

GUJARAT TECHNOLOGICAL UNIVERSITY**Diploma Engineering - SEMESTER-I (CtoD) • EXAMINATION – WINTER • 2014****Subject Code: C320003****Date: 24-12-2014****Subject Name: Advanced Mathematics (Group - 2)****Time: 10:30 am – 12:00 pm****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumption wherever necessary.
3. Each question is of 1 mark.
4. Use of SIMPLE CALCULATOR is permissible. (Scientific/Higher Version not allowed)
5. English version is authentic.

No.	Question Text and Option			
1.	Distance between two points $(-3,0)$ and $(3,0)$ is ____.			
	A.	3	B.	6
	C.	1	D.	9
2.	Equation of line having slope -1 and passing from the point $(2,1)$ is ____.			
	A.	$x + y - 3 = 0$	B.	$x - y + 1 = 0$
	C.	$x - y - 3 = 0$	D.	$x + y + 1 = 0$
3.	Equation of line passing from the points $(2,0)$ and $(3,5)$ is ____.			
	A.	$x - y - 5 = 0$	B.	$x - y - 2 = 0$
	C.	$5x - y - 10 = 0$	D.	$x - 5y - 2 = 0$
4.	Slope of the line $2x - 2y = 6$ is ____.			
	A.	-2	B.	6
	C.	-1	D.	1
5.	X-intercept of the line $3x + 2y - 6 = 0$ is ____.			
	A.	2	B.	3
	C.	-6	D.	-2
6.	Two lines having slopes m_1 and m_2 respectively are perpendicular if ____.			
	A.	$m_1 \cdot m_2 = 1$	B.	$m_1 \cdot m_2 = -1$
	C.	$m_1 = m_2$	D.	$m_1 = m_2 + 1$
7.	Slope of any line which is parallel to X-axis is ____.			
	A.	0	B.	-1
	C.	1	D.	∞
8.	If two lines $5x + 2y - 3 = 0$ and $kx + 2y + 7 = 0$ are parallel if $k =$ ____.			
	A.	2	B.	-7
	C.	5	D.	-3
9.	Equation of a circle having centre $(1,2)$ and radius 3 is ____.			
	A.	$(x+1)^2 + (y+2)^2 = 3$	B.	$(x-1)^2 + (y-2)^2 = 3$
	C.	$(x+1)^2 + (y+2)^2 = 9$	D.	$(x-1)^2 + (y-2)^2 = 9$
10.	For circle $2x^2 + 2y^2 + 4x - 2 = 0$, centre is ____.			
	A.	$(1,2)$	B.	$(1,0)$
	C.	$(0,1)$	D.	$(-1,0)$
11.	If $A(5,-1)$ and $B(-3,5)$ then co-ordinates of midpoint of $\overline{AB}$ are ____.			
	A.	$(1,2)$	B.	$(-1,2)$
	C.	$(1,3)$	D.	$(1,-3)$
12.	For circle $x^2 + y^2 - 2x = 0$, radius is ____.			

