

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER- 1,2(C2D) EXAMINATION –SUMMER-2020

Subject Code: C320003**Date: 05-11-2020****Subject Name: ADVANCED MATHEMATICS(GROUP-2)****Time:02:30 PM TO 04:00 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 only simple calculator is permitted in Mathematics.
6. English version is authentic.

No.	Question Text and Option. પ્રશ્ન અને વિકલ્પો.			
1.	$d[(0,1), (1,0)] = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{2}$	B.	1
	C.	0	D.	2
૧.	$d[(0,1), (1,0)] = \underline{\hspace{2cm}}$.			
	A.	$\sqrt{2}$	B.	1
	C.	0	D.	2
2.	If $A(0, -1)$ and $B(4, 5)$ then the coordinates of the mid-point of the $\overline{AB} = \underline{\hspace{2cm}}$.			
	A.	(4, 4)	B.	(2, 2)
	C.	(-2, 2)	D.	(4, 6)
૨.	જો $A(0, -1)$ અને $B(4, 5)$ માટે $\overline{AB}$ નાં મધ્યબિંદુઓનાં યામ = $\underline{\hspace{2cm}}$.			
	A.	(4, 4)	B.	(2, 2)
	C.	(-2, 2)	D.	(4, 6)
3.	For $A(a, b)$ and $B(b, -a)$, if $M(1, 2)$ is the mid-point of the $\overline{AB}$, then $A(a, b) = \underline{\hspace{2cm}}$.			
	A.	(-1, 3)	B.	(-1, -3)
	C.	(1, 3)	D.	(1, -3)
૩.	$A(a, b)$ અને $B(b, -a)$ માટે જો $M(1, 2)$ એ $\overline{AB}$ નો મધ્યબિંદુ હોય તો $A(a, b) = \underline{\hspace{2cm}}$.			
	A.	(-1, 3)	B.	(-1, -3)
	C.	(1, 3)	D.	(1, -3)
4.	If $A(1, 0)$, $B(1, 1)$ and $C(0, 1)$ are the vertices of triangle then $m\angle B = \underline{\hspace{2cm}}$.			
	A.	90°	B.	60°
	C.	30°	D.	45°
૪.	જો $A(1, 0)$, $B(1, 1)$ અને $C(0, 1)$ એ ત્રિકોણનાં શિરોબિંદુઓ હોય તો $m\angle B = \underline{\hspace{2cm}}$.			
	A.	90°	B.	60°
	C.	30°	D.	45°
5.	Slope of the line $y = x$ is $= \underline{\hspace{2cm}}$.			
	A.	∞	B.	1
	C.	0	D.	-1
૫.	રેખા $y = x$ નો ઢાળ $= \underline{\hspace{2cm}}$.			

	A.	∞	B.	1
	C.	0	D.	-1
6.	Slope of the line $y = 1$ is = ____.			
	A.	∞	B.	1
	C.	0	D.	-1
૬.	રેખા $y = 1$ નો ઢાળ = ____.			
	A.	∞	B.	1
	C.	0	D.	-1
7.	Slope of the line making an angle $\frac{\pi}{2}$ radian with positive x -axis is = ____.			
	A.	∞	B.	1
	C.	$\frac{1}{\sqrt{3}}$	D.	$\sqrt{3}$
૭.	x -અક્ષ સાથે $\frac{\pi}{2}$ ખૂણો બનાવતી રેખાનો ઢાળ = ____.			
	A.	∞	B.	1
	C.	$\frac{1}{\sqrt{3}}$	D.	$\sqrt{3}$
8.	Equation of the line passing through the points (0, 0) and (2, 3) is = ____.			
	A.	$2x + 3y = 0$	B.	$2x - 3y = 0$
	C.	$3x - 2y = 0$	D.	$y = 2x - 3$
૮.	બિંદુઓ (0, 0) અને (2, 3) માંથી પસાર થતી રેખાનું સમીકરણ = ____.			
	A.	$2x + 3y = 0$	B.	$2x - 3y = 0$
	C.	$3x - 2y = 0$	D.	$y = 2x - 3$
9.	If lines $3x + ky + 1 = 0$ and $2x - 3y + 7 = 0$ are perpendicular then, $k =$ ____.			
	A.	-2	B.	1
	C.	3	D.	2
૯.	જો રેખાઓ $3x + ky + 1 = 0$ અને $2x - 3y + 7 = 0$ પરસ્પર લંબ હોય તો, $k =$ ____.			
	A.	-2	B.	1
	C.	3	D.	2
10.	y -intercept of the line $2x + 3y = 6$ is = ____.			
	A.	-2	B.	6
	C.	3	D.	2
૧૦.	રેખા $2x + 3y = 6$ નો y -અંતઃખંડ = ____.			
	A.	-2	B.	6
	C.	3	D.	2
11.	Radius of the circle $x^2 + y^2 = 1$ is = ____.			
	A.	$\sqrt{2}$	B.	1
	C.	0	D.	2
૧૧.	વર્તુળ $x^2 + y^2 = 1$ ની ત્રિજ્યા = ____.			
	A.	$\sqrt{2}$	B.	1
	C.	0	D.	2
12.	Centre of the circle $x^2 + (y - 2)^2 = 4$ is = ____.			
	A.	(2, 4)	B.	(2, 2)
	C.	(0, 2)	D.	(2, 0)
૧૨.	વર્તુળ $x^2 + (y - 2)^2 = 4$ નું કેન્દ્ર = ____.			
	A.	(2, 4)	B.	(2, 2)
	C.	(0, 2)	D.	(2, 0)
13.	Area of the circle $x^2 + y^2 = 2ax$ is = ____.			

