

Seat No. _____

Enrolment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER –2(CtoD) New• EXAMINATION – SUMMER - 2023

Subject Code: C320003**Date: 11-08-2023****Subject Name: Advanced Mathematics (Group-2)****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.	Distance between points (4,-3) and (0,0) is = _____.			
	A.	5	B.	0
	C.	3	D.	4
	બિંદુઓ (4, -3) અને (0, 0) વચ્ચેનું નું અંતર = _____.			
૧.	A.	5	B.	0
	C.	3	D.	4
	Midpoint of a line joining two points A(5,3) and B(3,-1) is = _____.			
	A.	(1,4)	B.	(4,2)
2.	C.	(4,1)	D.	(0,0)
	બિંદુઓ A(5,3) અને B(3,-1) ને જોડતી રેખાનું મધ્યબિંદુ = _____.			
	A.	(1,4)	B.	(4,2)
	C.	(4,1)	D.	(0,0)
૨.	Slope of a straight line which is parallel to X- axis is = _____.			
	A.	0	B.	-1
	C.	1	D.	∞
	X-અક્ષને સમાંતર હોય તેવી રેખા નો ઢાળ = _____.			
3.	A.	0	B.	-1
	C.	1	D.	∞
	If two lines $4x - 6y + 3 = 0$ and $mx - 2y - 2 = 0$ are perpendicular to each other then $m = \underline{\hspace{1cm}}$.			
	A.	3	B.	1
૩.	C.	-3	D.	-1
	જો બે રેખાઓ $4x - 6y + 3 = 0$ અને $mx - 2y - 2 = 0$ પરસ્પર લંબ હોય તો $m = \underline{\hspace{1cm}}$.			
	A.	3	B.	1
	C.	-3	D.	-1
૪.	Equation of a circle with centre (0, 0) and radius 3 is _____.			
	A.	$x^2 + y^2 = 0$	B.	$x^2 - y^2 = 9$
	C.	$x^2 + y^2 = -9$	D.	$x^2 + y^2 = 9$
	કેન્દ્ર (0, 0) અને ત્રિજ્યા 3 હોય તેવા વર્તુળનું સમીકરણ _____ છે.			
૫.	A.	$x^2 + y^2 = 0$	B.	$x^2 - y^2 = 9$
	C.	$x^2 + y^2 = -9$	D.	$x^2 + y^2 = 9$
	If P(7, -1) and Q(3, 5) then slope of line PQ = _____ .			
	A.	$\frac{2}{3}$	B.	$\frac{3}{2}$

