Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER – 2(C2D) - EXAMINATION – SUMMER-2022

Subject Code:C320002 Date : 02-09-2022

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 simple calculators and non-programmable scientific calculators are permitted.**
5. **English version is authentic.**
6. **Use only OMR to answer this question paper.**

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.	$i^4 + i^3 + i^2 + i^1$ = _____.			
	A.	i	B.	0
	C.	$-i$	D.	1
૫.	$i^4 + i^3 + i^2 + i^1$ = _____.			
	A.	i	B.	0
	C.	$-i$	D.	1

6.	$\left(\cos\frac{\theta}{3}+i\sin\frac{\theta}{3}\right)^{-3}$ = _____.			
	A.	$\cos\frac{\theta}{3}+i\sin\frac{\theta}{3}$	B.	$\cos\frac{\theta}{3}-i\sin\frac{\theta}{3}$
	C.	$\cos\theta+i\sin\theta$	D.	$\cos\theta-i\sin\theta$
૬.	$\left(\cos\frac{\theta}{3}+i\sin\frac{\theta}{3}\right)^{-3}$ = _____.			
	A.	$\cos\frac{\theta}{3}+i\sin\frac{\theta}{3}$	B.	$\cos\frac{\theta}{3}-i\sin\frac{\theta}{3}$
	C.	$\cos\theta+i\sin\theta$	D.	$\cos\theta-i\sin\theta$
7.	If $z_1=3-i,\ z_2=-1+5i$ then z_1+z_2 = _____.			
	A.	$2-4i$	B.	$2+4i$
	C.	$4-4i$	D.	$4+4i$
૭.	જો $z_1=3-i,\ z_2=-1+5i$ હોય તો z_1+z_2 = _____.			
	A.	$2-4i$	B.	$2+4i$
	C.	$4-4i$	D.	$4+4i$
8.	$(3-2i)(3+2i)$ = _____.			
	A.	13	B.	$\sqrt{13}$
	C.	$(3+2i)^2$	D.	$(3-2i)^2$
૮.	$(3-2i)(3+2i)$ = _____.			
	A.	13	B.	$\sqrt{13}$
	C.	$(3+2i)^2$	D.	$(3-2i)^2$
9.	If $z_1=5-2i,\ z_2=2+3i$ then $Re(z_1-z_2)$ = _____.			
	A.	-5	B.	-3
	C.	3	D.	5
૯.	જો $z_1=5-2i,\ z_2=2+3i$ હોય તો $Re(z_1-z_2)$ = _____.			
	A.	-5	B.	-3
	C.	3	D.	5
10.	If $z_1=-4+6i,\ z_2=2-3i$ then $Im(z_1+z_2)$ = _____.			
	A.	3	B.	-3
	C.	2	D.	-2
૧૦.	જો $z_1=-4+6i,\ z_2=2-3i$ હોય તો $Im(z_1+z_2)$ = _____.			
	A.	3	B.	-3
	C.	2	D.	-2
11.	If z is any complex number then $z-\bar{z}$ = _____.			
	A.	Im(z)	B.	2 Im(z)
	C.	Re(z)	D.	2 Re(z)
૧૧.	જો z કોઈ સંકર સંખ્યા હોય તો $z-\bar{z}$ = _____.			
	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 $z_1\cdot z_2$ = _____.			
	A.	8 + 14i	B.	- 8 + 14i
	C.	8 - 14i	D.	- 8 - 14i
૧૨.	જો $z_1=1-5i,\ z_2=3+i$ હોય તો $z_1\cdot z_2$ = _____.			
	A.	8 + 14i	B.	- 8 + 14i
	C.	8 - 14i	D.	- 8 - 14i
13.	i^{25} = _____.			
	A.	1	B.	$-i$
	C.	- 1	D.	i

