Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING- C to D Bridge Course Examination WINTER 2018

Subject Code: C320002 Date: 03-01-2019

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. **Each question is of 1 mark.**
4. **Use of only simple calculator is permitted. (Scientific/Higher Version not allowed).**
5. **English version is authentic**.

No.	Question Text and Option. પ્રશ્ન અને વિકલ્પો.			
1.	If $z = -i + 2$ then $\bar{z}$ = _____.			
	A.	$-i + 2$	B.	$i + 2$
	C.	$i - 2$	D.	i
૧.	જો $z = -i + 2$ હોય, તો $\bar{z}$ = _____.			
	A.	$-i + 2$	B.	$i + 2$
	C.	$i - 2$	D.	i
2.	$\lvert 8i - 6 \rvert$ = _____.			
	A.	10	B.	100
	C.	$\sqrt{10}$	D.	$\sqrt{90}$
૨.	$\lvert 8i - 6 \rvert$ = _____.			
	A.	10	B.	100
	C.	$\sqrt{10}$	D.	$\sqrt{90}$
3.	arg (1 – i) = _____.			
	A.	$\frac{\pi}{4}$	B.	$-\frac{\pi}{4}$
	C.	$\frac{3\pi}{4}$	D.	$-\frac{3\pi}{4}$
૩.	arg (1 – i) = _____.			
	A.	$\frac{\pi}{4}$	B.	$-\frac{\pi}{4}$
	C.	$\frac{3\pi}{4}$	D.	$-\frac{3\pi}{4}$
4.	$(1 + i)^{-1}$ = _____.			
	A.	$\frac{1}{2} + \frac{1}{2} i$	B.	$\frac{1}{2} - \frac{1}{2} i$
	C.	$-\frac{1}{2} + \frac{1}{2} i$	D.	$-\frac{1}{2} - \frac{1}{2} i$
૪.	$(1 + i)^{-1}$ = _____.			
	A.	$\frac{1}{2} + \frac{1}{2} i$	B.	$\frac{1}{2} - \frac{1}{2} i$
	C.	$-\frac{1}{2} + \frac{1}{2} i$	D.	$-\frac{1}{2} - \frac{1}{2} i$
5.	$z - \bar{z}$ = _____.			
	A.	– 2 Re(z)	B.	Re (z)
	C.	2 Re(z)	D.	2 i Im(z)
૫.	$z - \bar{z}$ = _____.			
	A.	– 2 Re(z)	B.	Re (z)
	C.	2 Re(z)	D.	2 i Im(z)
6.	$(3 + 2i)^2$ = _____.			

	A.	$13 + 12\,i$	B.	$9 + 12\,i$
	C.	$5 + 12\,i$	D.	$5 + 6\,i$
૬.	$(3 + 2i)^2$ = _____.			
	A.	$13 + 12\,i$	B.	$9 + 12\,i$
	C.	$5 + 12\,i$	D.	$5 + 6\,i$
7.	$\frac{\cos 3\theta + i \sin 3\theta}{\cos 2\theta + i \sin 2\theta}$ = _____.			
	A.	$\cos\theta - i \sin\theta$	B.	$\cos\theta + i \sin\theta$
	C.	$\cos 5\theta + i \sin 5\theta$	D.	$\cos 5\theta - i \sin 5\theta$
૭.	$\frac{\cos 3\theta + i \sin 3\theta}{\cos 2\theta + i \sin 2\theta}$ = _____.			
	A.	$\cos\theta - i \sin\theta$	B.	$\cos\theta + i \sin\theta$
	C.	$\cos 5\theta + i \sin 5\theta$	D.	$\cos 5\theta - i \sin 5\theta$
8.	$(\cos 3\theta + i \sin 3\theta)(\cos 7\theta + i \sin 7\theta)$ = _____.			
	A.	$\cos 4\theta + i \sin 4\theta$	B.	$\cos 4\theta - i \sin 4\theta$
	C.	$\cos 10\theta + i \sin 10\theta$	D.	$-\cos 10\theta - i \sin 10\theta$
૮.	$(\cos 3\theta + i \sin 3\theta)(\cos 7\theta + i \sin 7\theta)$ = _____.			
