

Gujarat Technological University

Diploma Engineering C to D Bridge Course Examination - 2016

Subject Code: Advanced Mathematics (Group-1)

Date: 21 /05 /2016

Subject Name: C320002

Time: 10.30 AM TO 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/Higer Version not allowed)
5. English version is authentic.

No.	Question Text and Option			
1.	If complex number $z = 3 + 4i$ then $ z = \underline{\hspace{2cm}}$.			
	A. $1/5$	B. 5	C. -5	D. 25
2.	If $z_1 = 2 + i$ and $z_2 = 3 - 2i$ then $\operatorname{Im}(z_1 + z_2) = \underline{\hspace{2cm}}$.			
	A. i	B. $-i$	C. 5	D. -1
3.	If $z = 2i + \frac{3}{2}$ then $\bar{z} = \underline{\hspace{2cm}}$.			
	A. $\frac{3}{2} - 2i$	B. $-2i - \frac{3}{2}$	C. $\frac{3}{2} + 2i$	D. $2i - \frac{3}{2}$
4.	For $z = 2 + 2i$, $\arg(z) = \underline{\hspace{2cm}}$.			
	A. 0	B. π	C. 2π	D. $\frac{\pi}{4}$
5.	If $\bar{z} = 4 + 0i$ then $\sqrt{z} = \underline{\hspace{2cm}}$			
	A. 2	B. -2	C. ± 2	D. $\pm 2 + i$
6.	$i + i^2 + i^3 + i^4 = \underline{\hspace{2cm}}$.			
	A. 0	B. I	C. $-i$	D. 1
7.	$\bar{z}z = \underline{\hspace{2cm}}$			
	A. $ z $	B. $ \bar{z} $	C. $ \bar{z} ^2$	D. 1
8.	If $z_1 = 4 + 2i$ and $z_2 = 2 + 3i$ then $z_1 z_2 = \underline{\hspace{2cm}}$.			
	A. $2+16i$	B. $8+6i$	C. $2-16i$	D. $8-16i$
9.	If $z = 5 + 12i$ then $\frac{1}{z} = \frac{1}{169}(\underline{\hspace{2cm}})$.			
	A. $5+12i$	B. $12+5i$	C. $5-12i$	D. $12-5i$
10.	$(\cos \theta + i \sin \theta)^4 = \underline{\hspace{2cm}}$			
	A. $\cos 4\theta + i \sin 4\theta$	B. $\cos 4\theta - i \sin 4\theta$		

	C.	$\sin 4\theta + i \cos 4\theta$	D.	$\sin 4\theta - i \cos 4\theta$
11.		If $f(x) = 2^x$ then $f(0) = \underline{\hspace{2cm}}$.		
	A.	2	B.	-2
	C.	1	D.	0
12.		If $f(x) = \log(\sin x)$ then $f\left(\frac{\pi}{2}\right) = \underline{\hspace{2cm}}.$		
	A.	$\log(\cos x)$	B.	1
	C.	∞	D.	0
13.		For $f(x) = \frac{x-1}{x+1}$ then $f\left(\frac{1}{x}\right) = \underline{\hspace{2cm}}.$		
	A.	$-f(x)$	B.	$f(x)$
	C.	1	D.	0
14.		If $f(x) = \cos x$ then $f(x) + f(-x) = \underline{\hspace{2cm}}$		
	A.	$2 \cos x$	B.	0
	C.	1	D.	$-2 \cos x$
15.		If $f(x) = x^2 - 3x + 2$ then $f(1) = \underline{\hspace{2cm}}$		
	A.	6	B.	1
	C.	0	D.	4
16.		$\lim_{n \rightarrow 0} \frac{a^n - 1}{n} = \underline{\hspace{2cm}}.$		
	A.	1	B.	0
	C.	$\log a$	D.	$\log n$
17.		$\lim_{\theta \rightarrow 0} \frac{\tan 3\theta}{\theta} = \underline{\hspace{2cm}}.$		
	A.	1	B.	1/3
	C.	0	D.	3
18.		$\lim_{x \rightarrow 1} \frac{x+3}{x+1} = \underline{\hspace{2cm}}.$		
	A.	2	B.	4
	C.	5	D.	0
19.		$\lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{x-2} = \underline{\hspace{2cm}}.$		
	A.	1	B.	0
	C.	3	D.	2
20.		$\lim_{x \rightarrow 0} \frac{e^{2x} - 1}{x} = \underline{\hspace{2cm}}$		
	A.	2	B.	1
	C.	3	D.	0
21.		$\lim_{x \rightarrow 0} \frac{1 - \cos^2 x}{x^2} = \underline{\hspace{2cm}}.$		
	A.	0	B.	1
	C.	2	D.	3
22.		$\lim_{n \rightarrow \infty} \frac{2 \sum n}{n^2} = \underline{\hspace{2cm}}$		
	A.	2	B.	1
	C.	0	D.	∞
23.		$\frac{d}{dx} (\log x) = \underline{\hspace{2cm}}.$		
	A.	x	B.	$-x$