	A.	2	B.	1
	C.	4	D.	3
13.	_____ is not a equation of line from given below.			
	A.	$x = 0$	B.	$y = 2$
	C.	$y - 5 = x$	D.	$x^2 - y - 5 = 0$
14.	Distance between two points (4,3) and (1,2) is _____.			
	A.	$\sqrt{12}$	B.	$\sqrt{11}$
	C.	$\sqrt{10}$	D.	$\sqrt{15}$
15.	If $f(x) = e^x$ then $f(0) =$ _____.			
	A.	1	B.	e
	C.	-1	D.	0
16.	$\lim_{n \rightarrow \infty} \left(\frac{3n^2 + 4n - 1}{n^2 - 4n + 2} \right) =$ _____.			
	A.	∞	B.	0
	C.	3	D.	1
17.	$\lim_{\theta \rightarrow 0} \frac{\tan \theta}{2\theta} =$ _____.			
	A.	1	B.	2
	C.	$\frac{1}{2}$	D.	$\frac{2}{3}$
18.	$\lim_{x \rightarrow 3} \frac{x^3 - 27}{x - 3} =$ _____.			
	A.	27	B.	9
	C.	3	D.	0
19.	$\lim_{x \rightarrow 0} \frac{2^x - 3^x}{x} =$ _____.			
	A.	$\log_e \left(\frac{3}{2} \right)$	B.	$\log_e \left(\frac{2}{3} \right)$
	C.	1	D.	0
20.	$f(x) = \frac{1-x}{1+x}$ then $f\left(\frac{1}{x}\right) =$ _____.			
	A.	$f(-x)$	B.	0
	C.	$\frac{1-x}{1+x}$	D.	$\frac{x-1}{x+1}$
21.	$\lim_{x \rightarrow 2} \frac{x^2 - 8x + 12}{x^2 - 4} =$ _____.			
	A.	-4	B.	4
	C.	-1	D.	1
22.	$\lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}} =$ _____.			
	A.	1	B.	0
	C.	e^{-1}	D.	e
23.	$\lim_{x \rightarrow 1} \frac{x^2 - 4x + 5}{2x} =$ _____.			
	A.	0	B.	1
	C.	6	D.	4
24.	$\lim_{x \rightarrow 0} \frac{\sqrt{4+x} - 2}{x} =$ _____.			
	A.	$\frac{1}{4}$	B.	$\frac{1}{6}$

	C.	2	D.	0
25.	$\lim_{x \rightarrow 0} \frac{e^{3x} - 1}{x} = \underline{\hspace{1cm}}.$			
	A.	0	B.	1
	C.	3	D.	e
26.	$\lim_{x \rightarrow 0} \frac{\sin^{-1} x}{x} = \underline{\hspace{1cm}}.$			
	A.	0	B.	π
	C.	1	D.	e
27.	$\frac{d}{dx}(\operatorname{cosec} x) = \underline{\hspace{1cm}}.$			
	A.	$-\operatorname{cosec} x \cdot \cot x$	B.	$\operatorname{cosec} x \cdot \cot x$
	C.	$\cot^2 x$	D.	$\operatorname{cosec}^2 x$
28.	$y = \sqrt{x}$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\sqrt{x}$	B.	$2\sqrt{x}$
	C.	$\frac{2}{\sqrt{x}}$	D.	$\frac{1}{2\sqrt{x}}$
29.	$\frac{d}{dx}(3x^2 - 4x + 2) = \underline{\hspace{1cm}}.$			
	A.	$2x - 4$	B.	$6x - 4$
	C.	$6x^2 - 4x + 1$	D.	$6x + 2$
30.	$y = \log(\sin x)$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\cot x$	B.	$\cos x$
	C.	$\frac{1}{\sin x}$	D.	$\frac{1}{\sin x} + \cos x$
31.	$y = 3^x$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\log_e 3$	B.	3^x
	C.	$3^x \log_e 3$	D.	$3^x + \log_e 3$
32.	$\frac{d(\log x)}{dx} = \underline{\hspace{1cm}}.$			
	A.	$\frac{1}{x^2}$	B.	$\frac{1}{x}$
	C.	e^x	D.	0
33.	$x = t^2 + 3, y = 2t^2 - 3$ then $\frac{dy}{dx} = \underline{\hspace{1cm}}.$			
	A.	2	B.	4
	C.	-4	D.	$-4t$
34.	$\frac{d}{dx}(\sec^2 x - \tan^2 x) = \underline{\hspace{1cm}}.$			
	A.	$\sec^2 x \tan^2 x$	B.	$\sec x \tan x$
	C.	$2 \sec x - 2 \tan x$	D.	0
35.	$\frac{d}{dx}(3x^2 + \sin x + 2) = \underline{\hspace{1cm}}.$			
	A.	$3x^2 - \cos x$	B.	$6x + \cos x$
	C.	$6x^2 + \cos x$	D.	$6x - \cos x$