	A.	$\cos 4\theta + i \sin 4\theta$	B.	$\cos 4\theta - i \sin 4\theta$
	C.	$\cos 10\theta + i \sin 10\theta$	D.	$-\cos 10\theta - i \sin 10\theta$
9.	If $2xi - 3x + iy - 1 = x + 3yi - 2$ then x = _____.			
	A.	0	B.	$\frac{1}{4}$
	C.	1	D.	$-\frac{1}{4}$
૯.	જો $2xi - 3x + iy - 1 = x + 3yi - 2$ હોય, તો x = _____.			
	A.	0	B.	$\frac{1}{4}$
	C.	1	D.	$-\frac{1}{4}$
10.	$\sqrt{-4}$ = _____ .			
	A.	2	B.	± 2
	C.	-2	D.	$\pm 2i$
૧૦.	$\sqrt{-4}$ = _____ .			
	A.	2	B.	± 2
	C.	-2	D.	2i
11.	If $x^2 + 1 = 0$ then x = _____ .			
	A.	i	B.	$\pm i$
	C.	$-i$	D.	-1
૧૧.	જો $x^2 + 1 = 0$ હોય, તો x = _____ .			
	A.	i	B.	$\pm i$
	C.	$-i$	D.	-1
12.	i^9 = _____.			
	A.	1	B.	–1
	C.	i	D.	$-i$
૧૨.	i^9 = _____.			
	A.	1	B.	–1
	C.	i	D.	$-i$
13.	If $f(x) = (-1)^x \cdot x$, then $f(2)$ = _____.			
	A.	2	B.	–2
	C.	1	D.	–1
૧૩.	જો $f(x) = (-1)^x \cdot x$, હોય, તો $f(2)$ = _____.			
	A.	2	B.	–2
	C.	1	D.	–1

14.	If $f(x) = \log x$ then $f\left(\frac{x}{y}\right) =$ _____.			
	A.	$f(x)f(y)$	B.	$f(x) + f(y)$
	C.	$f(x) - f(y)$	D.	$f(x) \div f(y)$
૧૪.	જો $f(x) = \log x$ હોય, તો $f\left(\frac{x}{y}\right) =$ _____.			
	A.	$f(x)f(y)$	B.	$f(x) + f(y)$
	C.	$f(x) - f(y)$	D.	$f(x) \div f(y)$
15.	If $f(x) = \log(\tan x)$ *then* $f\left(\frac{\pi}{4}\right) =$ _____ .			
	A.	1	B.	e
	C.	0	D.	π
૧૫.	જો $f(x) = \log(\tan x)$ હોય, તો $f\left(\frac{\pi}{4}\right) =$ _____ .			
	A.	1	B.	e
	C.	0	D.	π
16.	If $f(x) = \sin x$ *then* $f\left(\frac{\pi}{2} - x\right) =$ _____ .			
	A.	cos x	B.	– cos x
	C.	sin x	D.	– sin x
૧૬.	જો $f(x) = \sin x$ હોય, તો $f\left(\frac{\pi}{2} - x\right) =$ _____ .			
	A.	cos x	B.	– cos x
	C.	sin x	D.	– sin x
17.	$\lim_{x \to 0} \frac{x}{a^x - 1} =$ _____.			
	A.	1	B.	$\log_e a$
	C.	$\log_a e$	D.	0
૧૭.	$\lim_{x \to 0} \frac{x}{a^x - 1} =$ _____.			
	A.	1	B.	$\log_e a$
	C.	$\log_a e$	D.	0
18.	$\lim_{x \to 0} \frac{3^x - 2^x}{x} =$ _____.			
	A.	$\log_e\left(\frac{2}{3}\right)$	B.	1
	C.	0	D.	$\log_e\left(\frac{3}{2}\right)$
૧૮.	$\lim_{x \to 0} \frac{3^x - 2^x}{x} =$ _____.			