	A.	$2\pi a^2$	B.	πa^2
	C.	$\frac{\pi a^2}{2}$	D.	$\frac{\pi a^2}{4}$
13.	ආශ්‍රිත $x^2 + y^2 = 2ax$ උඩු හිඳුණු = ____.			
	A.	$2\pi a^2$	B.	πa^2
	C.	$\frac{\pi a^2}{2}$	D.	$\frac{\pi a^2}{4}$
14.	Equation of the tangent at $(-1, 2)$ to the circle $x^2 + y^2 + 6x - 8y + 1 = 0$ is = ____.			
	A.	$x - y + 3 = 0$	B.	$x + y - 3 = 0$
	C.	$x - y - 3 = 0$	D.	$y - x + 3 = 0$
15.	ආශ්‍රිත $x^2 + y^2 + 6x - 8y + 1 = 0$ උඩු $(-1, 2)$ ආශ්‍රිත රේඛාව = ____.			
	A.	$x - y + 3 = 0$	B.	$x + y - 3 = 0$
	C.	$x - y - 3 = 0$	D.	$y - x + 3 = 0$
16.	If $f(x) = \cos 2x$ then, $f(\frac{\pi}{6}) =$ ____.			
	A.	$\frac{1}{\sqrt{2}}$	B.	$\frac{\sqrt{3}}{2}$
	C.	1	D.	$\frac{1}{2}$
17.	ආශ්‍රිත $f(x) = \cos 2x$ වෙලාවට, $f(\frac{\pi}{6}) =$ ____.			
	A.	$\frac{1}{\sqrt{2}}$	B.	$\frac{\sqrt{3}}{2}$
	C.	1	D.	$\frac{1}{2}$
18.	If $f(x) = x^2 - 2x + 1$ then, $f(-1) =$ ____.			
	A.	-2	B.	1
	C.	0	D.	4
19.	ආශ්‍රිත $f(x) = x^2 - 2x + 1$ වෙලාවට, $f(-1) =$ ____.			
	A.	-2	B.	1
	C.	0	D.	4
20.	If $f(x) = x^2$ then, $f(x) - f(x-1) =$ ____.			
	A.	$2x - 1$	B.	$x^2 - x + 1$
	C.	$2x + 1$	D.	$1 - 2x$
21.	ආශ්‍රිත $f(x) = x^2$ then, වෙනස $f(x) - f(x-1) =$ ____.			
	A.	$2x - 1$	B.	$x^2 - x + 1$
	C.	$2x + 1$	D.	$1 - 2x$
22.	If $f(x) = \log_2(x)$ then, $f(\frac{1}{2}) =$ ____.			
	A.	-2	B.	1
	C.	-1	D.	4
23.	ආශ්‍රිත $f(x) = \log_2(x)$ වෙලාවට, $f(\frac{1}{2}) =$ ____.			
	A.	-2	B.	1
	C.	-1	D.	4
24.	If $f(x) = 2x + 3$ and $g(x) = 3x - 2$ then, $g \circ f(-1) =$ ____.			
	A.	-2	B.	1
	C.	-1	D.	0
25.	ආශ්‍රිත $f(x) = 2x + 3$ සහ $g(x) = 3x - 2$ වෙලාවට, $g \circ f(-1) =$ ____.			
	A.	-2	B.	1
	C.	-1	D.	0
26.	$\lim_{x \rightarrow 1} \frac{x^2 + 2x + 1}{x + 1} =$ ____.			
	A.	2	B.	1
	C.	4	D.	0