	C.	$-\frac{2}{3}$	D.	$-\frac{3}{2}$
૬.	બિંદુઓ P(7, -1) અને Q(3, 5) ને જોડતી રેખા PQ નો ઢાળ = _____ .			
	A.	$\frac{2}{3}$	B.	$\frac{3}{2}$
	C.	$-\frac{2}{3}$	D.	$-\frac{3}{2}$
7.	If the vertices of a square are (0, 0), (0, 1), (1, x) and (1, y) then x, y = _____ .			
	A.	-1, 0	B.	0, -1
	C.	0, -1	D.	0, 1
૭.	જો (1, 1), (-1, -1), (-1, x) અને (1, y) ચોરસના શિરોબિંદુઓ હોય તો x, y = _____ .			
	A.	-1, 0	B.	0, -1
	C.	0, -1	D.	0, 1
8.	If two lines having slopes m_1 and m_2 respectively are perpendicular then _____ .			
	A.	$m_1 m_2 = -1$	B.	$m_1 m_2 = 1$
	C.	$m_1 = -m_2$	D.	$m_1 = m_2$
૮.	જો બે લંબ રેખાઓ જેમનો ઢાળ અનુક્રમે m_1 અને m_2 હોય તો _____ .			
	A.	$m_1 m_2 = -1$	B.	$m_1 m_2 = 1$
	C.	$m_1 = -m_2$	D.	$m_1 = m_2$
9.	X - Intercept of the line $x + 3y = 3$ is _____ .			
	A.	-1	B.	1
	C.	0	D.	3
૯.	રેખા $x + 3y = 3$ નો X- અંતઃખંડ=_____ .			
	A.	-1	B.	1
	C.	0	D.	3
10.	Distance between two points (-4,-3) and (-1,-2) is _____ .			
	A.	$\sqrt{25}$	B.	$\sqrt{10}$
	C.	$\sqrt{26}$	D.	0
૧૦.	બિંદુઓ (-4,-3) અને (-1,-2) વચ્ચે નું અંતર = _____ .			
	A.	$\sqrt{25}$	B.	$\sqrt{10}$
	C.	$\sqrt{26}$	D.	0
11.	Slope of the line $2x - 3y = 5$ is _____ .			
	A.	$\frac{1}{2}$	B.	$-\frac{1}{2}$
	C.	$\frac{3}{2}$	D.	$\frac{2}{3}$
૧૧.	રેખા $2x - 3y = 5$ નો ઢાળ = _____ .			
	A.	$\frac{1}{2}$	B.	$-\frac{1}{2}$
	C.	$\frac{3}{2}$	D.	$\frac{2}{3}$
12.	If equation of a circle is $x^2 + y^2 + 4x - 2y + 4 = 0$ then centre is _____ .			
	A.	(-2, -1)	B.	(-2, 1)
	C.	(2, -1)	D.	(1, -2)
૧૨.	જો વર્તુળનું સમીકરણ $x^2 + y^2 + 4x - 2y + 4 = 0$ હોય તો કેન્દ્ર = _____ .			
	A.	(-2, -1)	B.	(-2, 1)
	C.	(2, -1)	D.	(1, -2)
13.	If equation of a circle is $x^2 + y^2 + 4x - 2y + 4 = 0$ then radius is _____ .			
	A.	1	B.	5
	C.	4	D.	2

૧૩.	જો વર્તુળનું સમીકરણ $x^2 + y^2 + 4x - 2y + 4 = 0$ હોય તો ત્રિજ્યા = ____.			
	A.	1	B.	5
	C.	4	D.	2
14.	Equation of a tangent at a point (3, 4) of a circle $x^2 + y^2 = 25$ is ____.			
	A.	$4x + 3y = 25$	B.	$3x + 4y = 25$
	C.	$3x - 4y = 25$	D.	$4x - 3y = 25$
૧૪.	વર્તુળ $x^2 + y^2 = 25$ ના બિંદુ (3, 4) આગળના સ્પર્શકનું સમીકરણ = ____.			
	A.	$4x + 3y = 25$	B.	$3x + 4y = 25$
	C.	$3x - 4y = 25$	D.	$4x - 3y = 25$
15.	The angle between two straight lines $x + y = 0$ and $x - y = 0$ is ____.			
	A.	π	B.	$-\pi/2$
	C.	$\pi/2$	D.	0
૧૫.	રેખાઓ $x + y = 0$ અને $x - y = 0$ વચ્ચેના ખૂણાનું માપ = ____.			
	A.	π	B.	$-\pi/2$
	C.	$\pi/2$	D.	0
16.	If the points (-1, -1), (0, 0) and (-3, x) are co-linear then x = ____.			
	A.	-2	B.	1
	C.	-3	D.	3
૧૬.	જો બિંદુઓ (-1, -1), (0, 0) અને (-3, x) સમરેખ હોય તો x = ____.			
	A.	-2	B.	1
	C.	-3	D.	3
17.	If $f(x) = 2x^3 + x + 1$ then $f(3) =$ ____.			
	A.	22	B.	-1
	C.	58	D.	1
૧૭.	જો $f(x) = 2x^3 + x + 1$ હોય તો $f(3) =$ ____.			
	A.	22	B.	-1
	C.	58	D.	1
18.	If $f(x) = \log(1/x)$ and $g(x) = e^{-x}$ then $f \circ g(1) =$ ____.			
	A.	1	B.	0
	C.	-1	D.	e
૧૮.	જો $f(x) = \log(1/x)$ અને $g(x) = e^{-x}$ હોય તો $f \circ g(1) =$ ____.			
	A.	1	B.	0
	C.	-1	D.	e
19.	If $f(x) = e^x$ then $f(x + y) =$ ____.			
	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 $f(x + y) =$ ____.			
	A.	$f(x) \cdot f(y)$	B.	$f(x) + f(y)$
	C.	$f(x)/f(y)$	D.	$f(x) - f(y)$
20.	$\lim_{x \rightarrow 2} \frac{x^3 - 8}{x - 2} =$ ____.			
	A.	0	B.	8
	C.	12	D.	27
૨૦.	$\lim_{x \rightarrow 2} \frac{x^3 - 8}{x - 2} =$ ____.			
	A.	0	B.	8
	C.	12	D.	27
21.	$\lim_{n \rightarrow \infty} \frac{3n^3 - 7n + 7}{3n^3 - 1} =$ ____.			