	A.	$\log_e\left(\frac{2}{3}\right)$	B.	1
	C.	0	D.	$\log_e\left(\frac{3}{2}\right)$
19.	$\lim_{\theta \to 0} \frac{sin3\theta}{\sin 2\theta} =$ _____.			
	A.	$\frac{3}{2}$	B.	$-\frac{3}{2}$
	C.	1	D.	0
૧૯.	$\lim_{\theta \to 0} \frac{sin3\theta}{\sin 2\theta} =$ _____.			
	A.	$\frac{3}{2}$	B.	$-\frac{3}{2}$
	C.	1	D.	0
20.	$\lim_{\theta \to 0} \frac{\sin 3\theta}{\theta} =$ _____ .			
	A.	1	B.	3
	C.	0	D.	$\frac{1}{3}$
૨૦.	$\lim_{\theta \to 0} \frac{\sin 3\theta}{\theta} =$ _____ .			

	A.	1	B.	3
	C.	0	D.	$\frac{1}{3}$
21.	$\lim_{x \to 2} \frac{x^5 - 32}{x-2}$= _____.			
	A.	1	B.	16
	C.		D.	80
২১.	$\lim_{x \to 2} \frac{x^5 - 32}{x-2}$= _____.			
	A.	1	B.	16
	C.	5	D.	80
22.	$\lim_{n \to \infty} \left(\frac{6n^2 - 1}{2n^2 + 2}\right) =$ _____.			
	A.	∞	B.	0
	C.	1	D.	3
২২.	$\lim_{n \to \infty} \left(\frac{6n^2 - 1}{2n^2 + 2}\right) =$ _____.			
	A.	∞	B.	0
	C.	1	D.	3
23.	$\lim_{x \to 2} \frac{x^2 + 2}{2} =$ _____.			
	A.	2	B.	1
	C.	3	D.	0
২৩.	$\lim_{x \to 2} \frac{x^2 + 2}{2} =$ _____.			
	A.	2	B.	1
	C.	3	D.	0
24.	$\lim_{x \to 0} \frac{e^{2x} - 1}{x} =$ _____ .			
	A.	1	B.	$log_2 e$
	C.	$log_e 2$	D.	2
২৪.	$\lim_{x \to 0} \frac{e^{2x} - 1}{x} =$ _____ .			
	A.	1	B.	$log_2 e$
	C.	$log_e 2$	D.	2
25.	$\lim_{x \to 0} \frac{2x^2 + x - 3}{x - 3} =$ _____ .			
	A.	0	B.	3
	C.	2	D.	1
২৫.	$\lim_{x \to 0} \frac{2x^2 + x - 3}{x - 3} =$ _____ .			
	A.	0	B.	3
	C.	2	D.	1
26.	$\lim_{x \to 0} \frac{3 \sin x + 5x}{2x - tan\, x} =$ _____ .			
	A.	0	B.	5
	C.	3	D.	8
২৬.	$\lim_{x \to 0} \frac{3 \sin x + 5x}{2x - tan\, x} =$ _____ .			
	A.	0	B.	5
	C.	3	D.	8
27.	$\lim_{x \to \infty} \left(1 + \frac{5}{x}\right)^x =$ _____ .			
	A.	5	B.	e^5
	C.	0	D.	1
২৭.	$\lim_{x \to \infty} \left(1 + \frac{5}{x}\right)^x =$ _____ .			

	A.	5	B.	e^5
	C.	0	D.	1
28.	$\frac{d}{dx}$ (cosec x) = _____.			
	A.	sec x · tan x	B.	cosec x · cot x
	C.	– cosec x · cot x	D.	$\cot^2 x$
২৮.	$\frac{d}{dx}$ (cosec x) = _____.			
	A.	sec x · tan x	B.	cosec x · cot x
	C.	– cosec x · cot x	D.	$\cot^2 x$
29.	$\frac{d}{dx}(sin^{-1}x)$ = _____.			
	A.	$\frac{1}{\sqrt{1+x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{\sqrt{x^2-1}}$	D.	$\frac{1}{1-x^2}$
২৯.	$\frac{d}{dx}(sin^{-1}x)$ = _____.			