36.	$y = e^{\cos x}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$e^{-\sin x}$	B.	$-e^{\sin x} \cos x$
	C.	$-e^{\cos x} \sin x$	D.	$e^{\cos x}$
37.	$y = x^2 \sin x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$2x \cos x$	B.	$2x \cos x - x^2 \sin x$
	C.	$2x + \cos x$	D.	$x^2 \cos x + 2x \sin x$
38.	$\frac{d}{dx} \left(\frac{x}{2} \right) = \underline{\hspace{2cm}}$.			
	A.	1	B.	$\frac{1}{2}$
	C.	0	D.	x
39.	$y = \frac{x-1}{x+1}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{2}{(x+1)^2}$	B.	$\frac{-2}{(x+1)^2}$
	C.	$\frac{1}{(x+1)^2}$	D.	$\frac{-1}{(x+1)^2}$
40.	$\frac{d^2}{dx^2} (e^{2x}) = \underline{\hspace{2cm}}$.			
	A.	$4e^x$	B.	$4e^{2x}$
	C.	$2e^{2x}$	D.	$4e^x$
41.	$\frac{d}{dx} (\cos^{-1} x) = \underline{\hspace{2cm}}$.			
	A.	$\frac{1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{x^2-1}}$
	C.	$\frac{-1}{\sqrt{1-x^2}}$	D.	$\frac{-1}{\sqrt{x^2-1}}$
42.	If $xy = 1$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	1	B.	0
	C.	$x + y \frac{dy}{dx} = 0$	D.	$y + x \frac{dy}{dx} = 0$
43.	For function $f(x)$, if _____ then $f(x)$ has maxima at $x = 2$.			
	A.	$f'(2) = 0, f''(2) > 0$	B.	$f'(2) = 0, f''(2) < 0$
	C.	$f'(2) < 0, f''(2) > 0$	D.	$f'(2) < 0, f''(2) < 0$
44.	Equation of the motion of moving particle is given by $s = t^3 + 2t + 51$, then velocity at $t = 1$ seconds is _____.			
	A.	5 units	B.	1 units
	C.	51 units	D.	3 units
45.	$\int 2 dx = \underline{\hspace{2cm}}$.			
	A.	$2x + c$	B.	$3x + c$
	C.	$2x$	D.	$3x$
46.	$\int e^x dx = \underline{\hspace{2cm}}$.			
	A.	e^x	B.	$2e^x$
	C.	$e^x + c$	D.	$\log x$

47.	$\int (3x^2 - 3) dx = \underline{\hspace{2cm}}.$			
	A.	$6x + c$	B.	$3x^3 - x + c$
	C.	$x^3 - 3x + c$	D.	$3x^3 - 3x + c$
48.	$\int \tan x dx = \underline{\hspace{2cm}}.$			
	A.	$\log \cos x + c$	B.	$\log \sec x + c$
	C.	$\log \sin x + c$	D.	$\log \tan x + c$
49.	$\int 4^x dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{4^x}{\log_e 4} + c$	B.	$\frac{4}{\log_e 4} + c$
	C.	$\frac{-4^x}{\log_e 4} + c$	D.	$\frac{4^{x-1}}{\log_e 4} + c$
50.	$\int [f(x)]^n f'(x) dx = \underline{\hspace{2cm}}.$			
	A.	$n[f(x)]^{n+1} + c$	B.	$n[f(x)]^{n-1} + c$
	C.	$\frac{[f(x)]^{n+1}}{n+1} + c$	D.	$\frac{[f(x)]^{n-1}}{n-1} + c$
51.	$\int \sec x \cdot \tan x dx = \underline{\hspace{2cm}}.$			
	A.	$\sec x \tan x + c$	B.	$\tan^2 x + c$
	C.	$\tan x + c$	D.	$\sec x + c$
52.	$\int \left(\frac{1}{x}\right) dx = \underline{\hspace{2cm}}.$			
	A.	$x^{-1} + c$	B.	$x^{-2} + c$
	C.	$-x^{-2} + c$	D.	$\log x + c$
53.	$\int \sin(2x - 7) dx = \underline{\hspace{2cm}}.$			
	A.	$-\cos(2x - 7) + c$	B.	$-\cos(2x) + c$
	C.	$\frac{-\cos(2x - 7)}{2} + c$	D.	$\frac{-\cos(2x - 7)}{7} + c$
54.	$\int \frac{1}{x^2 + 1} dx = \underline{\hspace{2cm}}.$			
	A.	$\tan x + c$	B.	$\tan^{-1} x + c$
	C.	$\sin^{-1} x + c$	D.	$-\tan^{-1} x + c$
55.	$\int \frac{1}{3x - 2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{3} \log 3x - 2 + c$	B.	$3 \log 3x - 2 + c$
	C.	$\frac{1}{3} \log 3x + c$	D.	$\log 3x - 2 + c$
56.	$\int_0^{\pi/2} \cos x dx = \underline{\hspace{2cm}}.$			
	A.	0	B.	$-\sin x + c$
	C.	1	D.	$\sin x + c$
57.	$\int_1^3 3x^2 dx = \underline{\hspace{2cm}}.$			
	A.	12	B.	27