20.	$\lim_{x \rightarrow 1} \frac{x^2+2x+1}{x+1} = \underline{\hspace{2cm}}.$			
	A.	2	B.	1
	C.	4	D.	0
21.	$\lim_{x \rightarrow -2} \frac{x^3+8}{x+2} = \underline{\hspace{2cm}}.$			
	A.	0	B.	12
	C.	4	D.	-8
22.	$\lim_{x \rightarrow -2} \frac{x^3+8}{x+2} = \underline{\hspace{2cm}}.$			
	A.	0	B.	12
	C.	4	D.	-8
23.	$\lim_{x \rightarrow 0} \frac{2^{3x}-2^x}{x} = \underline{\hspace{2cm}}.$			
	A.	0	B.	$\log_e 3$
	C.	$\log_e 4$	D.	$\log_e 2$
24.	$\lim_{x \rightarrow 0} \frac{2^{3x}-2^x}{x} = \underline{\hspace{2cm}}.$			
	A.	0	B.	$\log_e 3$
	C.	$\log_e 4$	D.	$\log_e 2$
25.	$\lim_{n \rightarrow \infty} \frac{\sum n^2}{n^3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{1}{6}$
26.	$\lim_{n \rightarrow \infty} \frac{\sum n^2}{n^3} = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{1}{6}$
27.	$\lim_{x \rightarrow 0} \frac{\sin 2x}{\sin 3x} = \underline{\hspace{2cm}}.$			
	A.	$\frac{3}{2}$	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{1}{6}$
28.	$\lim_{x \rightarrow 0} \frac{\sin 2x}{\sin 3x} = \underline{\hspace{2cm}}.$			
	A.	$\frac{3}{2}$	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{1}{6}$
29.	$\lim_{x \rightarrow 0} \frac{\tan x}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
30.	$\lim_{x \rightarrow 0} \frac{\tan x}{x} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
31.	$\lim_{n \rightarrow \infty} \left(1 - \frac{2}{n}\right)^n = \underline{\hspace{2cm}}.$			
	A.	2	B.	e^2
	C.	-2	D.	e^{-2}
32.	$\lim_{n \rightarrow \infty} \left(1 - \frac{2}{n}\right)^n = \underline{\hspace{2cm}}.$			

	A.	2	B.	e^2
	C.	-2	D.	e^{-2}
27.	$\lim_{n \rightarrow 0} (1 + 3n)^{\frac{1}{n}} = \underline{\hspace{1cm}}.$			
	A.	3	B.	e^3
	C.	$\frac{e}{3}$	D.	e^{-3}
28.	$\lim_{n \rightarrow 0} (1 + 3n)^{\frac{1}{n}} = \underline{\hspace{1cm}}.$			
	A.	3	B.	e^3
	C.	$\frac{e}{3}$	D.	e^{-3}
29.	$\frac{d(1)}{dx} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	x	D.	$2x$
30.	$\frac{d(1)}{dx} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	x	D.	$2x$
31.	$\frac{d(\log x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	x	D.	$\frac{1}{x}$
32.	$\frac{d(\log x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	x	D.	$\frac{1}{x}$
33.	$\frac{d(x^{1/2})}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\frac{1}{2} x^{1/2}$	B.	$\frac{1}{2} x^{-1/2}$
	C.	$\frac{1}{2} x^{3/2}$	D.	$\frac{3}{2} x^{3/2}$
34.	$\frac{d(x^{1/2})}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\frac{1}{2} x^{1/2}$	B.	$\frac{1}{2} x^{-1/2}$
	C.	$\frac{1}{2} x^{3/2}$	D.	$\frac{3}{2} x^{3/2}$
35.	$\frac{d(a^x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	$a^x \log_e a$	B.	$a^x \log_e x$
	C.	xa^{x-1}	D.	xa^x
36.	$\frac{d(a^x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	$a^x \log_e a$	B.	$a^x \log_e x$
	C.	xa^{x-1}	D.	xa^x
37.	$\frac{d(\sin^2 x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	$2 \sin x \cos x$	B.	$-2 \sin x \cos x$
	C.	$\frac{\sin^3 x}{3}$	D.	$\cos^2 x$
38.	$\frac{d(\sin^2 x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	$2 \sin x \cos x$	B.	$-2 \sin x \cos x$
	C.	$\frac{\sin^3 x}{3}$	D.	$\cos^2 x$
39.	$\frac{d}{dx} \left(\frac{\sin x}{\cos x} \right) = \underline{\hspace{1cm}}.$			
	A.	$\sec x \tan x$	B.	$\sec^2 x$