૧૩.	i^{25} = _____.			
	A.	1	B.	$-i$
	C.	- 1	D.	i
14.	If z is any complex number then $z \cdot \bar{z}$ = _____ .			
	A.	Complex number	B.	i
	C.	Real number	D.	None of these
૧૪.	જો z કોઈ સંકર સંખ્યા હોય તો $z \cdot \bar{z}$ = _____.			
	A.	સંકર સંખ્યા	B.	i
	C.	વાસ્તવિક સંખ્યા	D.	કોઈ પણ નહિ
15.	If $f(x) = 2x^2 + \sqrt{x}$ then $f(4)$ =_____.			
	A.	$\sqrt{43}$	B.	$\sqrt{34}$
	C.	43	D.	34
૧૫.	જો $f(x) = 2x^2 + \sqrt{x}$ હોય તો $f(4)$ =_____.			
	A.	$\sqrt{43}$	B.	$\sqrt{34}$
	C.	43	D.	34
16.	If $f(x) = \log_3 x$ then $f(81)$ =_____.			
	A.	1	B.	4
	C.	0	D.	- 4
૧૬.	જો $f(x) = \log_3 x$ હોય તો $f(81)$ =_____.			
	A.	1	B.	4
	C.	0	D.	- 4
17.	If $f(x) = 4x^2 - 3x - 5$ then $f(3)$ =_____.			
	A.	22	B.	-1
	C.	21	D.	1
૧૭.	જો $f(x) = 4x^2 - 3x - 5$ હોય તો $f(3)$ =_____.			
	A.	22	B.	-1
	C.	21	D.	1
18.	If $f(x) = logx$ and $g(x) = e^{-x}$ then $fog(-1)$ =_____.			
	A.	1	B.	0
	C.	-1	D.	e
૧૮.	જો $f(x) = logx$ અને $g(x) = e^{-x}$ હોય તો $fog(-1)$ =_____.			
	A.	1	B.	0
	C.	-1	D.	e
19.	If $f(x) = logx$ 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 $f(x) = logx$ 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.	$\lim_{x \to -1} \frac{x^3 + 1}{x + 1}$ = _____.			
	A.	0	B.	1
	C.	3	D.	-3
૨૦.	$\lim_{x \to -1} \frac{x^3 + 1}{x + 1}$ = _____.			
	A.	0	B.	1
	C.	3	D.	-3

21.	$\lim_{n\to\infty}\frac{3n^3-7n^2+17}{n^3+1}=$ _____.			
	A.	∞	B.	-3
	C.	1	D.	3
२१.	$\lim_{n\to\infty}\frac{3n^3-7n^2+17}{n^3+1}=$ _____.			
	A.	∞	B.	-3
	C.	1	D.	3
22.	$\lim_{\theta\to0}\frac{sin\theta}{\theta}=$ _____.			
	A.	1	B.	2
	C.	-1	D.	0
२२.	$\lim_{\theta\to0}\frac{sin\theta}{\theta}=$ _____.			
	A.	1	B.	2
	C.	-1	D.	0
23.	$\lim_{x\to2}\frac{2x^2-3}{x-5}=$ _____.			
	A.	$-\frac{7}{5}$	B.	$-\frac{3}{5}$
	C.	$-\frac{5}{7}$	D.	$-\frac{5}{3}$
२३.	$\lim_{x\to2}\frac{2x^2-3}{x-5}=$ _____.			
	A.	$-\frac{7}{5}$	B.	$-\frac{3}{5}$
	C.	$-\frac{5}{7}$	D.	$-\frac{5}{3}$
24.	$\lim_{x\to0}\frac{7^x-4^x}{x}=$ _____.			
	A.	1	B.	0
	C.	$\log_e\left(\frac{7}{4}\right)$	D.	$\log_e\left(\frac{4}{7}\right)$
२४.	$\lim_{x\to0}\frac{7^x-4^x}{x}=$ _____.			
	A.	1	B.	0
	C.	$\log_e\left(\frac{7}{4}\right)$	D.	$\log_e\left(\frac{4}{7}\right)$
25.	$\lim_{x\to0}(1+x)^{\frac{1}{x}}=$ _____.			
	A.	e	B.	1
	C.	0	D.	-e
२५.	$\lim_{x\to0}(1+x)^{\frac{1}{x}}=$ _____.			
	A.	e	B.	1
	C.	0	D.	-e
26.	$\lim_{x\to\infty}\left(1-\frac{2}{x}\right)^x=$ _____.			
	A.	e^{-2}	B.	2^e
	C.	2^{-e}	D.	e^2

