3}$	B.	$\frac{3}{8}$
	C.	0	D.	none of these
૫૬.	$\int_{-1}^1 (x^2 + 1) dx = \underline{\hspace{2cm}}$			
	A.	$\frac{8}{3}$	B.	$\frac{3}{8}$
	C.	0	D.	આ પૈકી એક પણ નહીં
57.	The order of the differential equation $\left(\frac{d^3 y}{dx^3} \right)^2 + \left(\frac{d^2 y}{dx^2} \right)^4 + y = 0$ is $\underline{\hspace{2cm}}$			
	A.	2	B.	4
	C.	1	D.	3
૫૭.	વિકલ સમીકરણ $\left(\frac{d^3 y}{dx^3} \right)^2 + \left(\frac{d^2 y}{dx^2} \right)^4 + y = 0$ ની કક્ષા $\underline{\hspace{2cm}}$ છે.			
	A.	2	B.	4
	C.	1	D.	3
58.	The degree of the differential equation $\frac{d^2 y}{dx^2} + \sin \left(\frac{dy}{dx} \right) + 3y = 0$ is $\underline{\hspace{2cm}}$			
	A.	2	B.	1
	C.	0	D.	undefined
૫૮.	વિકલ સમીકરણ $\frac{d^2 y}{dx^2} + \sin \left(\frac{dy}{dx} \right) + 3y = 0$ નું પરિમાણ $\underline{\hspace{2cm}}$ છે			
	A.	2	B.	1
	C.	0	D.	અવ્યાખ્યાયીત
59.	The Order of the differential equation $\left(\frac{d^2 y}{dx^2} \right)^3 - 6 \left(\frac{dy}{dx} \right)^6 + 7y = 0$ is $\underline{\hspace{2cm}}$			
	A.	1	B.	2
	C.	6	D.	3

૫૯.	વિકલ સમીકરણ $\left(\frac{d^2y}{dx^2}\right)^3 - 6\left(\frac{dy}{dx}\right)^6 + 7y = 0$ ની કક્ષા _____ છે.			
	A.	1	B.	2
	C.	6	D.	3
60.	The degree of the differential equation $\frac{d^2y}{dx^2} + 3\left(\frac{dy}{dx}\right)^2 + y = 0$			
	A.	2	B.	0
	C.	1	D.	none of these
૬૦.	વિકલ સમીકરણ $\frac{d^2y}{dx^2} + 3\left(\frac{dy}{dx}\right)^2 + y = 0$ નું પરિમાણ _____ છે.			
	A.	2	B.	0
	C.	1	D.	આ પૈકી એક પણ નહીં
61.	The solution of differential equation $\frac{dy}{dx} = e^{x+y}$ is _____			
	A.	$e^x + e^{-y} = c$	B.	$e^x + e^y = c$
	C.	$e^{-x} + e^y = c$	D.	$e^{-x} + e^{-y} = c$
૬૧.	વિકલ સમીકરણ $\frac{dy}{dx} = e^{x+y}$ નો ઉકેલ _____ છે.			
	A.	$e^x + e^{-y} = c$	B.	$e^x + e^y = c$
	C.	$e^{-x} + e^y = c$	D.	$e^{-x} + e^{-y} = c$
62.	_____ is a homogeneous function.			
	A.	$f(x, y) = x^2 + y^2$	B.	$f(x, y) = x + xy$
	C.	$f(x, y) = x^3 + xy$	D.	$f(x, y) = x + xy$
૬૨.	_____ સમ પરીમાણીય વિધેય છે.			
	A.	$f(x, y) = x^2 + y^2$	B.	$f(x, y) = x + xy$
	C.	$f(x, y) = x^3 + xy$	D.	$f(x, y) = x + xy$
63.	Solution of differential equation $ydx + xdy = 0$ is _____			
	A.	$y - x = c$	B.	$y + x = c$
	C.	$yx = c$	D.	$y = cx$
૬૩.	વિકલ સમીકરણ $ydx + xdy = 0$ નો ઉકેલ _____ છે			
	A.	$y - x = c$	B.	$y + x = c$
	C.	$yx = c$	D.	$y = cx$
64.	Which of the following is not a differential equation ?			
	A.	$\frac{dy}{dx} = 1 + x + y + xy$	B.	$ydx + xdy = 0$
	C.	$\frac{dy}{dx} + \frac{2y}{x} = e^x$	D.	$y = \cos x$
૬૪.	નીચેના પૈકી કયું વિકલ સમીકરણ નથી ?			
	A.	$\frac{dy}{dx} = 1 + x + y + xy$	B.	$ydx + xdy = 0$
	C.	$\frac{dy}{dx} + \frac{2y}{x} = e^x$	D.	$y = \cos x$
65.	The degree of the homogeneous function $f(x, y) = \frac{x^3 + y^3}{x + y}$ is _____ .			
	A.	1	B.	3
	C.	4	D.	2
૬૫.	સમ પરીમાણીય વિધેય $f(x, y) = \frac{x^3 + y^3}{x + y}$ નું પરિમાણ _____ છે.			
	A.	1	B.	3
	C.	4	D.	2

66.	The solution of a differential equation $\frac{dy}{dx} - y = 0$ is _____			
	A.	$y = e^{-x}$	B.	$y = e^x$
	C.	$y \cdot e^x = 0$	D.	$2y = 3x$
૬૬.	વિકલ સમીકરણ $\frac{dy}{dx} - y = 0$ નો ઉકેલ _____ છે			
	A.	$y = e^{-x}$	B.	$y = e^x$
	C.	$y \cdot e^x = 0$	D.	$2y = 3x$
67.	For linear differential equation $\frac{dy}{dx} + Py = Q$, I.F.= _____			
	A.	$e^{\int Qdx}$	B.	$e^{\int -Qdx}$
	C.	$e^{\int -Pdx}$	D.	$e^{\int Pdx}$
૬૭.	સુરેખ વિકલ સમીકરણ $\frac{dy}{dx} + Py = Q$ માટે I.F.= _____			
	A.	$e^{\int Qdx}$	B.	$e^{\int -Qdx}$
	C.	$e^{\int -Pdx}$	D.	$e^{\int Pdx}$
68.	The number of arbitrary constants in the general solution of differential equation of second order is _____			
	A.	0	B.	2
	C.	4	D.	1
૬૮.	દ્વિતીય કક્ષાના વિકલ સમીકરણના સામાન્ય ઉકેલમાં _____ સ્વૈર અચલાંકો હોય.			
	A.	0	B.	2
	C.	4	D.	1
69.	An integrating factor of the differential equation $\frac{dy}{dx} + y = 3x$ is _____			
	A.	1	B.	2
	C.	e^x	D.	$\log x$
૬૯.	વિકલ સમીકરણ $\frac{dy}{dx} + y = 3x$ નો સંકલ્પ કારક અવયવ _____ છે.			
	A.	1	B.	2
	C.	e^x	D.	$\log x$
70.	An integrating factor of the differential equation $\frac{dy}{dx} + \frac{2y}{x} = e^x$ is _____			
	A.	e^x	B.	e^{x^2}
	C.	$2x$	D.	x^2
૭૦.	વિકલ સમીકરણ $\frac{dy}{dx} + \frac{2y}{x} = e^x$ નો સંકલ્પ કારક અવયવ _____ છે.			
	A.	e^x	B.	e^{x^2}
	C.	$2x$	D.	x^2