	C.	$\operatorname{cosec} x \cot x$	D.	$-\operatorname{cosec}^2 x$
33.	$\frac{d}{dx} \left(\frac{\sin x}{\cos x} \right) = \underline{\hspace{2cm}}.$			
	A.	$\sec x \tan x$	B.	$\sec^2 x$
	C.	$\operatorname{cosec} x \cot x$	D.	$-\operatorname{cosec}^2 x$
34.	$\frac{d}{dx} (\tan^{-1} x + \cot^{-1} x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
35.	$\frac{d}{dx} (\tan^{-1} x + \cot^{-1} x) = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
36.	If $xy = 2$ then, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2}$	B.	$\frac{-x}{y}$
	C.	$\frac{x}{y}$	D.	$\frac{-y}{x}$
37.	જો $xy = 2$ હોય તો, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2}$	B.	$\frac{-x}{y}$
	C.	$\frac{x}{y}$	D.	$\frac{-y}{x}$
38.	If $x^2 + 2xy + y^2 = 0$ then, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$x + y$
39.	જો $x^2 + 2xy + y^2 = 0$ હોય તો, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$x + y$
40.	If $x = a \sin \theta$, $y = a \cos \theta$ then, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\tan \theta$	B.	$-\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
41.	જો $x = a \sin \theta$, $y = a \cos \theta$ હોય તો, $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\tan \theta$	B.	$-\tan \theta$
	C.	$\cot \theta$	D.	$-\cot \theta$
42.	If $y = \cos x$ then, $\frac{d^2 y}{dx^2} = \underline{\hspace{2cm}}.$			
	A.	$\sin x$	B.	$-\cos x$
	C.	$\cos x$	D.	$-\sin x$
43.	જો $y = \cos x$ હોય તો, $\frac{d^2 y}{dx^2} = \underline{\hspace{2cm}}.$			
	A.	$\sin x$	B.	$-\cos x$
	C.	$\cos x$	D.	$-\sin x$
44.	Maximum value of $f(x) = \sin x$, $x \in [0, \frac{\pi}{2}]$ is $= \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
45.	$f(x) = \sin x$, $x \in [0, \frac{\pi}{2}]$ ની મહત્તમ કિંમત $= \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	-1	D.	$\frac{\pi}{2}$
46.	The function $y = f(x)$ is minimum at (a, b) if, at $(a, b) = \underline{\hspace{2cm}}.$			
	A.	$f'' > 0$	B.	$f' > 0$
	C.	$f'' < 0$	D.	$f' < 0$