	C.	29	D.	26
58.	$\int_{-\pi}^{\pi} \tan x \, dx = \underline{\hspace{2cm}}.$			
	A.	π	B.	0
	C.	$-\pi$	D.	2π
59.	To evaluate $\int f(x)dx$, for which $f(x)$ we have to use the rule of integration by parts?			
	A.	$f(x) = x + 2 \cos x$	B.	$f(x) = x + e^x$
	C.	$f(x) = x \cdot e^x$	D.	$f(x) = \sin 2x$
60.	Area of region bounded by curve $y = x$, x -axis and $x = 0, x = 1$ is $\underline{\hspace{2cm}}$ units.			
	A.	$\frac{1}{2}$	B.	$\frac{1}{4}$
	C.	2	D.	1
61.	For grouped data with n observations formula for the mean is $\underline{\hspace{2cm}}$.			
	A.	$\bar{x} = \frac{x_i f_i}{n}$	B.	$\bar{x} = \frac{\sum_{i=1}^n f_i x_i}{n}$
	C.	$\bar{x} = \sum_{i=1}^n f_i x_i$	D.	$\bar{x} = x_i f_i$
62.	For data 12, 11, 14, 13, 15 mean is $\underline{\hspace{2cm}}$.			
	A.	11	B.	65
	C.	12	D.	13
63.	For the data 52, 54, 53, 52, 55, 56, 52, 52, 54, 52 mode is $\underline{\hspace{2cm}}$.			
	A.	52	B.	54
	C.	53	D.	55
64.	For the data 13, 11, 15, 23, 34, 32, 12, 23, 33 median is $\underline{\hspace{2cm}}$.			
	A.	23	B.	32
	C.	34	D.	11
65.	For the data 12, 10, 15, 22, 30, 20, 32, 12, 20, 30 median is $\underline{\hspace{2cm}}$.			
	A.	25	B.	30
	C.	20	D.	22
66.	For the data 5, a, 6, 18, 12 mean is 9 then $a = \underline{\hspace{2cm}}$.			
	A.	5	B.	4
	C.	6	D.	18
67.	Mean of first five even numbers is $\underline{\hspace{2cm}}$.			
	A.	6	B.	10
	C.	15	D.	30
68.	Median of first five odd numbers is $\underline{\hspace{2cm}}$.			
	A.	3	B.	7
	C.	5	D.	6
69.	To find the standard deviation of ungrouped data first we have to find first $\underline{\hspace{2cm}}$.			
	A.	Median	B.	Mean
	C.	Mode	D.	None of these
70.	For the data 15, 12, 14, a, 6, 18, 10 median is 11 then $a = \underline{\hspace{2cm}}$.			
	A.	14	B.	11
	C.	6	D.	0

ગુજરાતી

નં	પ્રશ્ન તેમજ વિકલ્પ
1.	બે બિંદુઓ $(-3,0)$ અને $(3,0)$ વચ્ચેનું અંતર $\underline{\hspace{2cm}}$.