	A.	$\frac{1}{\sqrt{1+x^2}}$	B.	$\frac{1}{\sqrt{1-x^2}}$
	C.	$\frac{1}{\sqrt{x^2-1}}$	D.	$\frac{1}{1-x^2}$
30.	$\frac{d}{dx}(sin^{-1}x + cos^{-1}x)$ = _____.			
	A.	1	B.	0
	C.	–1	D.	$\frac{2}{\sqrt{1-x^2}}$
৩০.	$\frac{d}{dx}(sin^{-1}x + cos^{-1}x)$ = _____.			
	A.	1	B.	0
	C.	–1	D.	$\frac{2}{\sqrt{1-x^2}}$
31.	$\frac{d}{dx}(xe^x)$ = _____.			
	A.	e^x	B.	$e^x \cdot (x+1)$
	C.	$xe^x + x$	D.	$xe^x + 1$
৩১.	$\frac{d}{dx}(xe^x)$ = _____.			
	A.	e^x	B.	$e^x \cdot (x+1)$
	C.	$xe^x + x$	D.	$xe^x + 1$
32.	$\frac{d}{dx}(x^x)$ = _____.			
	A.	x^x (1 + $log\, x$)	B.	x^{x-1}
	C.	$x^x \log x$	D.	$x^{x-1}(1+\log x)$
৩২.	$\frac{d}{dx}(x^x)$ = _____.			
	A.	x^x (1 + $log\, x$)	B.	x^{x-1}
	C.	$x^x \log x$	D.	$x^{x-1}(1+\log x)$
33.	$\frac{d}{dx}\cos^2 x$ = _____.			
	A.	2 sin x · cos x	B.	sin 2x
	C.	– sin 2x	D.	$\sin^2 x$
৩৩.	$\frac{d}{dx}\cos^2 x$ = _____.			
	A.	2 sin x · cos x	B.	sin 2x
	C.	– sin 2x	D.	$\sin^2 x$
34.	If $y = x^4 - x^3 + x^2 - x + 1$ $then$ y_5= _____.			
	A.	1	B.	24

	C.	4	D.	0
૩૪.	જો $y = x^4 - x^3 + x^2 - x + 1$ હોય, તો y_5= _____.			
	A.	1	B.	24
	C.	4	D.	0
35.	If $y = r\sin\theta, x = r\cos\theta, r\ is\ constant,\ then\ \frac{dy}{dx}$= _____.			
	A.	$\frac{x}{y}$	B.	$-\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$-\frac{y}{x}$
૩૫.	જો $y = r\sin\theta, x = r\cos\theta, r$ અચળ છે, હોય, તો $\frac{dy}{dx}$= _____.			
	A.	$\frac{x}{y}$	B.	$-\frac{x}{y}$
	C.	$\frac{y}{x}$	D.	$-\frac{y}{x}$
36.	If $f(x) = \frac{x}{\cos x}$ then $f'(0)$ = _____.			
	A.	0	B.	1
	C.	2	D.	Non of above
૩૬.	જો $f(x) = \frac{x}{\cos x}$ હોય, તો $f'(0)$ = _____.			
	A.	0	B.	1
	C.	2	D.	Non of above
37.	If equation of motion of a particle s(t) = $t^3 - 6t^2 + 8t - 4$, velocity at t = 4 sec is _____.			
	A.	12m/sec	B.	8m/sec
	C.	12m/sec^2	D.	8m/sec^2
૩૭.	એક કણ માટે ગતિનું સમીકરણ s(t) = $t^3 - 6t^2 + 8t - 4$, હોય તો t = 4 સેકન્ડ માટે વેગ _____ થાય.			
	A.	12m/sec	B.	8m/sec
	C.	12m/sec^2	D.	8m/sec^2
38.	If y = $\frac{x-1}{x+1}$ $then\ \frac{dy}{dx}$= _____.			
	A.	$\frac{2}{(x+1)^2}$	B.	$\frac{-2}{(x+1)^2}$
	C.	$\frac{1}{(x+1)^2}$	D.	$\frac{-1}{(x+1)^2}$
૩૮.	જો y = $\frac{x-1}{x+1}$ હોય, તો $\frac{dy}{dx}$= _____.			