૪૦.	વિધેય $y = f(x)$, જો (a, b) પર ન્યૂનતમ હોય તો, $(a, b) = \underline{\hspace{2cm}}$.			
	A.	$f'' > 0$	B.	$f' > 0$
	C.	$f'' < 0$	D.	$f' < 0$
41.	If $y = x^3$, then $y^{iv} = \underline{\hspace{2cm}}$.			
	A.	$4x^3$	B.	$24x$
	C.	$24x$	D.	0
૪૧.	જો $y = x^3$ હોય તો, $y^{iv} = \underline{\hspace{2cm}}$.			
	A.	$4x^3$	B.	$24x$
	C.	$24x$	D.	0
42.	Minimum value of $f(x) = x^2 - 1$ is $= \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	-1	D.	-2
૪૨.	$f(x) = x^2 - 1$ નું ન્યૂનતમ મૂલ્ય $= \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	-1	D.	-2
43.	The equation of motion of a particle is $s = t^3 - 5t^2 + 3t + 5$ then, acceleration of a particle at $t = 1$ is $= \underline{\hspace{2cm}}$.			
	A.	0	B.	6
	C.	4	D.	-4
૪૩.	ગતિ કરતાં કણની ગતિનું સમીકરણ $s = t^3 - 5t^2 + 3t + 5$ હોય તો, $t = 1$ પર કણનો પ્રવેગ $= \underline{\hspace{2cm}}$.			
	A.	0	B.	6
	C.	4	D.	-4
44.	The equation of motion of a particle is $s = t^3 - 3t^2 + 1$ then, velocity of a particle at $t = 1$ is $= \underline{\hspace{2cm}}$.			
	A.	-3	B.	6
	C.	3	D.	-4
૪૪.	ગતિ કરતાં કણની ગતિનું સમીકરણ $s = t^3 - 3t^2 + 1$ હોય તો, $t = 1$ પર કણનો વેગ $= \underline{\hspace{2cm}}$.			
	A.	-3	B.	6
	C.	3	D.	-4
45.	$\int \sin x dx = \underline{\hspace{2cm}}$.			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
૪૫.	$\int \sin x dx = \underline{\hspace{2cm}}$.			
	A.	$\cos x + c$	B.	$-\cos x + c$
	C.	$\sin x + c$	D.	$-\sin x + c$
46.	$\int x^3 dx = \underline{\hspace{2cm}}$.			
	A.	$4x^3 + c$	B.	$3x^2 + c$
	C.	$\frac{x^4}{4} + c$	D.	$\frac{x^4}{3} + c$
૪૬.	$\int x^3 dx = \underline{\hspace{2cm}}$.			
	A.	$4x^3 + c$	B.	$3x^2 + c$
	C.	$\frac{x^4}{4} + c$	D.	$\frac{x^4}{3} + c$
47.	$\int 3^x dx = \underline{\hspace{2cm}}$.			
	A.	$\frac{3^x}{\log_e 3} + c$	B.	$3^x \log_e 3 + c$
	C.	$\frac{3^x}{3} + c$	D.	$3^x + c$
૪૭.	$\int 3^x dx = \underline{\hspace{2cm}}$.			

	A.	$\frac{3^x}{\log_e 3} + c$	B.	$3^x \log_e 3 + c$
	C.	$\frac{3^x}{3} + c$	D.	$3^x + c$
48.	$\int (\sin^2 x + \cos^2 x) dx = \underline{\hspace{2cm}}.$			
	A.	$x + c$	B.	$2 \sin x + 2 \cos x + c$
	C.	$\sin^3 x + \cos^3 x + c$	D.	c
49.	$\int (\sin^2 x + \cos^2 x) dx = \underline{\hspace{2cm}}.$			
	A.	$x + c$	B.	$2 \sin x + 2 \cos x + c$
	C.	$\sin^3 x + \cos^3 x + c$	D.	c
50.	$\int \frac{1}{x^2 - a^2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2a} \log \left \frac{x+a}{x-a} \right + c$	B.	$\frac{1}{2a} \log \left \frac{x-a}{x+a} \right + c$
	C.	$\tan^{-1} x + c$	D.	$-\cot^{-1} x + c$
51.	$\int \frac{1}{x^2 - a^2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2a} \log \left \frac{x+a}{x-a} \right + c$	B.	$\frac{1}{2a} \log \left \frac{x-a}{x+a} \right + c$
	C.	$\tan^{-1} x + c$	D.	$-\cot^{-1} x + c$
52.	$\int \sin^2 x \cos x dx = \underline{\hspace{2cm}}.$			
	A.	$2 \sin x \cos x + c$	B.	$-\frac{\sin^3 x}{3} + c$
	C.	$-\frac{\cos^3 x}{3} + c$	D.	$\frac{\sin^3 x}{3} + c$
53.	$\int \sin^2 x \cos x dx = \underline{\hspace{2cm}}.$			
	A.	$2 \sin x \cos x + c$	B.	$-\frac{\sin^3 x}{3} + c$
	C.	$-\frac{\cos^3 x}{3} + c$	D.	$\frac{\sin^3 x}{3} + c$
54.	$\int \frac{1}{x^2 + 4} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2} \tan^{-1} \left(\frac{x}{2} \right) + c$	B.	$\tan^{-1} \left(\frac{x}{2} \right) + c$
	C.	$\frac{1}{2} \sin^{-1} \left(\frac{x}{2} \right) + c$	D.	$2 \tan^{-1}(x) + c$
55.	$\int \frac{1}{x^2 + 4} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{2} \tan^{-1} \left(\frac{x}{2} \right) + c$	B.	$\tan^{-1} \left(\frac{x}{2} \right) + c$
	C.	$\frac{1}{2} \sin^{-1} \left(\frac{x}{2} \right) + c$	D.	$2 \tan^{-1}(x) + c$
56.	$\int \frac{e^x}{e^{2x} + 1} dx = \underline{\hspace{2cm}}.$			
	A.	$\tan^{-1}(e^x) + c$	B.	$\tan^{-1}(e^{2x} + 1) + c$
	C.	$\log(e^{2x} + 1) + c$	D.	$\log(e^x) + c$
57.	$\int \frac{e^x}{e^{2x} + 1} dx = \underline{\hspace{2cm}}.$			
	A.	$\tan^{-1}(e^x) + c$	B.	$\tan^{-1}(e^{2x} + 1) + c$
	C.	$\log(e^{2x} + 1) + c$	D.	$\log(e^x) + c$
58.	$\int \log x dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{x} + c$	B.	$\frac{1}{x} + c$
	C.	$x \log x + x + c$	D.	$x \log x - x + c$
59.	$\int \log x dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{x} + c$	B.	$\frac{1}{x} + c$
	C.	$x \log x + x + c$	D.	$x \log x - x + c$