	C.	$\frac{-1}{x}$	D.	$\frac{1}{x}$
24.		For $y = \sin 30^\circ$, $\frac{dy}{dx} = \text{_____}$.		
	A.	2	B.	$\frac{1}{2}$
	C.	0	D.	1
25.		If $y = (x+2)^3$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$3(x+2)$	B.	$2(x+2)^3$
	C.	$3(x+2)^2$	D.	$3(x+2)^3$
26.		If $y = (x)^{\frac{1}{2}}$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$\frac{\sqrt{x}}{2}$	B.	$\frac{-\sqrt{x}}{2}$
	C.	$\frac{1}{\sqrt{x}}$	D.	$\frac{1}{2\sqrt{x}}$
27.		For $y = \sin x$, $\frac{d^2y}{dx^2} = \text{_____}$.		
	A.	y	B.	0
	C.	$y-1$	D.	$-y$
28.		$\frac{d}{dx}[\log(\sec x)] = \text{_____}$		
	A.	$\cot x$	B.	$\sec x$
	C.	$\tan x$	D.	$\frac{1}{\sec x}$
29.		$y = \sin \theta, x = \cos \theta$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$\frac{-x}{y}$	B.	$\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$\frac{-y}{x}$
30.		If $y = e^{\sin x}$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$e^{\sin x}$	B.	$e^{\sin x} \cos x$
	C.	$e^{\cos x}$	D.	$e^{\cos x} \cos x$
31.		If $y = \sec^2 x - \tan^2 x$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	1	B.	0
	C.	-1	D.	2
32.		If $x = at, y = \frac{a}{t}$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$\frac{-x}{y}$	B.	$\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$\frac{-y}{x}$
33.		If $3x^2 = xy$ then $\frac{dy}{dx} = \text{_____}$.		

	A.	3	B.	6x
	C.	x	D.	1
	If $y = xe^x$ then $\frac{dy}{dx} = \text{_____}$.			
34.	A.	$x(e^x + 1)$	B.	$e^x(x+1)$
	C.	$x(e^x - 1)$	D.	$e^x(x-1)$
	$y = \frac{\log x}{x}$ then $\frac{dy}{dx} = \text{_____}$.			
35.	A.	$\frac{1-\log x}{x^2}$	B.	$\frac{x-\log x}{x^2}$
	C.	$\frac{1+\log x}{x^2}$	D.	$\frac{x+\log x}{x^2}$
	$\frac{d}{dx}(\tan^{-1} x) = \text{_____}$			
36.	A.	$\frac{-1}{1+x^2}$	B.	$\frac{-1}{1-x^2}$
	C.	$\frac{1}{1+x^2}$	D.	$\frac{1}{1-x^2}$
37.	The maximum value of a function $f(x) = \sin x$ is _____ .			
	A.	0	B.	1
	C.	-1	D.	2
38.	Equation of the motion of moving particle is given by $s = t^2 - 2t + 1$, then find the velocity at $t = 1$ seconds.			
	A.	0 unit	B.	1 unit
	C.	2 unit	D.	3 unit
39.	If $y = e^{2x}$ then $\frac{d^2y}{dx^2} = \text{_____}$.			
	A.	$2e^x$	B.	$4e^x$
	C.	$2e^{2x}$	D.	$4e^{2x}$
40.	$\frac{d}{dx}(x^x) = x^x (\text{_____})$.			
	A.	$1+\log x$	B.	$1-\log x$
	C.	$x^x(1+\log x)$	D.	$x^x(1-\log x)$
41.	$\int 3x^2 dx = \text{_____}$.			
	A.	$6x + c$	B.	$6x$
	C.	$x^3 + c$	D.	$6x^3 + c$
42.	$\int e^x dx = \text{_____}$.			
	A.	$e^x + c$	B.	$e^{2x} + c$
	C.	$e^{x^2} + c$	D.	1
43.	$\int \frac{f'(x)}{f(x)} dx = \text{_____}$.			
	A.	$\log[f'(x)] + c$	B.	$\log[f(x)] + c$
	C.	$n[f(x)]^{n-1} + c$	D.	$\log[f(x) + f'(x)] + c$
44.	$\int \sec^2 x dx = \text{_____}$.			
	A.	$\tan^2 x + c$	B.	$\sec x \tan x + c$
	C.	$\sec x + \tan x + c$	D.	$\tan x + c$

