

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER –2 (C2D)• EXAMINATION – WINTER - 2021

Subject Code:C320002

Date : 23-03-2022

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 programmable & 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.	Square root of -1 = _____.			
	A.	i, -i	B.	1
	C.	0	D.	-1
૧.	-1 નું વર્ગમૂળ = _____.			
	A.	i, -i	B.	1
	C.	0	D.	-1
2.	For the complex number $z = \sqrt{3} + i$, $\arg(z) =$ _____.			
	A.	π	B.	0
	C.	$\pi/6$	D.	2π
૨.	સંકર સંખ્યા $z = \sqrt{3} + i$ માટે, $\arg(z) =$ _____.			
	A.	π	B.	0
	C.	$\pi/6$	D.	2π
3.	If $z = -2 + 5i$ then $\bar{z} =$ _____.			
	A.	$-2 - 5i$	B.	$2 + 5i$
	C.	$-2 + 5i$	D.	$2 - 5i$
૩.	જો $z = -2 + 5i$ હોય તો $\bar{z} =$ _____.			
	A.	$-2 - 5i$	B.	$2 + 5i$
	C.	$-2 + 5i$	D.	$2 - 5i$
4.	If $z = -2 - 3i$ then $ z =$ _____.			
	A.	$\sqrt{13}$	B.	$\sqrt{-13}$
	C.	13	D.	-13
૪.	જો $z = -2 - 3i$ હોય તો $ z =$ _____.			
	A.	$\sqrt{13}$	B.	$\sqrt{-13}$
	C.	13	D.	-13
5.	$i(i^4 + i^3 + i^2 + i^1) =$ _____.			
	A.	i	B.	0
	C.	-i	D.	1
૫.	$i(i^4 + i^3 + i^2 + i^1) =$ _____.			
	A.	i	B.	0
	C.	-i	D.	1
6.	$\left(\cos \frac{\theta}{3} + i \sin \frac{\theta}{3}\right)^6 =$ _____.			
	A.	$\cos \frac{\theta}{3} + i \sin \frac{\theta}{3}$	B.	$\cos \frac{\theta}{3} - i \sin \frac{\theta}{3}$

	C.	$\cos 2\theta + i \sin 2\theta$	D.	$\cos \theta - i \sin \theta$
૬.		$\left(\cos \frac{\theta}{3} + i \sin \frac{\theta}{3}\right)^6 = \underline{\hspace{2cm}}$.		
	A.	$\cos \frac{\theta}{3} + i \sin \frac{\theta}{3}$	B.	$\cos \frac{\theta}{3} - i \sin \frac{\theta}{3}$
	C.	$\cos 2\theta + i \sin 2\theta$	D.	$\cos \theta - i \sin \theta$
7.		If $z_1 = 3 - i$, $z_2 = -1 + 5i$ then $\bar{z}_1 + z_2 = \underline{\hspace{2cm}}$.		
	A.	$2 - 4i$	B.	$2 + 6i$
	C.	$4 - 4i$	D.	$4 + 4i$
૭.		જો $z_1 = 3 - i$, $z_2 = -1 + 5i$ હોય તો $\bar{z}_1 + z_2 = \underline{\hspace{2cm}}$.		
	A.	$2 - 4i$	B.	$2 + 6i$
	C.	$4 - 4i$	D.	$4 + 4i$
8.		$(3 + 2i)(3 - 2i) = \underline{\hspace{2cm}}$.		
	A.	13	B.	$\sqrt{13}$
	C.	$(3 + 2i)^2$	D.	$(3 - 2i)^2$
૮.		$(3 + 2i)(3 - 2i) = \underline{\hspace{2cm}}$.		
	A.	13	B.	$\sqrt{13}$
	C.	$(3 + 2i)^2$	D.	$(3 - 2i)^2$
9.		If $z_1 = 2 + 3i$, $z_2 = 5 - 2i$ then $Re(z_1 - z_2) = \underline{\hspace{2cm}}$.		
	A.	-5	B.	-3
	C.	3	D.	5
૯.		જો $z_1 = 2 + 3i$, $z_2 = 5 - 2i$ હોય તો $Re(z_1 - z_2) = \underline{\hspace{2cm}}$.		