54.	$\int e^{3x} dx = \underline{\hspace{2cm}}.$			
	A.	$e^{3x} + c$	B.	$\frac{e^{3x}}{3} + c$
	C.	$-\frac{e^{3x}}{3} + c$	D.	$3e^{3x} + c$
૫૪.	$\int e^{3x} dx = \underline{\hspace{2cm}}.$			
	A.	$e^{3x} + c$	B.	$\frac{e^{3x}}{3} + c$
	C.	$-\frac{e^{3x}}{3} + c$	D.	$3e^{3x} + c$
55.	$\int e^x \sin x dx = \underline{\hspace{2cm}}.$			
	A.	$e^x \cos x + c$	B.	$\frac{e^x}{2} (\sin x - \cos x) + c$
	C.	$\frac{e^x}{2} (\sin x + \cos x) + c$	D.	$e^x (\sin x - \cos x) + c$
૫૫.	$\int e^x \sin x dx = \underline{\hspace{2cm}}.$			
	A.	$e^x \cos x + c$	B.	$\frac{e^x}{2} (\sin x - \cos x) + c$
	C.	$\frac{e^x}{2} (\sin x + \cos x) + c$	D.	$e^x (\sin x - \cos x) + c$
56.	$\int_0^1 x^2 dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{3}{2}$
૫૬.	$\int_0^1 x^2 dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{3}$
	C.	$\frac{2}{3}$	D.	$\frac{3}{2}$
57.	$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	2	D.	$\frac{\pi}{2}$
૫૭.	$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	2	D.	$\frac{\pi}{2}$
58.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	$\frac{1}{4}$	D.	$\frac{1}{2}$
૫૮.	$\int_{-2}^2 x^3 dx = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	$\frac{1}{4}$	D.	$\frac{1}{2}$
59.	Area enclosed by the lines $y = x$, $x = 1$, $x = 2$ and x -axis is $= \underline{\hspace{2cm}}.$			
	A.	3	B.	0
	C.	$\frac{3}{2}$	D.	$\frac{1}{2}$
૫૯.	રેખાઓ $y = x$, $x = 1$, $x = 2$ અને x -અક્ષ વડે આવૃત્ત પ્રદેશ નું ક્ષેત્રફળ $= \underline{\hspace{2cm}}.$			