	$\int (\operatorname{cosec}^2 x - \cot^2 x) dx = \underline{\hspace{2cm}}$			
45.	A. 0	B. 1		
	C. $\operatorname{cosec} 2x + c$	D. $x + c$		
	$\int \frac{1}{x+2} dx = \underline{\hspace{2cm}}.$			
46.	A. $\log(2x) + c$	B. $\log(x+2) + c$		
	C. $\frac{1}{\log(x+2)} + c$	D. $\frac{2}{\log(x+2)} + c$		
47.	$\int \frac{1}{1+x^2} dx = \underline{\hspace{2cm}}$			
	A. $-\tan^{-1} x + c$	B. $\tan x + c$		
	C. $\tan^{-1} x + c$	D. $2x + c$		
48.	$\int \left[\frac{d}{dx} (\sqrt{\sin 2x}) \right] dx = \underline{\hspace{2cm}}$			
	A. $\frac{1}{\sqrt{\sin 2x}} + c$	B. $\frac{2}{\sqrt{\sin 2x}} + c$		
	C. $\sqrt{\sin 2x} + c$	D. $2\sqrt{\sin 2x} + c$		
49.	$\int \sec^2 x dx = \underline{\hspace{2cm}}.$			
	A. $\sec x \tan x + c$	B. $\tan^2 x + c$		
	C. $\tan x + c$	D. $\sec x + c$		
50.	$\int_{-\pi}^{\pi} x^3 dx = \underline{\hspace{2cm}}.$			
	A. 0	B. π		
	C. -2π	D. 2π		
51.	If $\int_3^5 f(x) dx = \left[\frac{(5)^3}{3} - \frac{(3)^3}{3} \right]$ then $f(x) = \underline{\hspace{2cm}}.$			
	A. $2x$	B. $3x^2$		
	C. $\frac{x^2}{3}$	D. x^2		
52.	$\int u(x)v(x) dx = u(x) \int v(x) dx - \int \left[\left\{ \frac{d}{dx} u(x) \right\} \{ \underline{\hspace{2cm}} \} \right] dx$			
	A. $\int u(x) dx$	B. $\int v(x) dx$		
	C. $\frac{d}{dx} [u(x)]$	D. $\frac{d}{dx} [v(x)]$		
53.	If area of the region bounded by the curves $y^2 = ax$ and $x^2 = ay$ is $\frac{16}{3}$ sq.unit then $a = \underline{\hspace{2cm}}$			
	A. ± 1	B. $1/3$		
	C. $\frac{1}{\sqrt{3}}$	D. $-\frac{1}{\sqrt{3}}$		
54.	$\int_1^{100} \left[\frac{1}{x} \right] dx = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}.$			
	A. $\log 1$	B. $\log 100$		
	C. $-\log 100$	D. $\log 10$		
55.	$\int e^{4\log_e x} dx = \frac{1}{5} [\underline{\hspace{2cm}}] + c$			