	A.	-5	B.	-3
	C.	3	D.	5
10.		If $z_1 = -4 + 6i$, $z_2 = 2 - 4i$ then $Im(z_1 + z_2) = \underline{\hspace{2cm}}$.		
	A.	3	B.	-3
	C.	2	D.	-2
૧૦.		જો $z_1 = -4 + 6i$, $z_2 = 2 - 4i$ હોય તો $Im(z_1 + z_2) = \underline{\hspace{2cm}}$.		
	A.	3	B.	-3
	C.	2	D.	-2
11.		If z is any complex number then $z + \bar{z} = \underline{\hspace{2cm}}$.		
	A.	$Im(z)$	B.	$2 Im(z)$
	C.	$Re(z)$	D.	$2 Re(z)$
૧૧.		જો z કોઈ સંકર સંખ્યા હોય તો $z + \bar{z} = \underline{\hspace{2cm}}$.		
	A.	$Im(z)$	B.	$2 Im(z)$
	C.	$Re(z)$	D.	$2 Re(z)$
12.		If $z_1 = 1 - 5i$, $z_2 = 3 + i$ then $\bar{z}_1 \cdot \bar{z}_2 = \underline{\hspace{2cm}}$.		
	A.	$8 + 14i$	B.	$-8 + 14i$
	C.	$8 - 14i$	D.	$-8 - 14i$
૧૨.		જો $z_1 = 1 - 5i$, $z_2 = 3 + i$ હોય તો $\bar{z}_1 \cdot \bar{z}_2 = \underline{\hspace{2cm}}$.		
	A.	$8 + 14i$	B.	$-8 + 14i$
	C.	$8 - 14i$	D.	$-8 - 14i$
13.		$i^{29} = \underline{\hspace{2cm}}$.		
	A.	1	B.	$-i$
	C.	-1	D.	i
૧૩.		$i^{29} = \underline{\hspace{2cm}}$.		
	A.	1	B.	$-i$
	C.	-1	D.	i
14.		If z is any complex number then $z \cdot \bar{z} = \underline{\hspace{2cm}}$.		
	A.	Complex number	B.	i
	C.	Real number	D.	None of these

૧૪.	જો z કોઈ સંકર સંખ્યા હોય તો $z \cdot \bar{z} = \underline{\hspace{2cm}}$.			
	A.	સંકર સંખ્યા	B.	i
	C.	વાસ્તવિક સંખ્યા	D.	કોઈ પણ નહિ
15.	If $f(x) = 33x^2 + \sqrt{x}$ then $f(1) = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{32}$	B.	$\sqrt{33}$
	C.	43	D.	34
૧૫.	જો $f(x) = 33x^2 + \sqrt{x}$ હોય તો $f(1) = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{32}$	B.	$\sqrt{33}$
	C.	43	D.	34
16.	If $f(x) = \log_2 x$ then $f(16) = \underline{\hspace{2cm}}$.			
	A.	1	B.	4
	C.	0	D.	-4
૧૬.	જો $f(x) = \log_2 x$ હોય તો $f(16) = \underline{\hspace{2cm}}$.			
	A.	1	B.	4
	C.	0	D.	-4
17.	If $f(x) = 4x^2 - 3x - 5$ then $f(-1) = \underline{\hspace{2cm}}$.			
	A.	22	B.	-2
	C.	21	D.	2
૧૭.	જો $f(x) = 4x^2 - 3x - 5$ હોય તો $f(-1) = \underline{\hspace{2cm}}$.			
	A.	22	B.	-2
	C.	21	D.	2
18.	If $f(x) = \log x$ and $g(x) = e^{-x}$ then $f \circ g(e) = \underline{\hspace{2cm}}$.			
	A.	1	B.	-e
	C.	-1	D.	e
૧૮.	જો $f(x) = \log x$ અને $g(x) = e^{-x}$ હોય તો $f \circ g(e) = \underline{\hspace{2cm}}$.			