	A.	3	B.	6
	C.	1	D.	9
2.	બિંદુ (2,1) માંથી પસાર થતી અને -1 ઢાળ વાળી રેખાનું સમીકરણ _____ છે.			
	A.	$x+y-3=0$	B.	$x-y+1=0$
	C.	$x-y-3=0$	D.	$x+y+1=0$
3.	બિંદુઓ (2,0) અને (3,5) માંથી પસાર થતી રેખાનું સમીકરણ _____ છે.			
	A.	$x-y-5=0$	B.	$x-y-2=0$
	C.	$5x-y-10=0$	D.	$x-5y-2=0$
4.	રેખા $2x-2y=6$ નો ઢાળ _____ થશે.			
	A.	-2	B.	6
	C.	-1	D.	1
5.	રેખા $3x+2y-6=0$ નો X-અંતઃખંડ _____ છે.			
	A.	2	B.	3
	C.	-6	D.	-2
6.	બે લંબ રેખાઓ કે જેનાં ઢાળ અનુક્રમે m_1 અને m_2 હોય તો _____.			
	A.	$m_1 \cdot m_2 = 1$	B.	$m_1 \cdot m_2 = -1$
	C.	$m_1 = m_2$	D.	$m_1 = m_2 + 1$
7.	X-અક્ષ ને સમાંતર કોઈ પણ રેખા નો ઢાળ _____ થશે .			
	A.	0	B.	-1
	C.	1	D.	∞
8.	બે રેખાઓ $5x+2y-3=0$ અને $kx+2y+7=0$ જો સમાંતર હોય તો $k=_____$.			
	A.	2	B.	-7
	C.	5	D.	-3
9.	કેન્દ્ર (1,2) અને ત્રિજ્યા 3 વાળા વર્તુળનું સમીકરણ _____ છે.			
	A.	$(x+1)^2 + (y+2)^2 = 3$	B.	$(x-1)^2 + (y-2)^2 = 3$
	C.	$(x+1)^2 + (y+2)^2 = 9$	D.	$(x-1)^2 + (y-2)^2 = 9$
10.	વર્તુળ $2x^2 + 2y^2 + 4x - 2 = 0$ નું કેન્દ્ર _____ છે.			
	A.	(1,2)	B.	(1,0)
	C.	(0,1)	D.	(-1,0)
11.	A(5,-1) અને B(-3,5) માટે $\overline{AB}$ નાં મધ્યબિંદુ નાં યામ _____ થશે.			
	A.	(1,2)	B.	(-1,2)
	C.	(1,3)	D.	(1,-3)
12.	વર્તુળ $x^2 + y^2 - 2x = 0$ ની ત્રિજ્યા _____ છે.			
	A.	2	B.	1
	C.	4	D.	3
13.	નીચે આપેલા સમીકરણો માંથી _____ એ રેખાનું સમીકરણ નથી.			
	A.	$x = 0$	B.	$y = 2$
	C.	$y - 5 = x$	D.	$x^2 - y - 5 = 0$
14.	બિંદુઓ (4,3) અને (1,2) વચ્ચેનું અંતર _____ છે.			
	A.	$\sqrt{12}$	B.	$\sqrt{11}$
	C.	$\sqrt{10}$	D.	$\sqrt{15}$
15.	જો $f(x) = e^x$ તો $f(0) = _____$.			