	A.	x^4	B.	x^5
	C.	$5x^4$	D.	$4x^4$
56.	$\int (2x-1) dt = __ + c .$			
	A.	$x^2 - 2x + c$	B.	$x^2 + 2x$
57.	Order of the differential equation $\left(\frac{d^3y}{dx^3}\right)^2 - \frac{dy}{dx} + 2y = 0$ is ____.			
	A.	1	B.	2
	C.	3	D.	6
58.	Order of the differential equation $\sqrt{\frac{d^2y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ is ____.			
	A.	1	B.	6
	C.	3	D.	2
59.	Degree of the differential equation $\left(\frac{d^2y}{dx^2}\right)^2 + \left(\frac{dy}{dx}\right)^2 + y = 0$ is ____.			
	A.	1	B.	2
	C.	0	D.	4
60.	Degree of the differential equation $y = \sin\left(\frac{d^2y}{dx^2}\right)$ is ____.			
	A.	1	B.	2
	C.	0	D.	Not defined.
61.	$y = mx + c$ is a solution of the differential equation ____.			
	A.	$\frac{dy}{dx} = 0$	B.	$\frac{dy}{dx} = mx$
	C.	$\frac{d^2y}{dx^2} = 0$	D.	$\frac{d^2y}{dx^2} = m$
62.	____ arbitrary constants are there in to the differential equation of order two.			
	A.	1	B.	0
	C.	2	D.	4
63.	The solution of a differential equation $\frac{dy}{dx} - y = 0$ is ____.			
	A.	$y = e^{-x}$	B.	$2y = 3x$
	C.	$ye^x = 0$	D.	$y + e^x = 0$
64.	____ is a homogeneous function.			
	A.	$f(x, y) = x^3 + xy$	B.	$f(x, y) = x^2 + y^2$
	C.	$f(x, y) = x + xy$	D.	$f(x, y) = x + xy$
65.	Solution of the differential equation $x dx - y dy = 0$ is ____.			
	A.	$x + y = c$	B.	$x^2 + y^2 = c$
	C.	$xy = c$	D.	$x^2 - y^2 = c$
66.	For the linear differential equation $\frac{dy}{dx} - \frac{y}{x} = e^x$, $P(x) = __$.			
	A.	$\frac{1}{x}$	B.	$-\frac{1}{x}$
	C.	x	D.	$-x$
67.	The I.F. of a differential equation $\frac{dy}{dx} + \frac{y}{x} = x^2$ is ____.			

	A.	$\frac{1}{x}$	B.	x^2
	C.	$ x $	D.	$-x^2$
68.	I.F of the linear differential equation $\frac{dy}{dx} + y \cot x = \cos x$ is ____.			
	A.	$\sin x$	B.	$\cot x$
	C.	$\cos x$	D.	$\tan x$
69.	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.	$e^{-x} + e^{-y} = c$
70.	I.F of the linear differential equation $\frac{dy}{dx} + y \cos x = e^{2x}$ is ____.			
	A.	$e^{\sin x}$	B.	$e^{\cos x}$
	C.	$e^{-\sin x}$	D.	$e^{-\cos x}$

ગુજરાતી

નં.	પ્રશ્ન તેમજ વિકલ્પ.			
1.	સંકર સંખ્યા $z = 3 + 4i$ હોય, તો $ z =$ ____.			
	A.	1/5	B.	5
	C.	-5	D.	25
2.	જો $z_1 = 2 + i$ અને $z_2 = 3 - 2i$ હોય, તો $\operatorname{Im}(z_1 + z_2) =$ ____.			
	A.	i	B.	$-i$
	C.	5	D.	-1
3.	જો $z = 2i + \frac{3}{2}$ હોય, તો $\bar{z} =$ ____.			
	A.	$\frac{3}{2} - 2i$	B.	$-2i - \frac{3}{2}$
	C.	$\frac{3}{2} + 2i$	D.	$2i - \frac{3}{2}$
4.	જો $z = 2 + 2i$ હોય, તો $\arg(z) =$ ____.			
	A.	0	B.	π
	C.	2π	D.	$\frac{\pi}{4}$
5.	જો $\bar{z} = 4 + 0i$ હોય, તો $\sqrt{z} =$ ____.			
	A.	2	B.	-2
	C.	± 2	D.	$\pm 2 + i$
6.	$i + i^2 + i^3 + i^4 =$ ____.			
	A.	0	B.	I
	C.	$-i$	D.	1
7.	$\bar{zz} =$ ____.			
	A.	$ z $	B.	$ \bar{z} $
	C.	$ \bar{z} ^2$	D.	1
8.	જો $z_1 = 4 + 2i$ અને $z_2 = 2 + 3i$ હોય, તો $z_1 z_2 =$ ____.			