	A.	1	B.	-e
	C.	-1	D.	e
19.	If $f(x) = e^x$ then $f(x/y) = \underline{\hspace{2cm}}$.			
	A.	$f(x) \cdot f(y)$	B.	$f(x) + f(y)$
	C.	$f(x)/f(y)$	D.	$f(x) - f(y)$
૧૯.	જો $f(x) = e^x$ હોય તો $f(x/y) = \underline{\hspace{2cm}}$.			
	A.	$f(x) \cdot f(y)$	B.	$f(x) + f(y)$
	C.	$f(x)/f(y)$	D.	$f(x) - f(y)$
20.	$\lim_{x \rightarrow 1} \frac{x^3 + 1}{x + 1} = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	3	D.	-3
૨૦.	$\lim_{x \rightarrow 1} \frac{x^3 + 1}{x + 1} = \underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	3	D.	-3
21.	$\lim_{n \rightarrow \infty} \frac{3n^3 - 7n^2 + 17}{n^3 + 1} = \underline{\hspace{2cm}}$.			
	A.	∞	B.	-3
	C.	1	D.	3
૨૧.	$\lim_{n \rightarrow \infty} \frac{3n^3 - 7n^2 + 17}{n^3 + 1} = \underline{\hspace{2cm}}$.			
	A.	∞	B.	-3
	C.	1	D.	3
22.	$\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = \underline{\hspace{2cm}}$.			
	A.	1	B.	2

	C.	-1	D.	0
22.	$\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = \underline{\hspace{1cm}}.$			
	A.	1	B.	2
	C.	-1	D.	0
23.	$\lim_{x \rightarrow 2} \frac{2x^2 - 3}{x - 5} = \underline{\hspace{1cm}}.$			
	A.	$-\frac{7}{5}$	B.	$-\frac{3}{5}$
	C.	$-\frac{5}{7}$	D.	$-\frac{5}{3}$
23.	$\lim_{x \rightarrow 2} \frac{2x^2 - 3}{x - 5} = \underline{\hspace{1cm}}.$			
	A.	$-\frac{7}{5}$	B.	$-\frac{3}{5}$
	C.	$-\frac{5}{7}$	D.	$-\frac{5}{3}$
24.	$\lim_{x \rightarrow 0} \frac{4^x - 7^x}{x} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	$\log_e \left(\frac{7}{4} \right)$	D.	$\log_e \left(\frac{4}{7} \right)$
24.	$\lim_{x \rightarrow 0} \frac{4^x - 7^x}{x} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	$\log_e \left(\frac{7}{4} \right)$	D.	$\log_e \left(\frac{4}{7} \right)$
25.	$\lim_{x \rightarrow 0} (1 + x)^{\frac{1}{x}} = \underline{\hspace{1cm}}.$			
	A.	e	B.	1
	C.	0	D.	-e
24.	$\lim_{x \rightarrow 0} (1 + x)^{\frac{1}{x}} = \underline{\hspace{1cm}}.$			
	A.	e	B.	1
	C.	0	D.	-e
26.	$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x} \right)^{2x} = \underline{\hspace{1cm}}.$			
	A.	e^{-4}	B.	4^e
	C.	4^{-e}	D.	e^4
25.	$\lim_{x \rightarrow \infty} \left(1 + \frac{2}{x} \right)^{2x} = \underline{\hspace{1cm}}.$			
	A.	e^{-4}	B.	4^e
	C.	4^{-e}	D.	e^4
27.	$\frac{d}{dx} (3^3 + x^3 - 3^x) = \underline{\hspace{1cm}}.$			
	A.	$x^3 \cdot \log 3 - x \cdot 3^{x-1}$	B.	0
	C.	$3 \cdot x^2 - 3^x \cdot \log 3$	D.	$27 + 3 \cdot x^2 - 3^x \cdot \log 3$