২৬.	$\lim_{x\to\infty}\left(1-\frac{2}{x}\right)^{x}$ = _____.			
	A.	e^{-2}	B.	2^{e}
	C.	2^{-e}	D.	e^{2}
27.	$\frac{d}{dx}(3^3+x^3-3^x)$ = _____.			
	A.	$x^3\cdot\log 3 - x\cdot 3^{x-1}$	B.	0
	C.	$3\cdot x^2 - 3^x\cdot\log 3$	D.	$27+3\cdot x^2-3^x\cdot\log 3$
২৭.	$\frac{d}{dx}(3^3+x^3-3^x)$ = _____.			
	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.	$\frac{d}{dx}(sin^{-1}x+cos^{-1}x)$ = _____.			
	A.	0	B.	π
	C.	1	D.	$\pi/2$
২৮.	$\frac{d}{dx}(sin^{-1}x+cos^{-1}x)$ = _____.			
	A.	0	B.	π
	C.	1	D.	$\pi/2$
29.	$\frac{d}{dx}(loge^{x})$ = _____.			
	A.	0	B.	x
	C.	1	D.	x^{-1}
২৯.	$\frac{d}{dx}(loge^{x})$ = _____.			
	A.	0	B.	x
	C.	1	D.	x^{-1}
30.	$\frac{d}{dx}(cosecx)$ = _____.			
	A.	$secx\cdot cosecx$	B.	$-cosecx\cdot cotx$
	C.	$-secx\cdot tanx$	D.	$cosecx\cdot cotx$
৩০.	$\frac{d}{dx}(cosecx)$ = _____.			
	A.	$secx\cdot cosecx$	B.	$-cosecx\cdot cotx$
	C.	$-secx\cdot tanx$	D.	$cosecx\cdot cotx$
31.	$\frac{d}{dx}\log(secx)$ = _____.			
	A.	$-sinx$	B.	$tanx$
	C.	$cosx$	D.	$cotx$
৩১.	$\frac{d}{dx}\log(secx)$ = _____.			
	A.	$-sinx$	B.	$tanx$
	C.	$cosx$	D.	$cotx$
32.	$\frac{d}{dx}(cos^2x+sin^2x)$ = _____.			
	A.	1	B.	π
	C.	-1	D.	0
৩২.	$\frac{d}{dx}(cos^2x+sin^2x)$ = _____.			
	A.	1	B.	π
	C.	-1	D.	0