	A.	1	B.	e
	C.	-1	D.	0
16.	$\lim_{n \rightarrow \infty} \left(\frac{3n^2 + 4n - 1}{n^2 - 4n + 2} \right) = \underline{\hspace{1cm}}.$			
	A.	∞	B.	0
	C.	3	D.	1
17.	$\lim_{\theta \rightarrow 0} \frac{\tan \theta}{2\theta} = \underline{\hspace{1cm}}.$			
	A.	1	B.	2
	C.	$\frac{1}{2}$	D.	$\frac{2}{3}$
18.	$\lim_{x \rightarrow 3} \frac{x^3 - 27}{x - 3} = \underline{\hspace{1cm}}.$			
	A.	27	B.	9
	C.	3	D.	0
19.	$\lim_{x \rightarrow 0} \frac{2^x - 3^x}{x} = \underline{\hspace{1cm}}.$			
	A.	$\log_e \left(\frac{3}{2} \right)$	B.	$\log_e \left(\frac{2}{3} \right)$
	C.	1	D.	0
20.	$f(x) = \frac{1-x}{1+x}$ then $f\left(\frac{1}{x}\right) = \underline{\hspace{1cm}}.$			
	A.	$f(-x)$	B.	0
	C.	$\frac{1-x}{1+x}$	D.	$\frac{x-1}{x+1}$
21.	$\lim_{x \rightarrow 2} \frac{x^2 - 8x + 12}{x^2 - 4} = \underline{\hspace{1cm}}.$			
	A.	-4	B.	4
	C.	-1	D.	1
22.	$\lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}} = \underline{\hspace{1cm}}.$			
	A.	1	B.	0
	C.	e^{-1}	D.	e
23.	$\lim_{x \rightarrow 1} \frac{x^2 - 4x + 5}{2x} = \underline{\hspace{1cm}}.$			
	A.	0	B.	1
	C.	6	D.	4
24.	$\lim_{x \rightarrow 0} \frac{\sqrt{4+x} - 2}{x} = \underline{\hspace{1cm}}.$			
	A.	$\frac{1}{4}$	B.	$\frac{1}{6}$
	C.	2	D.	0
25.	$\lim_{x \rightarrow 0} \frac{e^{3x} - 1}{x} = \underline{\hspace{1cm}}.$			
	A.	0	B.	1
	C.	3	D.	e
26.	$\lim_{x \rightarrow 0} \frac{\sin^{-1} x}{x} = \underline{\hspace{1cm}}.$			
	A.	0	B.	π
	C.	1	D.	e

27.	$\frac{d}{dx}(\operatorname{cosec} x) = \underline{\hspace{2cm}}.$			
	A.	$-\operatorname{cosec} x \cdot \cot x$	B.	$\operatorname{cosec} x \cdot \cot x$
	C.	$\cot^2 x$	D.	$\operatorname{cosec}^2 x$
28.	$y = \sqrt{x}$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\sqrt{x}$	B.	$2\sqrt{x}$
	C.	$\frac{2}{\sqrt{x}}$	D.	$\frac{1}{2\sqrt{x}}$
29.	$\frac{d}{dx}(3x^2 - 4x + 2) = \underline{\hspace{2cm}}.$			
	A.	$2x - 4$	B.	$6x - 4$
	C.	$6x^2 - 4x + 1$	D.	$6x + 2$
30.	$y = \log(\sin x)$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\cot x$	B.	$\cos x$
	C.	$\frac{1}{\sin x}$	D.	$\frac{1}{\sin x} + \cos x$
31.	$y = 3^x$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\log_e 3$	B.	3^x
	C.	$3^x \log_e 3$	D.	$3^x + \log_e 3$
32.	$\frac{d(\log x)}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{x^2}$	B.	$\frac{1}{x}$
	C.	e^x	D.	0
33.	$x = t^2 + 3, y = 2t^2 - 3$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	2	B.	4
	C.	-4	D.	-4t
34.	$\frac{d}{dx}(\sec^2 x - \tan^2 x) = \underline{\hspace{2cm}}.$			
	A.	$\sec^2 x \tan^2 x$	B.	$\sec x \tan x$
	C.	$2 \sec x - 2 \tan x$	D.	0
35.	$\frac{d}{dx}(3x^2 + \sin x + 2) = \underline{\hspace{2cm}}.$			
	A.	$3x^2 - \cos x$	B.	$6x + \cos x$
	C.	$6x^2 + \cos x$	D.	$6x - \cos x$
36.	$y = e^{\cos x}$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$e^{-\sin x}$	B.	$-e^{\sin x} \cos x$
	C.	$-e^{\cos x} \sin x$	D.	$e^{\cos x}$
37.	$y = x^2 \sin x$ և $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$2x \cos x$	B.	$2x \cos x - x^2 \sin x$
	C.	$2x + \cos x$	D.	$x^2 \cos x + 2x \sin x$