	A.	$\frac{2}{(x+1)^2}$	B.	$\frac{-2}{(x+1)^2}$
	C.	$\frac{1}{(x+1)^2}$	D.	$\frac{-1}{(x+1)^2}$
39.	Function $f(x)$, if _____then $f(x)$ has minima 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.	$f'(2) < 0, f"(2) < 0$
૩૯.	વિધેય $f(x)$ માટે , _____ હોય તો $f(x)$ ની કિમંત x = 2 આગળ ન્યુનતમ થાય.			
	A.	$f'(2) = 0, f"(2) > 0$	B.	$f'(2) = 0, f"(2) < 0$
	C.	$f'(2) < 0, f"(2) > 0$	D.	$f'(2) < 0, f"(2) < 0$
40.	$\frac{d}{dx}(x\log x)$ = _____.			
	A.	1+ $\log x$	B.	1 – $\log x$
	C.	$x + \log x$	D.	None of this

૪૦.	$\frac{d}{dx}(x \log x)$ = _____.			
	A.	$1+ \log x$	B.	$1 - \log x$
	C.	$x + \log x$	D.	None of this
41.	If $y = sin^{99}\left(\frac{\pi}{2}\right)$, then $\frac{dy}{dx}$ = _____.			
	A.	0	B.	100
	C.	99	D.	1
૪૧.	જો $y = sin^{99}\left(\frac{\pi}{2}\right)$, હોય, તો $\frac{dy}{dx}$ = _____.			
	A.	0	B.	100
	C.	99	D.	1
42.	$\frac{d}{dx}(log\sqrt{x^2 + a^2})$ = _____.			
	A.	$\frac{x}{\sqrt{x^2+a^2}}$	B.	$\frac{2x}{\sqrt{x^2 + a^2}}$
	C.	$\frac{2x}{x^2 + a^2}$	D.	$\frac{x}{x^2 + a^2}$
૪૨.	$\frac{d}{dx}(log\sqrt{x^2 + a^2})$ = _____.			
	A.	$\frac{x}{\sqrt{x^2+a^2}}$	B.	$\frac{2x}{\sqrt{x^2 + a^2}}$
	C.	$\frac{2x}{x^2 + a^2}$	D.	$\frac{x}{x^2 + a^2}$
43.	$\frac{d}{dx}(3sinx - 4sin^3x)$ = _____			
	A.	$-cos3x$	B.	$3cos3x$
	C.	$3cosx - 4cos^3x$	D.	$sin3x$
૪૩.	$\frac{d}{dx}(3sinx - 4sin^3x)$ = _____			
	A.	$-cos3x$	B.	$3cos3x$
	C.	$3cosx - 4cos^3x$	D.	$sin3x$
44.	$\int 3^x\, dx$ = _____+ C.			
	A.	3^x	B.	$3^x \log_e 3$
	C.	$3^x \log_3 e$	D.	$x \cdot 3^{x-1}$
૪૪.	$\int 3^x\, dx$ = _____+ C.			
	A.	3^x	B.	$3^x \log_e 3$
	C.	$3^x \log_3 e$	D.	$x \cdot 3^{x-1}$
45.	$\int \cot^2 x\, dx$ = _____ .			
	A.	– cosec x + c	B.	cosec x + c
	C.	cot x – x + c	D.	– cot x – x + c
૪૫.	$\int \cot^2 x\, dx$ = _____ .			
	A.	– cosec x + c	B.	cosec x + c
	C.	cot x – x + c	D.	– cot x – x + c
46.	$\int \frac{3x^2}{x^3+1}\, dx$ = _____.			
	A.	$log \mid x^3 + 1 \mid$ + c	B.	3 $log \mid x^3 + 1 \mid$ + c
	C.	$log \mid 3x^2 + 1 \mid$ + c	D.	$log \mid 3x^2 \mid$ + c
૪૬.	$\int \frac{3x^2}{x^3+1}\, dx$ = _____.			