	A.	2+16i	B.	8+6i
	C.	2-16i	D.	8-16i
9.	<p>જો $z = 5 + 12i$ હોય, તો $\frac{1}{z} = \frac{1}{169} (\text{_____})$.</p>			
	A.	5+12i	B.	12+5i
10.	<p>$(\cos \theta + i \sin \theta)^4 = \text{_____}$</p>			
	A.	$\cos 4\theta + i \sin 4\theta$	B.	$\cos 4\theta - i \sin 4\theta$
11.	<p>જો $f(x) = 2^x$ હોય, તો $f(0) = \text{_____}$.</p>			
	A.	2	B.	-2
12.	<p>જો $f(x) = \log(\sin x)$ હોય, તો $f\left(\frac{\pi}{2}\right) = \text{_____}$.</p>			
	A.	$\log(\cos x)$	B.	1
13.	<p>$f(x) = \frac{x-1}{x+1}$ માટે $f\left(\frac{1}{x}\right) = \text{_____}$.</p>			
	A.	$-f(x)$	B.	$f(x)$
14.	<p>જો $f(x) = \cos x$ હોય, તો $f(x) + f(-x) = \text{_____}$</p>			
	A.	$2 \cos x$	B.	0
15.	<p>જો $f(x) = x^2 - 3x + 2$ હોય, તો $f(1) = \text{_____}$</p>			
	A.	6	B.	1
16.	<p>$\lim_{n \rightarrow 0} \frac{a^n - 1}{n} = \text{_____}$.</p>			
	A.	1	B.	0
17.	<p>$\lim_{\theta \rightarrow 0} \frac{\tan 3\theta}{\theta} = \text{_____}$.</p>			
	A.	1	B.	1/3
18.	<p>$\lim_{x \rightarrow 1} \frac{x+3}{x+1} = \text{_____}$.</p>			
	A.	2	B.	4
19.	<p>$\lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{x-2} = \text{_____}$.</p>			
	A.	1	B.	0
20.	<p>$\lim_{x \rightarrow 0} \frac{e^{2x} - 1}{x} = \text{_____}$.</p>			
	A.	2	B.	1
21.	<p>$\lim_{x \rightarrow 0} \frac{1 - \cos^2 x}{x^2} = \text{_____}$.</p>			
	A.	0	B.	1

	C.	2	D.	3
22.		$\lim_{n \rightarrow \infty} \frac{2 \sum n}{n^2} = \text{_____}$		
	A.	2	B.	1
	C.	0	D.	∞
23.		$\frac{d}{dx}(\log x) = \text{_____}$.		
	A.	x	B.	$-x$
	C.	$\frac{-1}{x}$	D.	$\frac{1}{x}$
24.		જો $y = \sin 30^\circ$ હોય, તો $\frac{dy}{dx} = \text{_____}$.		
	A.	2	B.	$\frac{1}{2}$
	C.	0	D.	1
25.		જો $y = (x+2)^3$ હોય, તો $\frac{dy}{dx} = \text{_____}$.		
	A.	$3(x+2)$	B.	$2(x+2)^3$
	C.	$3(x+2)^2$	D.	$3(x+2)^3$
26.		જો $y = (x)^{\frac{1}{2}}$ હોય, તો $\frac{dy}{dx} = \text{_____}$.		
	A.	$\frac{\sqrt{x}}{2}$	B.	$\frac{-\sqrt{x}}{2}$
	C.	$\frac{1}{\sqrt{x}}$	D.	$\frac{1}{2\sqrt{x}}$
27.		$y = \sin x$ મળું $\frac{d^2y}{dx^2} = \text{_____}$.		
	A.	y	B.	0
	C.	$y-1$	D.	$-y$
28.		$\frac{d}{dx}[\log(\sec x)] = \text{_____}$		
	A.	$\cot x$	B.	$\sec x$
	C.	$\tan x$	D.	$\frac{1}{\sec x}$
29.		$y = \sin \theta, x = \cos \theta$ હોય, તો $\frac{dy}{dx} = \text{_____}$.		
	A.	$\frac{-x}{y}$	B.	$\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$\frac{-y}{x}$
30.		If $y = e^{\sin x}$ then $\frac{dy}{dx} = \text{_____}$.		
	A.	$e^{\sin x}$	B.	$e^{\sin x} \cos x$
	C.	$e^{\cos x}$	D.	$e^{\cos x} \cos x$
31.		જો $y = \sec^2 x - \tan^2 x$ હોય, તો $\frac{dy}{dx} = \text{_____}$.		
	A.	1	B.	0
	C.	-1	D.	2