	A.	∞	B.	3
	C.	1	D.	-3
21.	$\lim_{n \rightarrow \infty} \frac{3n^3 - 7n + 7}{3n^3 - 1} = \underline{\hspace{2cm}}.$			
	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.	$\lim_{\theta \rightarrow 0} \frac{\sin \theta}{\theta} = \underline{\hspace{2cm}}.$			
	A.	1	B.	2
	C.	-1	D.	0
23.	$\lim_{x \rightarrow 2} \frac{2x^2 + 1}{x + 5} = \underline{\hspace{2cm}}.$			
	A.	$-\frac{7}{9}$	B.	$\frac{9}{7}$
	C.	$-\frac{9}{7}$	D.	$\frac{7}{9}$
23.	$\lim_{x \rightarrow 2} \frac{2x^2 + 1}{x + 5} = \underline{\hspace{2cm}}.$			
	A.	$-\frac{7}{9}$	B.	$\frac{9}{7}$
	C.	$-\frac{9}{7}$	D.	$\frac{7}{9}$
24.	$\lim_{x \rightarrow 0} \frac{2^x - 3^x}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	$\log_3 \left(\frac{2}{3} \right)$	D.	$\log_3 \left(\frac{3}{2} \right)$
24.	$\lim_{x \rightarrow 0} \frac{2^x - 3^x}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	$\log_3 \left(\frac{2}{3} \right)$	D.	$\log_3 \left(\frac{3}{2} \right)$
25.	$\lim_{x \rightarrow 0} \left(1 + \frac{1}{x} \right)^x = \underline{\hspace{2cm}}.$			
	A.	e	B.	1
	C.	0	D.	-e
24.	$\lim_{x \rightarrow 0} \left(1 + \frac{1}{x} \right)^x = \underline{\hspace{2cm}}.$			
	A.	E	B.	1
	C.	0	D.	-e
26.	$\lim_{x \rightarrow \infty} \left(1 - \frac{5}{x} \right)^x = \underline{\hspace{2cm}}.$			
	A.	e^{-5}	B.	5^e
	C.	5^{-e}	D.	e^5
26.	$\lim_{x \rightarrow \infty} \left(1 - \frac{5}{x} \right)^x = \underline{\hspace{2cm}}.$			
26.	$\lim_{x \rightarrow \infty} \left(1 - \frac{5}{x} \right)^x = \underline{\hspace{2cm}}.$			