33.	$\frac{d}{dx}\left(e^{2\log x}\right)$ = _____.			
	A.	$-2x$	B.	$-2/x$
	C.	$2x$	D.	$2/x$
૩૩.	$\frac{d}{dx}\left(e^{2\log x}\right)$ = _____.			
	A.	$-2x$	B.	$-2/x$
	C.	$2x$	D.	$2/x$
34.	$\frac{d}{dx}\left(cosx \cdot \sqrt{x}\right)$ = _____.			
	A.	$cosx \cdot \frac{1}{2\sqrt{x}} - sinx \cdot \sqrt{x}$	B.	$sinx \cdot \frac{1}{2\sqrt{x}} - cosx \cdot \sqrt{x}$
	C.	$cosx \cdot \frac{1}{2\sqrt{x}} + sinx \cdot \sqrt{x}$	D.	$sinx \cdot \frac{1}{2\sqrt{x}} + cosx \cdot \sqrt{x}$
૩૪.	$\frac{d}{dx}\left(cosx \cdot \sqrt{x}\right)$ = _____.			
	A.	$cosx \cdot \frac{1}{2\sqrt{x}} - sinx \cdot \sqrt{x}$	B.	$sinx \cdot \frac{1}{2\sqrt{x}} - cosx \cdot \sqrt{x}$
	C.	$cosx \cdot \frac{1}{2\sqrt{x}} + sinx \cdot \sqrt{x}$	D.	$sinx \cdot \frac{1}{2\sqrt{x}} + cosx \cdot \sqrt{x}$
35.	$\frac{d}{dx}\left(\frac{sinx^3}{x^3}\right)$ = _____.			
	A.	$\frac{3(sinx^3 - x^3 \cdot cosx^3)}{x^4}$	B.	$\frac{3(x^3 \cdot cosx^3 + sinx^3)}{x^4}$
	C.	$\frac{3(x^3 \cdot cosx^3 - sinx^3)}{x^4}$	D.	$\frac{3(sinx^3 + x^3 \cdot cosx^3)}{x^4}$
૩૫.	$\frac{d}{dx}\left(\frac{sinx^3}{x^3}\right)$ = _____.			
	A.	$\frac{3(sinx^3 - x^3 \cdot cosx^3)}{x^4}$	B.	$\frac{3(x^3 \cdot cosx^3 + sinx^3)}{x^4}$
	C.	$\frac{3(x^3 \cdot cosx^3 - sinx^3)}{x^4}$	D.	$\frac{3(sinx^3 + x^3 \cdot cosx^3)}{x^4}$
36.	If $x = -at^2, y = 2at$ then $\frac{dy}{dx}$ = _____.			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
૩૬.	જો $x = -at^2, y = 2at$ હોય તો $\frac{dy}{dx}$ = _____.			
	A.	$\frac{1}{t}$	B.	$-\frac{1}{t}$
	C.	$-t$	D.	t
37.	If $y = 9x^2 - 7x + 91$ then y_3 = _____.			
	A.	9	B.	18
	C.	0	D.	91
૩૭.	જો $y = 9x^2 - 7x + 91$ હોય તો y_3 = _____.			
	A.	9	B.	18
	C.	0	D.	91
38.	If $x + y = xy$ then $\frac{dy}{dx}$ = _____.			
	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 $\frac{dy}{dx}=$ _____.			
	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 $\frac{dy}{dx}=$ _____.			
	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 $\frac{dy}{dx}=$ _____.			
	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 velocity = _____ at t = 1.			
	A.	18	B.	16
	C.	0	D.	43
૪૦.	જો કણની ગતિનું ગતિસૂત્ર $s=6t^3-2t-1$ હોય તો t = 1 આગળ વેગ=____.			
	A.	18	B.	16
	C.	0	D.	43
41.	Function $f(x)$ has minima at a point $x=x_1$, if _____.			
	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 ન્યૂનત્તમ બિંદુ હોવાની શરત ____ છે.			
	A.	$f''(x_1)>0$	B.	$f''(x_1)=0$
	C.	$f''(x_1)<0$	D.	કોઈપણ નહી
42.	Minimum value of function $f(x)=sinx$ is _____.			
	A.	0	B.	1
	C.	2	D.	-1
૪૨.	વિધેય $f(x)=sinx$ ની ન્યૂનત્તમ 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.	$\frac{d}{dx}(-cos^{-1}x)=$ _____.			
	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.	$\frac{d}{dx}(-cos^{-1}x)=$ _____.			
	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.	$\log_2 x$
৪৬.	$\int \frac{1}{x}dx = \_\_\_\_\_ + c$			
	A.	$\log_{10} x$	B.	$\log_e x$
	C.	0	D.	$\log_2 x$
46.	$\int cosec^2 x dx = \_\_\_\_\_ + c$			
	A.	$cotx - x$	B.	$-cosecx$
	C.	$cotx + x$	D.	$-cotx$
৪৬.	$\int cosec^2 x dx = \_\_\_\_\_ + c$			
	A.	$cotx - x$	B.	$-cosecx$
	C.	$cotx + x$	D.	$-cotx$
47.	$\int xe^x dx = \_\_\_\_\_ + c$			
	A.	e^x	B.	xe^x
	C.	$e^x(x-1)$	D.	$x(e^x+1)$
৪৭.	$\int xe^x dx = \_\_\_\_\_ + c$			
	A.	e^x	B.	xe^x
	C.	$e^x(x-1)$	D.	$x(e^x+1)$
48.	$\int -cos^3 x sinx dx = \_\_\_\_\_ + c$			
	A.	$4cos^4 x$	B.	$3cos^2 x$
	C.	$\frac{1}{3}cos^2 x$	D.	$\frac{1}{4}cos^4 x$
৪৮.	$\int -cos^3 x sinx dx = \_\_\_\_\_ + c$			
	A.	$4cos^4 x$	B.	$3cos^2 x$
	C.	$\frac{1}{3}cos^2 x$	D.	$\frac{1}{4}cos^4 x$
49.	$\int (2x - e^x - sinx)dx = \_\_\_\_\_$			
	A.	$x^2 - e^x - sinx + c$	B.	$x^2 - e^x + cosx + c$
	C.	$x^2 + e^x + sinx + c$	D.	$x^2 + e^x - cosx + c$
৪৯.	$\int (2x - e^x - sinx)dx = \_\_\_\_\_$			
	A.	$x^2 - e^x - sinx + c$	B.	$x^2 - e^x + cosx + c$
	C.	$x^2 + e^x + sinx + c$	D.	$x^2 + e^x - cosx + c$
50.	$\int cos(9x+5)dx = \_\_\_\_\_$			
	A.	$9\sin(9x-5) + c$	B.	$9\sin(9x+5) + c$
	C.	$\frac{1}{9}\sin(9x+5) + c$	D.	$\frac{1}{9}\sin(x-5) + c$