29.	$\frac{d}{dx} (3^3 + x^3 - 3^x) = \underline{\hspace{1cm}}.$			
	A.	$x^3 \cdot \log 3 - x \cdot 3^{x-1}$	B.	0
	C.	$3 \cdot x^2 - 3^x \cdot \log 3$	D.	$27 + 3 \cdot x^2 - 3^x \cdot \log 3$
28.	$\frac{d}{dx} (\sin^{-1} x + \cos^{-1} x) = \underline{\hspace{1cm}}.$			
	A.	0	B.	π

	C.	1	D.	$\pi/2$
28.	$\frac{d}{dx}(\sin^{-1}x + \cos^{-1}x) = \underline{\hspace{2cm}}.$			
	A.	0	B.	π
	C.	1	D.	$\pi/2$
29.	$\frac{d}{dx}(\log x^2) = \underline{\hspace{2cm}}.$			
	A.	0	B.	x
	C.	1	D.	$2x^{-1}$
29.	$\frac{d}{dx}(\log x^2) = \underline{\hspace{2cm}}.$			
	A.	0	B.	x
	C.	1	D.	$2x^{-1}$
30.	$\frac{d}{dx}(-\sec x) = \underline{\hspace{2cm}}.$			
	A.	$\sec x \cdot \operatorname{cosec} x$	B.	$-\operatorname{cosec} x \cdot \cot x$
	C.	$-\sec x \cdot \tan x$	D.	$\operatorname{cosec} x \cdot \cot x$
30.	$\frac{d}{dx}(-\sec x) = \underline{\hspace{2cm}}.$			
	A.	$\sec x \cdot \operatorname{cosec} x$	B.	$-\operatorname{cosec} x \cdot \cot x$
	C.	$-\sec x \cdot \tan x$	D.	$\operatorname{cosec} x \cdot \cot x$
31.	$\frac{d}{dx} \log(-\operatorname{cosec} x) = \underline{\hspace{2cm}}.$			
	A.	$-\sin x$	B.	$\tan x$
	C.	$\cos x$	D.	$\cot x$
31.	$\frac{d}{dx} \log(-\operatorname{cosec} x) = \underline{\hspace{2cm}}.$			
	A.	$-\sin x$	B.	$\tan x$
	C.	$\cos x$	D.	$\cot x$
32.	$\frac{d}{dx}(\cos^2 x + \sin^2 x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	π
	C.	-1	D.	0
32.	$\frac{d}{dx}(\cos^2 x + \sin^2 x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	π
	C.	-1	D.	0
33.	$\frac{d}{dx}(e^{-2 \log x}) = \underline{\hspace{2cm}}.$			
	A.	$-2x$	B.	$-2/x$
	C.	$2x$	D.	$2/x$
33.	$\frac{d}{dx}(e^{-2 \log x}) = \underline{\hspace{2cm}}.$			
	A.	$-2x$	B.	$-2/x$
	C.	$2x$	D.	$2/x$
34.	$\frac{d}{dx}(\cos x \cdot \sqrt{x}) = \underline{\hspace{2cm}}.$			
	A.	$\cos x \cdot \frac{1}{2\sqrt{x}} - \sin x \cdot \sqrt{x}$	B.	$\sin x \cdot \frac{1}{2\sqrt{x}} - \cos x \cdot \sqrt{x}$
	C.	$\cos x \cdot \frac{1}{2\sqrt{x}} + \sin x \cdot \sqrt{x}$	D.	$\sin x \cdot \frac{1}{2\sqrt{x}} + \cos x \cdot \sqrt{x}$
34.	$\frac{d}{dx}(\cos x \cdot \sqrt{x}) = \underline{\hspace{2cm}}.$			
	A.	$\cos x \cdot \frac{1}{2\sqrt{x}} - \sin x \cdot \sqrt{x}$	B.	$\sin x \cdot \frac{1}{2\sqrt{x}} - \cos x \cdot \sqrt{x}$

	C.	$\cos x \cdot \frac{1}{2\sqrt{x}} + \sin x \cdot \sqrt{x}$	D.	$\sin x \cdot \frac{1}{2\sqrt{x}} + \cos x \cdot \sqrt{x}$