	જો $x = at$, $y = \frac{a}{t}$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
32.	A.	$\frac{-x}{y}$	B.	$\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$\frac{-y}{x}$
33.	જો $3x^2 = xy$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	3	B.	$6x$
34.	જો $y = xe^x$ હોય, તો $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$x(e^x + 1)$	B.	$e^x(x+1)$
35.	$y = \frac{\log x}{x}$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}$.			
	A.	$\frac{1 - \log x}{x^2}$	B.	$\frac{x - \log x}{x^2}$
36.	$\frac{d}{dx}(\tan^{-1} x) = \underline{\hspace{2cm}}$			
	A.	$\frac{-1}{1+x^2}$	B.	$\frac{-1}{1-x^2}$
37.	$f(x) = \sin x$ ની મહત્વમાં કીમત <u> </u> છે.			
	A.	0	B.	1
38.	એક ગતિ કરતા કણનું સમીકરણ $s = t^2 - 2t + 1$ છે, $t = 1$ સેકન્ડ તેનો વેગા <u> </u> હશે.			
	A.	0 unit	B.	1 unit
39.	જો $y = e^{2x}$ હોય, તો $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$.			
	A.	$2e^x$	B.	$4e^x$
40.	$\frac{d}{dx}(x^x) = x^x (\underline{\hspace{2cm}})$.			
	A.	$1 + \log x$	B.	$1 - \log x$
41.	$\int 3x^2 dx = \underline{\hspace{2cm}}$.			
	A.	$6x + c$	B.	$6x$
42.	$\int e^x dx = \underline{\hspace{2cm}}$.			
	A.	$e^x + c$	B.	$e^{2x} + c$
	C.	$e^{x^2} + c$	D.	1

	$\int \frac{f'(x)}{f(x)} dx = \text{_____}.$		
43.	A. $\log[f'(x)] + c$	B. $\log[f(x)] + c$	
	C. $n[f(x)]^{n-1} + c$	D. $\log[f(x) + f'(x)] + c$	
	$\int \sec^2 x dx = \text{_____}.$		
44.	A. $\tan^2 x + c$	B. $\sec x \tan x + c$	
	C. $\sec x + \tan x + c$	D. $\tan x + c$	
	$\int (\operatorname{cosec}^2 x - \cot^2 x) dx = \text{_____}$		
45.	A. 0	B. 1	
	C. $\operatorname{cosec} 2x + c$	D. $x + c$	
	$\int \frac{1}{x+2} dx = \text{_____}.$		
46.	A. $\log(2x) + c$	B. $\log(x+2) + c$	
	C. $\frac{1}{\log(x+2)} + c$	D. $\frac{2}{\log(x+2)} + c$	
	$\int \frac{1}{1+x^2} dx = \text{_____}$		
47.	A. $-\tan^{-1} x + c$	B. $\tan x + c$	
	C. $\tan^{-1} x + c$	D. $2x + c$	
	$\int \left[\frac{d}{dx} (\sqrt{\sin 2x}) \right] dx = \text{_____}$		
48.	A. $\frac{1}{\sqrt{\sin 2x}} + c$	B. $\frac{2}{\sqrt{\sin 2x}} + c$	
	C. $\sqrt{\sin 2x} + c$	D. $2\sqrt{\sin 2x} + c$	
	$\int \sec^2 x dx = \text{_____}.$		
49.	A. $\sec x \tan x + c$	B. $\tan^2 x + c$	
	C. $\tan x + c$	D. $\sec x + c$	
50.	$\int_{-\pi}^{\pi} x^3 dx = \text{_____}.$		
	A. 0	B. π	
	C. -2π	D. 2π	
51.	જો $\int_3^5 f(x) dx = \left[\frac{(5)^3}{3} - \frac{(3)^3}{3} \right]$ હોય, તો $f(x) = \text{_____}.$		
	A. $2x$	B. $3x^2$	
	C. $\frac{x^2}{3}$	D. x^2	
	$\int u(x)v(x) dx = u(x) \int v(x) dx - \int \left[\left\{ \frac{d}{dx} u(x) \right\} \{ \text{_____} \} \right] dx$		
52.	A. $\int u(x) dx$	B. $\int v(x) dx$	
	C. $\frac{d}{dx} [u(x)]$	D. $\frac{d}{dx} [v(x)]$	
53.	જો $y^2 = ax$ અને $x^2 = ay$ શી આચળાદિત પ્રેરણનું ક્ષેત્રફળ $16/3$ ચો. એકમ હોય, તો $a = \text{_____}$		
	A. ± 1	B. $1/3$	