38.	$\frac{d}{dx}\left(\frac{x}{2}\right) = \underline{\hspace{2cm}}.$			
	A.	1	B.	$\frac{1}{2}$
	C.	0	D.	x
39.	$y = \frac{x-1}{x+1}$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	$\frac{2}{(x+1)^2}$	B.	$\frac{-2}{(x+1)^2}$
	C.	$\frac{1}{(x+1)^2}$	D.	$\frac{-1}{(x+1)^2}$
40.	$\frac{d^2}{dx^2}(e^{2x}) = \underline{\hspace{2cm}}.$			
	A.	$4e^x$	B.	$4e^{2x}$
	C.	$2e^{2x}$	D.	$4e^x$
41.	$\frac{d}{dx}(\cos^{-1} x) = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{\sqrt{1-x^2}}$	B.	$\frac{1}{\sqrt{x^2-1}}$
	C.	$\frac{-1}{\sqrt{1-x^2}}$	D.	$\frac{-1}{\sqrt{x^2-1}}$
42.	$xy = 1$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}.$			
	A.	1	B.	0
	C.	$x + y \frac{dy}{dx} = 0$	D.	$y + x \frac{dy}{dx} = 0$
43.	વિધેય $f(x)$ જો $x = 2$ પાસે મહત્તમ મુલ્ય ધારણ કરે તો $\underline{\hspace{2cm}}.$			
	A.	$f'(2) = 0, f''(2) > 0$	B.	$f'(2) = 0, f''(2) < 0$
	C.	$f'(2) < 0, f''(2) > 0$	D.	$f'(2) < 0, f''(2) < 0$
44.	ગતિ કરતા પદાર્થની ગતી નું સમીકરણ $s = t^3 + 2t + 51$ હોય તો, $t = 1$ સેકન્ડે પદાર્થ નો વેગ $\underline{\hspace{2cm}}$ થશે.			
	A.	5 એકમ	B.	1 એકમ
	C.	51 એકમ	D.	3 એકમ
45.	$\int 2 dx = \underline{\hspace{2cm}}.$			
	A.	$2x + c$	B.	$3x + c$
	C.	$2x$	D.	$3x$
46.	$\int e^x dx = \underline{\hspace{2cm}}.$			
	A.	e^x	B.	$2e^x$
	C.	$e^x + c$	D.	$\log x$
47.	$\int (3x^2 - 3) dx = \underline{\hspace{2cm}}.$			
	A.	$6x + c$	B.	$3x^3 - x + c$
	C.	$x^3 - 3x + c$	D.	$3x^3 - 3x + c$
48.	$\int \tan x dx = \underline{\hspace{2cm}}.$			
	A.	$\log \cos x + c$	B.	$\log \sec x + c$

	C.	$\log \sin x + c$	D.	$\log \tan x + c$
49.	$\int 4^x dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{4^x}{\log_e 4} + c$	B.	$\frac{4}{\log_e 4} + c$
	C.	$\frac{-4^x}{\log_e 4} + c$	D.	$\frac{4^{x-1}}{\log_e 4} + c$
50.	$\int [f(x)]^n f'(x) dx = \underline{\hspace{2cm}}.$			
	A.	$n[f(x)]^{n+1} + c$	B.	$n[f(x)]^{n-1} + c$
	C.	$\frac{[f(x)]^{n+1}}{n+1} + c$	D.	$\frac{[f(x)]^{n-1}}{n-1} + c$
51.	$\int \sec x \cdot \tan x dx = \underline{\hspace{2cm}}.$			
	A.	$\sec x \tan x + c$	B.	$\tan^2 x + c$
	C.	$\tan x + c$	D.	$\sec x + c$
52.	$\int \left(\frac{1}{x}\right) dx = \underline{\hspace{2cm}}.$			
	A.	$x^{-1} + c$	B.	$x^{-2} + c$
	C.	$-x^{-2} + c$	D.	$\log x + c$
53.	$\int \sin(2x-7) dx = \underline{\hspace{2cm}}.$			
	A.	$-\cos(2x-7) + c$	B.	$-\cos(2x) + c$
	C.	$\frac{-\cos(2x-7)}{2} + c$	D.	$\frac{-\cos(2x-7)}{7} + c$
54.	$\int \frac{1}{x^2+1} dx = \underline{\hspace{2cm}}.$			
	A.	$\tan x + c$	B.	$\tan^{-1} x + c$
	C.	$\sin^{-1} x + c$	D.	$-\tan^{-1} x + c$
55.	$\int \frac{1}{3x-2} dx = \underline{\hspace{2cm}}.$			
	A.	$\frac{1}{3} \log 3x-2 + c$	B.	$3 \log 3x-2 + c$
	C.	$\frac{1}{3} \log 3x + c$	D.	$\log 3x-2 + c$
56.	$\int_0^{\pi/2} \cos x dx = \underline{\hspace{2cm}}.$			
	A.	0	B.	$-\sin x + c$
	C.	1	D.	$\sin x + c$
57.	$\int_1^3 3x^2 dx = \underline{\hspace{2cm}}.$			
	A.	12	B.	27
	C.	29	D.	26
58.	$\int_{-\pi}^{\pi} \tan x dx = \underline{\hspace{2cm}}.$			
	A.	π	B.	0
	C.	$-\pi$	D.	2π
59.	નીચેનામાં થી કયા વિધેય ના સંકલન માટે ખંડશઃ સંકલન નાં નિયમ નો ઉપયોગ કરવો			