	A.	e^{-5}	B.	5^e
	C.	5^{-e}	D.	e^5
27.	$\frac{d}{dx}(3^3 - x^3 - 3^x) = \underline{\hspace{2cm}}.$			
	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.	$\frac{d}{dx}(3^3 - x^3 - 3^x) = \underline{\hspace{2cm}}.$			
	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.	$\frac{d}{dx}(\tan^{-1}x + \cot^{-1}x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	π
	C.	0	D.	$\pi/2$
26.	$\frac{d}{dx}(\tan^{-1}x + \cot^{-1}x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	π
	C.	0	D.	$\pi/2$
29.	$\frac{d}{dx}(\log(e^x)) = \underline{\hspace{2cm}}.$			
	A.	0	B.	x
	C.	1	D.	x^{-1}
26.	$\frac{d}{dx}(\log(e^x)) = \underline{\hspace{2cm}}.$			
	A.	0	B.	x
	C.	1	D.	x^{-1}
30.	$\frac{d}{dx}(\sin x) = \underline{\hspace{2cm}}.$			
	A.	$-\cos x$	B.	$\cos x$
	C.	$\sin x$	D.	$\sec x$
30.	$\frac{d}{dx}(\sin x) = \underline{\hspace{2cm}}.$			
	A.	$-\cos x$	B.	$\cos x$
	C.	$\sin x$	D.	$\sec x$
31.	$\frac{d}{dx} \log(\cos x) = \underline{\hspace{2cm}}.$			
	A.	$-\sin x$	B.	$-\tan x$
	C.	$\cos x$	D.	$\cot x$
31.	$\frac{d}{dx} \log(\cos x) = \underline{\hspace{2cm}}.$			
	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.	$\sin x \cdot \frac{1}{2\sqrt{x}} + \cos x \cdot \sqrt{x}$
38.	$\frac{d}{dx}(\cos x \cdot \sqrt{x}) = \underline{\hspace{2cm}}.$			
	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.	$\frac{3(\sin x^3 + x^3 \cdot \cos x^3)}{x^4}$
34.	$\frac{d}{dx}\left(\frac{\sin x^3}{x^3}\right) = \underline{\hspace{2cm}}.$			
	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 $x = t^2, y = 2t$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
35.	જો $x = t^2, y = 2t$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
37.	If $y = 9x^2 - 7x - 91$ then $y_3 = \underline{\hspace{2cm}}.$			
	A.	6	B.	0
	C.	12	D.	-1
39.	જો $y = 9x^2 - 7x - 91$ હોય તો $y_3 = \underline{\hspace{2cm}}.$			
	A.	6	B.	0
	C.	12	D.	-1
38.	If $xy = x - y$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{y+1}{1+x}$	B.	$\frac{1-y}{1+x}$
	C.	$\frac{1-y}{1-x}$	D.	$\frac{y+1}{1-x}$

36.	જો $xy = x - y$ હોય તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{y+1}{1+x}$	B.	$\frac{1-y}{1+x}$
	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
3૯.	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 $s = 2t^3 + 9t + 1$ then velocity = $\underline{\hspace{2cm}}$ at $t = 1$.			
	A.	10	B.	15
	C.	0	D.	40
૪૦.	જો કણની ગતિનું ગતિસૂત્ર $s = 2t^3 + 9t + 1$ હોય તો $t = 1$ આગળ વેગ = $\underline{\hspace{2cm}}$.			
	A.	10	B.	15
	C.	0	D.	40
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.	$x = x_1$, વિધેય $f(x)$ નું ન્યૂનતમ બિંદુ હોવાની શરત $\underline{\hspace{2cm}}$ છે.			
	A.	$f''(x_1) > 0$	B.	$f''(x_1) = 0$
	C.	$f''(x_1) < 0$	D.	કોઇપણ નહીં
42.	Maximum value of function $f(x) = \cos x$ is $\underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	-1
૪૨.	વિધેય $f(x) = \cos x$ ની મહત્તમ કિંમત = $\underline{\hspace{2cm}}$.			
	A.	0	B.	1
	C.	2	D.	-1
43.	If $f(x) = e^{-x}$ then $f''(0) = \underline{\hspace{2cm}}$.			
	A.	4	B.	e
	C.	0	D.	1
૪૩.	જો $f(x) = e^{-x}$ હોય તો $f''(0) = \underline{\hspace{2cm}}$.			
	A.	4	B.	e
	C.	0	D.	1
44.	$\frac{d}{dx}(\tan^{-1}x) = \underline{\hspace{2cm}}$.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{1}{1+x^2}$
૪૪.	$\frac{d}{dx}(\tan^{-1}x) = \underline{\hspace{2cm}}$.			
	A.	$\frac{-1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{1-x^2}$	D.	$\frac{1}{1+x^2}$