35.	$\frac{d}{dx} \left(\frac{\sin x^3}{x^3} \right) = \underline{\hspace{2cm}}.$			
	A.	$\frac{3(\sin x^3 - x^3 \cdot \cos x^3)}{x^4}$	B.	$\frac{3(x^3 \cdot \cos x^3 + \sin x^3)}{x^4}$
	C.	$\frac{3(x^3 \cdot \cos x^3 - \sin x^3)}{x^4}$	D.	$\frac{3(\sin x^3 + x^3 \cdot \cos x^3)}{x^4}$
3૫.	$\frac{d}{dx} \left(\frac{\sin x^3}{x^3} \right) = \underline{\hspace{2cm}}.$			
	A.	$\frac{3(\sin x^3 - x^3 \cdot \cos x^3)}{x^4}$	B.	$\frac{3(x^3 \cdot \cos x^3 + \sin x^3)}{x^4}$
	C.	$\frac{3(x^3 \cdot \cos x^3 - \sin x^3)}{x^4}$	D.	$\frac{3(\sin x^3 + x^3 \cdot \cos x^3)}{x^4}$
36.	If $x = at^2, y = 2at$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
૩૬.	જો $x = at^2, y = 2at$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
37.	If $y = 999x^2 - 99x + 9$ then $y_3 = \underline{\hspace{2cm}}.$			
	A.	9	B.	18
	C.	0	D.	91
૩૭.	જો $y = 999x^2 - 99x + 9$ હોય તો $y_3 = \underline{\hspace{2cm}}.$			
	A.	9	B.	18
	C.	0	D.	91
38.	If $x + y = xy$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{y+1}{1+x}$	B.	$\frac{y-1}{1-x}$
	C.	$\frac{1-y}{1-x}$	D.	$\frac{y+1}{1-x}$
૩૮.	જો $x + y = xy$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{y+1}{1+x}$	B.	$\frac{y-1}{1-x}$
	C.	$\frac{1-y}{1-x}$	D.	$\frac{y+1}{1-x}$
39.	If $y = x^x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$x^x(1 + \log x)$	B.	$x^x(1 - \log x)$
	C.	$x^x(\log x - 1)$	D.	0
૩૯.	જો $y = x^x$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$x^x(1 + \log x)$	B.	$x^x(1 - \log x)$
	C.	$x^x(\log x - 1)$	D.	0
40.	If motion of a particle is given by $s = 6t^3 - 2t - 1$ then acceleration = $\underline{\hspace{2cm}}$ at $t = 1$.			
	A.	18	B.	16
	C.	0	D.	36
૪૦.	જો કણની ગતિનું ગતિસૂત્ર $s = 6t^3 - 2t - 1$ હોય તો $t = 1$ આગળ પ્રવેગ = $\underline{\hspace{2cm}}$.			
	A.	18	B.	16
	C.	0	D.	36
41.	Function $f(x)$ has minima at a point $x = x_1$, if $\underline{\hspace{2cm}}$.			

	A.	$f''(x_1) > 0$	B.	$f''(x_1) = 0$
	C.	$f''(x_1) < 0$	D.	None of these
૪૧.	x = x ₁ આગળ વિધેય f(x) નું ન્યૂનતમ બિંદુ હોવાની શરત ____ છે.			
	A.	$f''(x_1) > 0$	B.	$f''(x_1) = 0$
	C.	$f''(x_1) < 0$	D.	કોઈપણ નહીં
42.	Minimum value of function $f(x) = \cos x$ is ____.			
	A.	0	B.	1
	C.	2	D.	-1
૪૨.	વિધેય $f(x) = \cos x$ ની ન્યૂનતમ કિમત = ____.			
	A.	0	B.	1
	C.	2	D.	-1
43.	If $f(x) = e^x$ then $f''(0) =$ ____.			
	A.	-1	B.	e
	C.	0	D.	1
૪૩.	જો $f(x) = e^x$ હોય તો $f''(0) =$ ____.			