	A.	3	B.	0
	C.	$\frac{3}{2}$	D.	$\frac{1}{2}$
60.	Area enclosed by the curve $y = \cos x$ in the first quadrant is = ____.			
	A.	3	B.	1
	C.	$\frac{3}{2}$	D.	$\frac{1}{2}$
૬૦.	$y = \cos x$ વડે પ્રથમ ચરણમાં આવૃત પ્રદેશનું ક્ષેત્રફળ = ____.			
	A.	3	B.	1
	C.	$\frac{3}{2}$	D.	$\frac{1}{2}$
61.	Range of the observations 2, 5, 4, 10, 4, 9, 6 is = ____.			
	A.	8	B.	4
	C.	7	D.	10
૬૧.	અવલોકનો 2, 5, 4, 10, 4, 9, 6 નો વિસ્તાર = ____.			
	A.	8	B.	4
	C.	7	D.	10
62.	Mean of the observations 2, 5, 4, 1, 3 is = ____.			
	A.	3	B.	1
	C.	5	D.	4
૬૨.	અવલોકનો 2, 5, 4, 1, 3 નો મધ્યક = ____.			
	A.	3	B.	1
	C.	5	D.	4
63.	Median of the observations 2, 5, 7, 11, 3 is = ____.			
	A.	3	B.	1
	C.	5	D.	4
૬૩.	અવલોકનો 2, 5, 7, 11, 3 નો મધ્યસ્થ = ____.			
	A.	3	B.	1
	C.	5	D.	4
64.	If Mean of the observations $x - 2, x + 5, x + 4, x - 3$ is 10 then $x =$ ____.			
	A.	5	B.	12
	C.	9	D.	10
૬૪.	જો અવલોકનો $x - 2, x + 5, x + 4, x - 3$ નો મધ્યક 10 હોય તો, $x =$ ____.			
	A.	5	B.	12
	C.	9	D.	10
65.	Mode of the observations 2, 3, 2, 5, 7, 1, 2, 1, 3 is = ____.			
	A.	9	B.	2
	C.	7	D.	1
૬૫.	અવલોકનો 2, 3, 2, 5, 7, 1, 2, 1, 3 નો બહુલક = ____.			
	A.	9	B.	2
	C.	7	D.	1
66.	Relation between mean, median and mode is given by ____.			
	A.	$Z = 3M - 2\bar{X}$	B.	$Z = 3M + 2\bar{X}$
	C.	$Z = 3\bar{X} - 2M$	D.	$Z = 3\bar{X} + 2M$
૬૬.	મધ્યક, મધ્યસ્થ અને બહુલક વચ્ચેનો સંબંધ = ____.			
	A.	$Z = 3M - 2\bar{X}$	B.	$Z = 3M + 2\bar{X}$
	C.	$Z = 3\bar{X} - 2M$	D.	$Z = 3\bar{X} + 2M$
67.	Mean and standard deviation of 10 observations are 4 and 2 then their coefficient of variation is ____%			
	A.	10	B.	100
	C.	50	D.	$\frac{1}{2}$

૬૭.	10 અવલોકનો મધ્યક અને પ્રમાણિત વિચલન 4 અને 2 હોય તો તેમનો ચલનાંક ____%			
	A.	10	B.	100
	C.	50	D.	$\frac{1}{2}$
68.	If the Mean of the data is 10 and coefficient of variation is 40% then, the standard deviation of the data =_____.			
	A.	3	B.	10
	C.	5	D.	4
૬૮.	જો અવલોકનો મધ્યક 10 અને ચલનાંક 40% હોય તો, પ્રમાણિત વિચલન =_____.			
	A.	3	B.	10
	C.	5	D.	4
69.	From given 12 observations if, $\sum x_i = 102$ and $\sum x_i^2 = 1542$ then, standard deviation is = _____.			
	A.	56.25	B.	7.5
	C.	38.33	D.	11.25
૬૯.	આપેલા અવલોકનો માટે, જો $\sum x_i = 102$ અને $\sum x_i^2 = 1542$ હોય તો પ્રમાણિત વિચલન =_____.			
	A.	56.25	B.	7.5
	C.	38.33	D.	11.25
70.	The mean deviation from the mean of the observation 3, 10, 4, 10, 7, 10, 5 is= _____.			
	A.	2.57	B.	2
	C.	3	D.	3.75
૭૦.	અવલોકનો 3, 10, 4, 10, 7, 10, 5 નું મધ્યકથી સરેરાશ વિચલન = _____.			
	A.	2.57	B.	2
	C.	3	D.	3.75