45.	$\int \frac{1}{x} dx = \text{_____} + c$			
	A.	$\log_{10} x$	B.	$\log_e x$
	C.	0	D.	$\log_2 x$
46.	$\int \frac{1}{x} dx = \text{_____} + c$			
	A.	$\log_{10} x$	B.	$\log_e x$
	C.	0	D.	$\log_2 x$
47.	$\int \sec^2 x dx = \text{_____} + c$			
	A.	$\tan x - x$	B.	$\sec x$
	C.	$\tan x + x$	D.	$\tan x$
48.	$\int \sec^2 x dx = \text{_____} + c$			
	A.	$\tan x - x$	B.	$\sec x$
	C.	$\tan x + x$	D.	$\tan x$
49.	$\int x e^x dx = \text{_____} + c$			
	A.	$e^x(x - 1)$	B.	$-x e^x$
	C.	$e^x(x + 1)$	D.	$x(e^x - 1)$
50.	$\int x e^x dx = \text{_____} + c$			
	A.	$e^x(x - 1)$	B.	$-x e^x$
	C.	$e^x(x + 1)$	D.	$x(e^x - 1)$
51.	$\int \sin^3 x \cos x dx = \text{_____} + c$			
	A.	$4 \sin^4 x$	B.	$3 \sin^2 x$
	C.	$\frac{1}{3} \sin^2 x$	D.	$\frac{1}{4} \sin^4 x$
52.	$\int \sin^3 x \cos x dx = \text{_____} + c$			
	A.	$4 \sin^4 x$	B.	$3 \sin^2 x$
	C.	$\frac{1}{3} \sin^2 x$	D.	$\frac{1}{4} \sin^4 x$
53.	$\int (4x^3 + e^x - \sin x) dx = \text{_____}$			
	A.	$x^4 + e^x - \cos x + c$	B.	$x^4 + e^x + \sin x + c$
	C.	$x^4 - e^x + \cos x + c$	D.	$x^4 - e^x - \cos x + c$
54.	$\int (4x^3 + e^x - \sin x) dx = \text{_____}$			
	A.	$x^4 + e^x - \cos x + c$	B.	$x^4 + e^x + \sin x + c$
	C.	$x^4 - e^x + \cos x + c$	D.	$x^4 - e^x - \cos x + c$
55.	$\int \cos(3x + 9) dx = \text{_____}$			
	A.	$3 \sin(3x + 9) + c$	B.	$3 \sin(3x - 9) + c$
	C.	$\frac{1}{3} \sin(3x + 9) + c$	D.	$\frac{1}{3} \sin(x + 9) + c$
56.	$\int \cos(3x + 9) dx = \text{_____}$			

	A.	$3 \sin(3x + 9) + c$	B.	$3 \sin(3x - 9) + c$
	C.	$\frac{1}{3} \sin(3x + 9) + c$	D.	$\frac{1}{3} \sin(x + 9) + c$
51.	$\int \log x dx = \underline{\hspace{2cm}}$			
	A.	$x \log x - x + c$	B.	$-x \log x - x + c$
	C.	$-x \log x + x + c$	D.	$x \log x + x + c$
49.	$\int \log x dx = \underline{\hspace{2cm}}$			
	A.	$x \log x - x + c$	B.	$-x \log x - x + c$
	C.	$-x \log x + x + c$	D.	$x \log x + x + c$
52.	$\int e^{3 \log x} dx = \underline{\hspace{2cm}}$			
	A.	$4x^4 + c$	B.	$x^4 + c$
	C.	$\frac{1}{4} x^4 + c$	D.	$\frac{3}{3} x^4 + c$
42.	$\int e^{3 \log x} dx = \underline{\hspace{2cm}}$			
	A.	$4x^4 + c$	B.	$x^4 + c$
	C.	$\frac{1}{4} x^4 + c$	D.	$\frac{3}{3} x^4 + c$
53.	$\int (\sin x + \cos x) e^x dx = \underline{\hspace{2cm}} + c$			
	A.	$e^x \cos x$	B.	$e^x \sin x$
	C.	$e^x \cos^2 x$	D.	$e^x \sin^2 x$
43.	$\int (\sin x + \cos x) e^x dx = \underline{\hspace{2cm}} + c$			
	A.	$e^x \cos x$	B.	$e^x \sin x$
	C.	$e^x \cos^2 x$	D.	$e^x \sin^2 x$
54.	$\int \frac{f'(x)}{f(x)} dx = \underline{\hspace{2cm}} + c$			
	A.	$f(x)$	B.	$f'(x)$
	C.	$ \log(f(x)) $	D.	$\log f(x) $
48.	$\int \frac{f'(x)}{f(x)} dx = \underline{\hspace{2cm}} + c$			
	A.	$f(x)$	B.	$f'(x)$
	C.	$ \log(f(x)) $	D.	$\log f(x) $
55.	$\int_{-\pi}^{\pi} 1 dx = \underline{\hspace{2cm}}$			
	A.	-2π	B.	0
	C.	2π	D.	π
44.	$\int_{-\pi}^{\pi} 1 dx = \underline{\hspace{2cm}}$			
	A.	-2π	B.	0
	C.	2π	D.	π