	A.	-1	B.	e
	C.	0	D.	1
44.	$\frac{d}{dx}(\tan^{-1}x) =$ ____.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{1}{1+x^2}$
૪૪.	$\frac{d}{dx}(\tan^{-1}x) =$ ____.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{1}{1+x^2}$
45.	$\int \frac{1}{x} dx =$ ____ + c			
	A.	$\log_{10} x$	B.	$\log_e x$
	C.	0	D.	$\log_2 x$
૪૫.	$\int \frac{1}{x} dx =$ ____ + c			
	A.	$\log_{10} x$	B.	$\log_e x$
	C.	0	D.	$\log_2 x$
46.	$\int -\operatorname{cosec}^2 x dx =$ ____ + c			
	A.	$\cot x - x$	B.	$\operatorname{cosec} x$
	C.	$\cot x + x$	D.	$\cot x$
૪૬.	$\int -\operatorname{cosec}^2 x dx =$ ____ + c			
	A.	$\cot x - x$	B.	$\operatorname{cosec} x$
	C.	$\cot x + x$	D.	$\cot x$
47.	$\int x e^x dx =$ ____ + c			
	A.	$e^x(x-1)$	B.	$x e^x$
	C.	e^x	D.	$x(e^x + 1)$
૪૭.	$\int x e^x dx =$ ____ + c			
	A.	$e^x(x-1)$	B.	$x e^x$
	C.	e^x	D.	$x(e^x + 1)$

48.	$\int \sin^3 x \cos x dx = \text{_____} + c$			
	A.	$4\sin^4 x$	B.	$3\sin^2 x$
	C.	$\frac{1}{3}\sin^2 x$	D.	$\frac{1}{4}\sin^4 x$
49.	$\int \sin^3 x \cos x dx = \text{_____} + c$			
	A.	$4\sin^4 x$	B.	$3\sin^2 x$
	C.	$\frac{1}{3}\sin^2 x$	D.	$\frac{1}{4}\sin^4 x$
50.	$\int (2x + e^x + \sin x) dx = \text{_____}$			
	A.	$x^2 - e^x - \sin x + c$	B.	$x^2 - e^x + \cos x + c$
	C.	$x^2 + e^x + \sin x + c$	D.	$x^2 + e^x - \cos x + c$
51.	$\int \cos(9x - 5) dx = \text{_____}$			
	A.	$9 \sin(9x - 5) + c$	B.	$9 \sin(9x + 5) + c$
	C.	$\frac{1}{9} \sin(9x + 5) + c$	D.	$\frac{1}{9} \sin(9x - 5) + c$
52.	$\int \log x dx = \text{_____}$			
	A.	$x \log x - x + c$	B.	$-x \log x - x + c$
	C.	$-x \log x + x + c$	D.	$x \log x + x + c$
53.	$\int \log x dx = \text{_____}$			
	A.	$x \log x - x + c$	B.	$-x \log x - x + c$
	C.	$-x \log x + x + c$	D.	$x \log x + x + c$
54.	$\int e^{-7 \log x} dx = \text{_____}$			
	A.	$7x^6 + c$	B.	$x^7 + c$
	C.	$\frac{1}{-6} x^{-6} + c$	D.	$\frac{1}{-8} x^{-8} + c$
55.	$\int e^{-7 \log x} dx = \text{_____}$			
	A.	$7x^6 + c$	B.	$x^7 + c$
	C.	$\frac{1}{-6} x^{-6} + c$	D.	$\frac{1}{-8} x^{-8} + c$
56.	$\int (\cot x - \operatorname{cosec}^2 x) e^x dx = \text{_____} + c$			
	A.	$e^x \operatorname{cosec} x$	B.	$e^x \cot x$
	C.	$e^x \cot^2 x$	D.	$e^x \operatorname{cosec}^2 x$
57.	$\int (\cot x - \operatorname{cosec}^2 x) e^x dx = \text{_____} + c$			
	A.	$e^x \operatorname{cosec} x$	B.	$e^x \cot x$
	C.	$e^x \cot^2 x$	D.	$e^x \operatorname{cosec}^2 x$
58.	$\int \frac{f'(x)}{f(x)} dx = \text{_____} + c$			