	પડે?			
	A.	$f(x) = x + 2 \cos x$	B.	$f(x) = x + e^x$
	C.	$f(x) = x \cdot e^x$	D.	$f(x) = \sin 2x$
60.	વક્ર $y = x$, x -અક્ષ અને $x = 0, x = 1$ થી ઘેરાયેલ પ્રદેશનું ક્ષેત્રફળ ____ એકમ થશે.			
	A.	$\frac{1}{2}$	B.	$\frac{1}{4}$
	C.	2	D.	1
61.	n અવલોકનો વાળી વર્ગીકૃત માહિતીનાં મધ્યક નું સમીકરણ ____ છે.			
	A.	$\bar{x} = \frac{x_i f_i}{n}$	B.	$\bar{x} = \frac{\sum_{i=1}^n f_i x_i}{n}$
	C.	$\bar{x} = \sum_{i=1}^n f_i x_i$	D.	$\bar{x} = x_i f_i$
62.	માહિતીનાં અવલોકનો 12, 11, 14, 13, 15 હોય તો મધ્યક ____ થશે.			
	A.	11	B.	65
	C.	12	D.	13
63.	માહિતીનાં અવલોકનો 52, 54, 53, 52, 55, 56, 52, 52, 54, 52 હોય તો બહુલક ____ થશે.			
	A.	52	B.	54
	C.	53	D.	55
64.	માહિતીનાં અવલોકનો 13, 11, 15, 23, 34, 32, 12, 23, 33 હોય તો મધ્યસ્થ ____ થશે.			
	A.	23	B.	32
	C.	34	D.	11
65.	માહિતીનાં અવલોકનો 12, 10, 15, 22, 30, 20, 32, 12, 20, 30 હોય તો મધ્યસ્થ ____ થશે.			
	A.	25	B.	30
	C.	20	D.	22
66.	માહિતીનાં અવલોકનો 5, a, 6, 18, 12 માટે જો મધ્યક 9 હોય તો $a = \underline{\hspace{1cm}}$.			
	A.	5	B.	4
	C.	6	D.	18
67.	પ્રથમ પાંચ પ્રાકૃતિક યુગ સંખ્યાઓ નો મધ્યક ____ થશે.			
	A.	6	B.	10
	C.	15	D.	30
68.	પ્રથમ પાંચ પ્રાકૃતિક અયુગ સંખ્યાઓ નો મધ્યસ્થ ____ થશે .			
	A.	3	B.	7
	C.	5	D.	6
69.	અવર્ગીકૃત માહિતીનાં પ્રમાણિત વિચલન શોધવા માટે પ્રથમ આપને ____ મેળવવું પડે.			
	A.	મધ્યસ્થ	B.	મધ્યક
	C.	બહુલક	D.	આમાંનું એક પણ નહિ.
70.	માહિતીનાં અવલોકનો 15, 12, 14, a, 6, 18, 10 જો મધ્યસ્થ 11 હોય તો $a = \underline{\hspace{1cm}}$.			
	A.	14	B.	11
	C.	6	D.	0