56.	$\int_0^2 \frac{3x^2}{1+x^3} dx = \underline{\hspace{2cm}}$			
	A.	$-\log 9$	B.	1
	C.	-1	D.	$\log 9$
૫૬.	$\int_0^2 \frac{3x^2}{1+x^3} dx = \underline{\hspace{2cm}}$			
	A.	$-\log 9$	B.	1
	C.	-1	D.	$\log 9$
57.	$\int_0^1 \frac{4}{1+x^2} dx = \underline{\hspace{2cm}}$			
	A.	π	B.	$-\pi$
	C.	$-\pi/2$	D.	$\pi/2$
૫૭.	$\int_0^1 \frac{4}{1+x^2} dx = \underline{\hspace{2cm}}$			
	A.	π	B.	$-\pi$
	C.	$-\pi/2$	D.	$\pi/2$
58.	$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\tan x} + \sqrt{\cot x}} dx = \underline{\hspace{2cm}}$			
	A.	$\pi/4$	B.	$\pi/2$
	C.	π	D.	0
૫૮.	$\int_0^{\pi/2} \frac{\sqrt{\cot x}}{\sqrt{\tan x} + \sqrt{\cot x}} dx = \underline{\hspace{2cm}}$			
	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 $y = 2x$, x - axis, lines $x = a$ and $x = b$ is _____ units			
	A.	$b^2 - a^2$	B.	$b^2 + a^2$
	C.	$(b - a)^2$	D.	$(b + a)^2$
૬૦.	વક્રો $y = 2x$, x - axis, રેખાઓ $x = a$ અને $x = b$ વચ્ચે ઘેરાતા પ્રદેશનું ક્ષેત્રફળ = _____.			
	A.	$b^2 - a^2$	B.	$b^2 + a^2$
	C.	$(b - a)^2$	D.	$(b + a)^2$