	A.	$log \mid x^3 + 1 \mid$ + c	B.	3 $log \mid x^3 + 1 \mid$ + c
	C.	$log \mid 3x^2 + 1 \mid$ + c	D.	$log \mid 3x^2 \mid$ + c
47.	$\int_0^1 \frac{4}{1+x^2}\, dx$ = _____.			

	A.	π	B.	2π
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{2}$
४७.	$\int_0^1 \frac{4}{1+x^2}\ dx$ = _____.			
	A.	π	B.	2π
	C.	$\frac{\pi}{4}$	D.	$\frac{\pi}{2}$
48.	$\int_0^{\frac{\pi}{2}} log(\cot x)\ \ dx$ = _____.			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
४८.	$\int_0^{\frac{\pi}{2}} log(\cot x)\ \ dx$ = _____.			
	A.	0	B.	π
	C.	$\frac{\pi}{2}$	D.	$\frac{\pi}{4}$
49.	$\int \frac{1}{x^2-1}\ dx =$ _____ + C.			
	A.	$\frac{1}{2} log \left\|\frac{x-1}{x+1}\right\|$	B.	$sin^{-1}x$
	C.	$-sin^{-1}x$	D.	$\frac{1}{2} log \left\|\frac{x+1}{x-1}\right\|$
४९.	$\int \frac{1}{x^2-1}\ dx =$ _____ + C.			
	A.	$\frac{1}{2} log \left\|\frac{x-1}{x+1}\right\|$	B.	$sin^{-1}x$
	C.	$-sin^{-1}x$	D.	$\frac{1}{2} log \left\|\frac{x+1}{x-1}\right\|$
50.	$\int \frac{1}{3x-2}\ dx =$ _____+ C			
	A.	$\frac{1}{3} log\|3x-2\|$	B.	$3log\|3x-2\|+c$
	C.	$\frac{1}{3} log\|3x\|$	D.	$log\|3x-2\|$
५०.	$\int \frac{1}{3x-2}\ dx =$ _____+ C			
	A.	$\frac{1}{3} log\|3x-2\|$	B.	$3log\|3x-2\|+c$
	C.	$\frac{1}{3} log\|3x\|$	D.	$log\|3x-2\|$
51.	$\int_{-\pi}^{\pi} \sin x\ dx$ = _____ .			
	A.	0	B.	π
	C.	$-\cos x + c$	D.	2π
५१.	$\int_{-\pi}^{\pi} \sin x\ dx$ = _____ .			
	A.	0	B.	π
	C.	$-\cos x + c$	D.	2π
52.	$\int e^{3\log x}\ dx =$ _____ .			
	A.	$x^3 + c$	B.	$\frac{x^3}{3} + c$
	C.	$3x^2 + c$	D.	$\frac{x^4}{4} + c$
५२.	$\int e^{3\log x}\ dx =$ _____ .			
	A.	$x^3 + c$	B.	$\frac{x^3}{3} + c$

	C.	$3x^2 + c$	D.	$\frac{x^4}{4} + c$
53.	$\int_{-\pi}^{\pi} (\sin x + \tan x)\ dx$ = _____ .			
	A.	0	B.	1
	C.	2	D.	3
५३.	$\int_{-\pi}^{\pi} (\sin x + \tan x)\ dx$ = _____ .			
	A.	0	B.	1
	C.	2	D.	3
54.	$\int e^x \left(\frac{1}{x} - \frac{1}{x^2}\right)\ dx$ = _____ .			
	A.	$\frac{e^x}{x}$	B.	$\frac{e^x}{x^2}$
	C.	xe^x	D.	$(x-1)e^x$
५४.	$\int e^x \left(\frac{1}{x} - \frac{1}{x^2}\right)\ dx$ = _____ .			