५०.	$\int cos(9x+5)dx =$ _____			
	A.	$9\sin(9x-5)+c$	B.	$9\sin(9x+5)+c$
	C.	$\frac{1}{9}\sin(9x+5)+c$	D.	$\frac{1}{9}\sin(x-5)+c$
51.	$\int logxdx =$ _____			
	A.	$xlogx-x+c$	B.	$-xlogx-x+c$
	C.	$-xlogx+x+c$	D.	$xlogx+x+c$
५१.	$\int logxdx =$ _____			
	A.	$xlogx-x+c$	B.	$-xlogx-x+c$
	C.	$-xlogx+x+c$	D.	$xlogx+x+c$
52.	$\int e^{7\log x}dx =$ _____			
	A.	$7x^6+c$	B.	x^7+c
	C.	$\frac{1}{7}x^6+c$	D.	$\frac{1}{8}x^8+c$
५२.	$\int e^{7\log x}dx =$ _____			
	A.	$7x^6+c$	B.	x^7+c
	C.	$\frac{1}{7}x^6+c$	D.	$\frac{1}{8}x^8+c$
53.	$\int(cotx-cosec^2x)e^x dx =$ _____ $+c$			
	A.	$e^x cosecx$	B.	$e^x cotx$
	C.	$e^x cot^2x$	D.	$e^x cosec^2x$
५३.	$\int(cotx-cosec^2x)e^x dx =$ _____ $+c$			
	A.	$e^x cosecx$	B.	$e^x cotx$
	C.	$e^x cot^2x$	D.	$e^x cosec^2x$
54.	$\int \frac{f'(x)}{f(x)}dx =$ _____ $+c$			
	A.	$f(x)$	B.	$f'(x)$
	C.	$\|\log(f(x))\|$	D.	$\log\|f(x)\|$
५४.	$\int \frac{f'(x)}{f(x)}dx =$ _____ $+c$			
	A.	$f(x)$	B.	$f'(x)$
	C.	$\|\log(f(x))\|$	D.	$\log\|f(x)\|$
55.	$\int_0^{2\pi} 1dx =$ _____			
	A.	1	B.	0
	C.	π	D.	2π
५५.	$\int_0^{2\pi} 1dx =$ _____			
	A.	1	B.	0
	C.	π	D.	2π