61.	For the discrete group data, mean $\bar{X} = \underline{\hspace{2cm}}$.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum f_i x_i}{n}$
	C.	$\sum x_i$	D.	$\frac{n}{\sum x_i}$
૬૧.	અસતત માહિતી વિતરણ માટે $\bar{X} = \underline{\hspace{2cm}}$.			
	A.	$\frac{\sum x_i}{n}$	B.	$\frac{\sum f_i x_i}{n}$
	C.	$\sum x_i$	D.	$\frac{n}{\sum x_i}$
62.	For the data 25, 26, 21, 28, 25 and 31, the mean is $\underline{\hspace{2cm}}$.			
	A.	27	B.	27.5
	C.	26	D.	26.5
૬૨.	અવલોકનો 25, 26, 21, 28, 25 અને 31 હોય તો મધ્યક = $\underline{\hspace{2cm}}$.			
	A.	27	B.	27.5
	C.	26	D.	26.5
63.	The mean weight of 25 students is 40kg. One reading was entered wrong as 55 kg. instead of 45 kg. The correct mean is $\underline{\hspace{2cm}}$ kg.			
	A.	38.6	B.	39.6
	C.	41.6	D.	40.6
૬૩.	25 વિદ્યાર્થીઓના વજનનો મધ્યક 40kg. છે. જેમાં એક અવલોકન 45 kg. ની જગ્યાએ 55 kg. લખાયેલ છે. સાચો મધ્યક = $\underline{\hspace{2cm}}$ kg.			
	A.	38.6	B.	39.6
	C.	41.6	D.	40.6
64.	For the data 15, a, 8, 12, 13 and 7 the mean is 12 then a = $\underline{\hspace{2cm}}$.			
	A.	17.01	B.	17.15
	C.	17.00	D.	17.10
૬૪.	અવલોકનો 15, a, 8, 12, 13 અને 7 માટે મધ્યક 12 હોય તો a = $\underline{\hspace{2cm}}$.			
	A.	17.01	B.	17.15
	C.	17.00	D.	17.10
65.	For the data 13, 17, 10, 9, 5, 4, 10, 7 and 10 the median is $\underline{\hspace{2cm}}$.			
	A.	8	B.	10
	C.	7	D.	9
૬૫.	અવલોકનો 13, 17, 10, 9, 5, 4, 10, 7 અને 10 હોય તો મધ્યસ્થ = $\underline{\hspace{2cm}}$.			
	A.	8	B.	10
	C.	7	D.	9
66.	Relation between Mean, Median and Mode is $\underline{\hspace{2cm}}$.			
	A.	$Z = 3M - 2\bar{X}$	B.	$Z = 2M - 3\bar{X}$
	C.	$Z = 2M + 3\bar{X}$	D.	$Z = 3M + 2\bar{X}$
૬૬.	મધ્યક, મધ્યસ્થ અને બહુલક વચ્ચેનો સંબંધ = $\underline{\hspace{2cm}}$.			
	A.	$Z = 3M - 2\bar{X}$	B.	$Z = 2M - 3\bar{X}$
	C.	$Z = 2M + 3\bar{X}$	D.	$Z = 3M + 2\bar{X}$
67.	For the data 21, 15, 27, 22, 15, 27, 15, 23 and 26, the mode is $\underline{\hspace{2cm}}$.			
	A.	15	B.	25
	C.	27	D.	40
૬૭.	અવલોકનો 21, 15, 27, 22, 15, 27, 15, 23 અને 26 હોય તો બહુલક = $\underline{\hspace{2cm}}$.			
	A.	15	B.	25
	C.	27	D.	40
68.	If mean is 23 and median is 27 for the same data then mode of the data is $\underline{\hspace{2cm}}$.			
	A.	20	B.	28

	C.	25	D.	35
૬૮.	જો અવલોકનો નો મધ્યક 23 અને મધ્યસ્થ 27 હોય તો તે અવલોકનો નો બહુલક = ____.			
	A.	20	B.	28
	C.	25	D.	35
69.	The range of the data 10, 24, 27, 40 and 30 is ____.			
	A.	25	B.	23
	C.	30	D.	0
૬૯.	અવલોકનો 10, 24, 27, 40 અને 30 માટે વિસ્તાર = ____.			
	A.	25	B.	23
	C.	30	D.	0
70.	Standard deviation σ is given by ____.			
	A.	$\sqrt{\frac{\sum(x_i - \bar{x})^2}{n}}$	B.	$\sqrt{\frac{\sum(x_i + \bar{x})^2}{n}}$
	C.	$\sqrt{\frac{\sum(\bar{x} - x_i)^2}{n}}$	D.	$\sqrt{\sum(x_i - \bar{x})^2}$
૭૦.	પ્રમાણિત વિચલન σ = ____.			
	A.	$\sqrt{\frac{\sum(x_i - \bar{x})^2}{n}}$	B.	$\sqrt{\frac{\sum(x_i + \bar{x})^2}{n}}$
	C.	$\sqrt{\frac{\sum(\bar{x} - x_i)^2}{n}}$	D.	$\sqrt{\sum(x_i - \bar{x})^2}$