	A.	$\frac{e^x}{x}$	B.	$\frac{e^x}{x^2}$
	C.	xe^x	D.	$(x-1)e^x$
55.	Area covered by the curve $x^2 + y^2 = 9$ is _____ .			
	A.	9π	B.	4π
	C.	81π	D.	9
५५.	JS| $x^2 + y^2 = 9$ äFZF W[ZFI[, 5|N[XG]\ 1F[+O/ _____ YFIPf			
	A.	9π	B.	4π
	C.	81π	D.	9
56.	$\int \frac{1}{x^2+25} dx$ = _____ + c			
	A.	$tan^{-1}\left(\frac{x}{5}\right)$	B.	$\frac{1}{5} tan^{-1}\left(\frac{x}{5}\right)$
	C.	$\frac{1}{5} tan^{-1}\left(\frac{5}{x}\right)$	D.	$tan^{-1}\left(\frac{5}{x}\right)$
५६.	$\int \frac{1}{x^2+25} dx$ = _____ + c			
	A.	$tan^{-1}\left(\frac{x}{5}\right)$	B.	$\frac{1}{5} tan^{-1}\left(\frac{x}{5}\right)$
	C.	$\frac{1}{5} tan^{-1}\left(\frac{5}{x}\right)$	D.	$tan^{-1}\left(\frac{5}{x}\right)$
57.	$\int sin^2x\ cosx\ dx$ = _____+c.			
	A.	$2sinx\ cos^2x - sin^3x$	B.	$2sinx - sin^2x$
	C.	$\frac{sinx}{3}$	D.	$\frac{sin^3x}{3}$
५७.	$\int sin^2x\ cosx\ dx$ = _____+c.			
	A.	$2sinx\ cos^2x - sin^3x$	B.	$2sinx - sin^2x$
	C.	$\frac{sinx}{3}$	D.	$\frac{sin^3x}{3}$
58.	Volume of solid generation by revolving region bounded by $y^2 = x, x = 1$ and $x = 2$ around X-asis is _____ .			
	A.	$\frac{3\pi}{2}\ unit$	B.	$\frac{\pi}{2}\ unit$
	C.	$\pi\ unit$	D.	None of this
५८.	$y^2 = x, x = 1$ VG[$x = 2$ J0[W[ZFI[,F 5|N[XG] X- V1F VF;5F; 5lZE|D6YL AGTF WGG] WGO/			

	_____ K[P			
	A.	$\frac{3\pi}{2}\ unit$	B.	$\frac{\pi}{2}\ unit$
	C.	$\pi\ unit$	D.	None of this
59.	$\int_0^1 e^x dx =$ _____ .			
	A.	e-1	B.	1-e
	C.	e	D.	-e
५९.	$\int_0^1 e^x dx =$ _____ .			
	A.	e-1	B.	1-e
	C.	e	D.	-e
60.	$\int \cot x\, dx$ = _____.			
	A.	log | sin x | + c	B.	log | cos x | + c
	C.	log | sec x | + c	D.	log |cosec x |+c
६०.	$\int \cot x\, dx$ = _____.			
	A.	log | sin x | + c	B.	log | cos x | + c
	C.	log | sec x | + c	D.	log |cosec x |+c
61.	Solution of the differential equation y $dx + xdy = 0\ is$ _____ .			
	A.	$x \cdot y = c$	B.	$x + y = c$
	C.	$x - y = c$	D.	None of these
६१.	lJS,Ÿ ;DLSZ6 y $dx + xdy = 0$ G]\ pS[,____ K[[P			
	A.	$x \cdot y = c$	B.	$x + y = c$
	C.	$x - y = c$	D.	None of these
62.	The order of the differential equation $x\frac{d^2y}{dx^2} - 5\left(\frac{dy}{dx}\right)^3 - 2y = 14$			
	A.	3	B.	2
	C.	1	D.	0
६२.	lJS,Ÿ ;DLSZ6 $x\frac{d^2y}{dx^2} - 5\left(\frac{dy}{dx}\right)^3 - 2y = 14$ GL S1FF ____ K[P			
	A.	3	B.	2
	C.	1	D.	0
63.	The degree of the differential equation $x^2\frac{dy}{dx} + sin\left(\frac{d^2y}{dx^2}\right) = 0$ is			
	A.	3	B.	2
	C.	1	D.	Not defined
६३.	lJS,Ÿ ;DLSZ6 $x^2\frac{dy}{dx} + sin\left(\frac{d^2y}{dx^2}\right) = 0$ G]\ 5ZLDF6 ____ K[P			
	A.	3	B.	2
	C.	1	D.	Not defined
64.	The degree of differential equation $\left(\frac{d^2y}{dx^2}\right)^2 - \left(\frac{dy}{dx}\right)^3 + y = 0$ is ___.			