	A.	$f(x)$	B.	$f'(x)$
	C.	$ \log(f(x)) $	D.	$\log f(x) $
48.	$\int \frac{f'(x)}{f(x)} dx = \text{_____} + c$			
	A.	$f(x)$	B.	$f'(x)$
	C.	$ \log(f(x)) $	D.	$\log f(x) $
55.	$\int_0^{\pi} 2dx = \text{_____}$			
	A.	1	B.	0
	C.	π	D.	2π
44.	$\int_0^{\pi} 2dx = \text{_____}$			
	A.	1	B.	0
	C.	π	D.	2π
56.	$\int_0^2 \frac{1}{1+x} dx = \text{_____}$			
	A.	$\log 3$	B.	1
	C.	-1	D.	$-\log 3$
45.	$\int_0^2 \frac{1}{1+x} dx = \text{_____}$			
	A.	$\log 3$	B.	1
	C.	-1	D.	$-\log 3$
57.	$\int_1^0 \frac{-1}{x^2+1} dx = \text{_____}$			
	A.	π	B.	$-\pi$
	C.	$-\pi/4$	D.	$\pi/4$
49.	$\int_1^0 \frac{-1}{x^2+1} dx = \text{_____}$			
	A.	π	B.	$-\pi$
	C.	$-\pi/4$	D.	$\pi/4$
58.	$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\tan x} + \sqrt{\cot x}} dx = \text{_____}$			
	A.	$\pi/4$	B.	$\pi/2$
	C.	π	D.	0
47.	$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\tan x} + \sqrt{\cot x}} dx = \text{_____}$			
	A.	$\pi/4$	B.	$\pi/2$
	C.	π	D.	0
59.	Volume generated by revolving the rectangle of length h and breadth r, about the x-axis is _____.			
	A.	$\frac{\pi r^2 h}{3}$	B.	$\frac{4\pi r^3}{3}$
	C.	$\pi r^2 h$	D.	πr^2

૫૯.	h લંબાઈ અને r પહોળાઈ વાળા લંબચોરસને x - અક્ષ ફરતે પરિભ્રમણ કરાવતા રચાતા ઘનનું ઘનફળ = _____.			
	A.	$\frac{\pi r^2 h}{3}$	B.	$\frac{4\pi r^3}{3}$
	C.	$\pi r^2 h$	D.	πr^2
60.	Area of the region bounded by the curve $y = e^x$, x - axis, lines $x = 0$ and $x = 1$ is _____ units			
	A.	$e - 1$	B.	$1 - e$
	C.	e^1	D.	e^{-1}
૬૦.	વક્રો $y = e^x$, x - axis, રેખાઓ $x = 0$ અને $x = 1$ વચ્ચે ઘેરાતા પ્રદેશનું ક્ષેત્રફળ = _____.			
	A.	$e - 1$	B.	$1 - e$
	C.	e^1	D.	e^{-1}
61.	Order of the differential equation $\left(\frac{d^4 y}{dx^4}\right)^2 + \sqrt{\frac{dy}{dx}} + y = 0$ is = _____.			
	A.	2	B.	3
	C.	1	D.	4
૬૧.	વિકલ સમીકરણ $\left(\frac{d^4 y}{dx^4}\right)^2 + \sqrt{\frac{dy}{dx}} + y = 0$ ની કક્ષા = _____.			
	A.	2	B.	3
	C.	1	D.	4
62.	Degree of the differential equation $\left(\frac{d^2 y}{dx^2}\right)^5 + \left(\frac{dy}{dx}\right)^7 + y = 0$ is = _____.			
	A.	7	B.	5
	C.	6	D.	2
૬૨.	વિકલ સમીકરણ $\left(\frac{d^2 y}{dx^2}\right)^5 + \left(\frac{dy}{dx}\right)^7 + y = 0$ નું પરિમાણ = _____.			
	A.	7	B.	5
	C.	6	D.	2
63.	Which of the following equation do not represent the differential equation?			
	A.	$\frac{dy}{dx} + 5y = 0$	B.	$\frac{dy}{dx} + 2xy = 0$
	C.	$\frac{d^2 y}{dx^2} + y = 0$	D.	$x^2 + y^2 = c^2$
૬૩.	નીચેના માંથી કયું સમીકરણ વિકલ સમીકરણ દર્શાવતું નથી?			