	C.	$\frac{1}{\sqrt{3}}$	D.	$-\frac{1}{\sqrt{3}}$
54.		$\int_1^{100} \left[\frac{1}{x} \right] dx = \underline{\quad} = \underline{\quad}$.		
	A.	$\log 1$	B.	$\log 100$
	C.	$-\log 100$	D.	$\log 10$
55.		$\int e^{4 \log_e x} dx = \frac{1}{5} [\underline{\quad}] + c$		
	A.	x^4	B.	x^5
	C.	$5x^4$	D.	$4x^4$
56.		$\int (2x-1) dt = \underline{\quad} + c$.		
	A.	$x^2 - 2x + c$	B.	$x^2 + 2x$
	C.	$(2x-1)t$	D.	$(2x-1)^2$
57.		વિકલ સમીકરણ $\left(\frac{d^3 y}{dx^3} \right)^2 - \frac{dy}{dx} + 2y = 0$ ની કક્ષા <u> </u> છે.		
	A.	1	B.	2
	C.	3	D.	6
58.		વિકલ સમીકરણ $\sqrt{\frac{d^2 y}{dx^2}} = \sqrt[3]{\frac{dy}{dx}}$ ની કક્ષા <u> </u> છે.		
	A.	1	B.	6
	C.	3	D.	2
59.		વિકલ સમીકરણ $\left(\frac{d^2 y}{dx^2} \right)^2 + \left(\frac{dy}{dx} \right)^2 + y = 0$ નું પરિમાણ <u> </u> છે.		
	A.	1	B.	2
	C.	0	D.	4
60.		વિકલ સમીકરણ $y = \sin\left(\frac{d^2 y}{dx^2}\right)$ નું પરિમાણ <u> </u> છે.		
	A.	1	B.	2
	C.	0	D.	Not defined.
		$y = mx + c$ એ વિકલ સમીકરણ <u> </u> નો ઉકેલ છે.		
61.	A.	$\frac{dy}{dx} = 0$	B.	$\frac{dy}{dx} = mx$
	C.	$\frac{d^2 y}{dx^2} = 0$	D.	$\frac{d^2 y}{dx^2} = m$
62.		દ્વિતીય કક્ષાના વિકલ સમીકરણમાં <u> </u> સ્વેર અચલાંકો હોય.		
	A.	1	B.	0
	C.	2	D.	4
63.		વિકલ સમીકરણ $\frac{dy}{dx} - y = 0$ નો ઉકેલ <u> </u> છે.		
	A.	$y = e^{-x}$	B.	$2y = 3x$
	C.	$ye^x = 0$	D.	$y + e^x = 0$
		<u> </u> સમ પરિમાણિય વિધેય છે.		
64.	A.	$f(x, y) = x^3 + xy$	B.	$f(x, y) = x^2 + y^2$
	C.	$f(x, y) = x + xy$	D.	$f(x, y) = x + xy$

	વિકલ સમીકરણ $x \, dx - y \, dy = 0$ નો ઉકેલ _____ છે.			
65.	A. $x + y = c$	B. $x^2 + y^2 = c$	C. $xy = c$	D. $x^2 - y^2 = c$
	સુરેખ વિકલ સમીકરણ $\frac{dy}{dx} - \frac{y}{x} = e^x$ માટે $P(x) = _____$.			
66.	A. $\frac{1}{x}$	B. $-\frac{1}{x}$	C. x	D. $-x$
	વિકલ સમીકરણ $\frac{dy}{dx} + \frac{y}{x} = x^2$ નો સંકલ્યકારક અવયવ _____ છે.			
67.	A. $\frac{1}{x}$	B. x^2	C. $ x $	D. $-x^2$
	વિકલ સમીકરણ $\frac{dy}{dx} + y \cot x = \cos x$ નો સંકલ્યકારક અવયવ _____ છે.			
68.	A. $\sin x$	B. $\cot x$	C. $\cos x$	D. $\tan x$
	વિકલ સમીકરણ $\frac{dy}{dx} = e^{x+y}$ નો ઉકેલ _____ છે.			
69.	A. $e^x + e^{-y} = c$	B. $e^x + e^y = c$	C. $e^{-x} + e^y = c$	D. $e^{-x} + e^{-y} = c$
	વિકલ સમીકરણ $\frac{dy}{dx} + y \cos x = e^{2x}$ નો સંકલ્યકારક અવયવ _____ છે.			
70.	A. $e^{\sin x}$	B. $e^{\cos x}$	C. $e^{-\sin x}$	D. $e^{-\cos x}$