	A.	4	B.	3
	C.	2	D.	1
६४.	lJS,Ÿ ;DLSZ6 $\left(\frac{d^2y}{dx^2}\right)^2 - \left(\frac{dy}{dx}\right)^3 + y = 0$ G]\ 5ZLDF6 ____ K[P			
	A.	4	B.	3
	C.	2	D.	1
65.	Differential equation of y = a cos(x+c) is _____ .			
	A.	$\frac{d^2y}{dx^2} - y = 0$	B.	$\frac{d^2y}{dx^2} + y = 0$
	C.	$\frac{d^2y}{dx^2} + a^2y = 0$	D.	None of these
६५.	y = a cos(x+c) G]\ lJS,Ÿ ;DLSZ6____ K[P			
	A.	$\frac{d^2y}{dx^2} - y = 0$	B.	$\frac{d^2y}{dx^2} + y = 0$

	C.	$\frac{d^2y}{dx^2} + a^2y = 0$	D.	None of these
66.	Which of the following is standard from of linear differential equation?			
	A.	$\frac{dy}{dx} + Py = Q$	B.	$\frac{d^2y}{dx^2} + Py = Q$
	C.	$\frac{dy}{dx} + Px = Q$	D.	None of these
६६.	GLR[5{SL ;]Z[B lJS,Ÿ ;DLSZ6 G]\ 5|DFl6T :J~5 SI] K[m			
	A.	$\frac{dy}{dx} + Py = Q$	B.	$\frac{d^2y}{dx^2} + Py = Q$
	C.	$\frac{dy}{dx} + Px = Q$	D.	None of these
67.	Which of the following is not the differential equation?			
	A.	xydy+xydx=1	B.	y=secx
	C.	$\frac{dy}{dx} + y = 0$	D.	$\frac{d^2y}{dx^2} + \frac{dy}{dx} = 0$
६७.	GLR[5{SL SI]\ lJS,Ÿ ;DLSZ6 GYLm			
	A.	xydy+xydx=1	B.	y=secx
	C.	$\frac{dy}{dx} + y = 0$	D.	$\frac{d^2y}{dx^2} + \frac{dy}{dx} = 0$
68.	Orders of differential equation $\frac{d^2y}{dx^2}$ + 4y = 0.			
	A.	1	B.	2
	C.	0	D.	None of the above
६८.	lJS,Ÿ ;DLSZ6 $\frac{d^2y}{dx^2}$ + 4y = 0 GL S1FF ____ K[P			
	A.	1	B.	2
	C.	0	D.	None of the above
69.	For differential equation $\frac{dy}{dx} + Py = Q$. I.F is_____			
	A.	$e^{-\int pdx}$	B.	$e^{\int pdx}$
	C.	$e^{\int Qdx}$	D.	None of the above
६९.	lJS,Ÿ ;DLSZ6 $\frac{dy}{dx} + Py = Q$, DF8[$I.F. =$ ____ K[P			
	A.	$e^{-\int Pdx}$	B.	$e^{\int Pdx}$
	C.	$e^{\int Qdx}$	D.	None of the above
70.	Integrating factor of the equation $\frac{dy}{dx} = ycotx + e^x$			
	A.	$\sec x$	B.	$\text{cosec}\, x$
	C.	$\cos x$	D.	e^x
७०.	$\frac{dy}{dx} = ycotx + e^x$ GM ;\S<ISFZS VJIJ ____ K[P			
	A.	$\sec x$	B.	$\text{cosec}\, x$
	C.	$\cos x$	D.	e^x

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