	A.	$\frac{dy}{dx} + 5y = 0$	B.	$\frac{dy}{dx} + 2xy = 0$
	C.	$\frac{d^2 y}{dx^2} + y = 0$	D.	$x^2 + y^2 = c^2$
64.	Solution of the differential equation $(1+x)\frac{dy}{dx} = (1+y)$ is _____.			
	A.	$\frac{1+y}{1+x} = c$	B.	$\frac{1+2y}{1+2x} = c$
	C.	$\frac{1-y}{1-x} = c$	D.	$\frac{1-2y}{1-2x} = c$
૬૪.	વિકલ સમીકરણ $(1+x)\frac{dy}{dx} = (1+y)$ નો ઉકેલ = _____.			
	A.	$\frac{1+y}{1+x} = c$	B.	$\frac{1+2y}{1+2x} = c$
	C.	$\frac{1-y}{1-x} = c$	D.	$\frac{1-2y}{1-2x} = c$
65.	Degree of the homogeneous function $f(x, y) = x^3 + y^3$ is _____.			
	A.	2	B.	4
	C.	0	D.	3

૬૫.	સમ પરિમાણીય વિધેય $f(x, y) = x^3 + y^3$ નું પરિમાણ = _____ .			
	A.	2	B.	4
	C.	0	D.	3
66.	Which of the following differential equation has the solution $x^2 + y^2 = c^2$?			
	A.	$y \frac{dy}{dx} - x = 0$	B.	$x \frac{dy}{dx} + y = 0$
	C.	$y \frac{dy}{dx} + x = 0$	D.	$x \frac{dy}{dx} - y = 0$
૬૬.	નીચેના માંથી કયા વિકલ સમીકરણનો ઉકેલ $x^2 + y^2 = c^2$ છે?			
	A.	$y \frac{dy}{dx} - x = 0$	B.	$x \frac{dy}{dx} + y = 0$
	C.	$y \frac{dy}{dx} + x = 0$	D.	$x \frac{dy}{dx} - y = 0$
67.	Integrating factor of the differential equation $\frac{dy}{dx} - y = 0$ is _____.			
	A.	e^{-x}	B.	e^{-3x}
	C.	e^x	D.	e^{3x}
૬૭.	વિકલ સમીકરણ $\frac{dy}{dx} - y = 0$ નો સંકલ્પકારક અવયવ = _____.			
	A.	e^{-x}	B.	e^{-3x}
	C.	e^x	D.	e^{3x}
68.	Under what condition the differential equation $\frac{dy}{dx} + Py = Q$ is linear?			
	A.	P is function of x and Q is function of y.	B.	P is function of y and Q is function of x.
	C.	P and Q both are functions of x or constant.	D.	P and Q both are functions of y.
૬૮.	કઈ શરત હેઠળ વિકલ સમીકરણ $\frac{dy}{dx} + Py = Q$ સુરેખ થશે?			
	A.	P એ x નું વિધેય છે અને Q એ y નું વિધેય છે .	B.	P એ y નું વિધેય છે અને Q એ x નું વિધેય છે .
	C.	P અને Q બંને x ના વિધેયો અથવા અચળ છે .	D.	P અને Q બંને y ના વિધેયો છે .
69.	$f(x, y) = \underline{\hspace{2cm}}$ is a homogeneous function.			
	A.	$x^4 + y^4$	B.	$x^3 + y^2$
	C.	$x^2 + y^3$	D.	$x^2 + xy^2$
૬૯.	$f(x, y) = \underline{\hspace{2cm}}$ સમ પરિમાણીય વિધેય છે .			
	A.	$x^4 + y^4$	B.	$x^3 + y^2$
	C.	$x^2 + y^3$	D.	$x^2 + xy^2$
70.	Solution of the differential equation $\frac{dy}{dx} + 2y = 0$ is _____.			
	A.	$y = ce^x$	B.	$y = ce^{-x}$
	C.	$y = ce^{-2x}$	D.	$y = ce^{2x}$
૭૦.	વિકલ સમીકરણ $\frac{dy}{dx} + 2y = 0$ નો ઉકેલ = _____.			
	A.	$y = ce^x$	B.	$y = ce^{-x}$
	C.	$y = ce^{-2x}$	D.	$y = ce^{2x}$