56.	$\int_0^1 \frac{1}{1+x}dx = \_\_\_\_\_$			
	A.	$log2$	B.	1
	C.	-1	D.	$-log2$
૫૬.	$\int_0^1 \frac{1}{1+x}dx = \_\_\_\_\_$			
	A.	$log2$	B.	1
	C.	-1	D.	$-log2$
57.	$\int_1^0 \frac{1}{x^2+1}dx = \_\_\_\_\_$			
	A.	π	B.	$-\pi$
	C.	$-\pi/4$	D.	$\pi/4$
૫૭.	$\int_1^0 \frac{1}{x^2+1}dx = \_\_\_\_\_$			
	A.	π	B.	$-\pi$
	C.	$-\pi/4$	D.	$\pi/4$
58.	$\int_0^{\pi/2} \frac{\sqrt{tanx}}{\sqrt{tanx}+\sqrt{cotx}}dx = \_\_\_\_\_$			
	A.	$\pi/4$	B.	$\pi/2$
	C.	π	D.	0
૫૮.	$\int_0^{\pi/2} \frac{\sqrt{tanx}}{\sqrt{tanx}+\sqrt{cotx}}dx = \_\_\_\_\_$			
	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 y-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 y – 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 $y = e^x, x - axis, lines\ x = 1\ and\ x = 2$ is _____units			
	A.	$e^2 - e^1$	B.	$e^1 - e^2$
	C.	e^1	D.	e^{-1}
૬૦.	વક્રો $y = e^x$, x – axis, રેખાઓ $x = 1$ અને $x = 2$ વચ્ચે ઘેરાતા પ્રદેશનું ક્ષેત્રફળ = ____.			
	A.	$e^2 - e^1$	B.	$e^1 - e^2$
	C.	e^1	D.	e^{-1}

61.	Order of the differential equation $\left(\frac{d^4y}{dx^4}\right)^2 + \sqrt{\frac{dy}{dx}} + y = 0$ is =_____.			
	A.	2	B.	3
	C.	1	D.	4
૬૧.	વિકલ સમીકરણ $\left(\frac{d^4y}{dx^4}\right)^2 + \sqrt{\frac{dy}{dx}} + y = 0$ ની કક્ષા = _____.			
	A.	2	B.	3
	C.	1	D.	4
62.	Degree of the differential equation $\left(\frac{d^2y}{dx^2}\right)^5 + \left(\frac{dy}{dx}\right)^7 + y = 0$ is =_____.			
	A.	7	B.	5
	C.	6	D.	2
૬૨.	વિકલ સમીકરણ $\left(\frac{d^2y}{dx^2}\right)^5 + \left(\frac{dy}{dx}\right)^7 + y = 0$ 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.	$\frac{d^2y}{dx^2} + y = 0$	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.	$\frac{d^2y}{dx^2} + y = 0$	D.	$x^2 + y^2 = c^2$
64.	$f(x,y)$=_____ is a homogeneous function.			
	A.	$x^3 + y^3$	B.	$x^3 + y^2$
	C.	$x^2 + y^3$	D.	$x^2 + xy^2$
૬૪.	$f(x,y)$=_____ સમ પરિમાણીય વિધેય છે.			
	A.	$x^3 + y^3$	B.	$x^3 + y^2$
	C.	$x^2 + y^3$	D.	$x^2 + xy^2$
65.	Solution of the differential equation $\frac{dy}{dx} + 2y = 0$ is _____.			
	A.	$y = ce^x$	B.	$y = ce^{-x}$
	C.	$y = ce^{-2x}$	D.	$y = ce^{2x}$
૬૫.	વિકલ સમીકરણ $\frac{dy}{dx} + 2y = 0$ નો ઉકેલ = _____.			
	A.	$y = ce^x$	B.	$y = ce^{-x}$
	C.	$y = ce^{-2x}$	D.	$y = ce^{2x}$
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 $\frac{dy}{dx} - 3y = 0$ is _____.			
	A.	e^{x}	B.	e^{-3x}
	C.	e^{-x}	D.	e^{3x}
૬૭.	વિકલ સમીકરણ $\frac{dy}{dx} - 3y = 0$ નો સંકલ્યકારક 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.	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.	$\frac{1-2y}{1-2x} = c$
૬૯.	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.	$\frac{1-2y}{1-2x} = c$
70.	Degree of the homogeneous function $f(x,y) = x^4 + y^4$ is _____.			
	A.	2	B.	4
	C.	0	D.	3
૭૦.	સમ પરિમાણીય વિધેય $f(x,y) = x^4 + y^4$ નું પરિમાણ = _____.			
	A.	2	B.	4
	C.	0	D.	3

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