

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA ENGINEERING – SEMESTER – 2(C2D) • EXAMINATION – SUMMER - 2018

Subject Code: C320002**Date: 23-May-2018****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 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. પ્રશ્ન અને વિકલ્પો.

For complex number $z = 4 - 3i$, $|z| = \underline{\hspace{2cm}}$.

1. A. $\sqrt{5}$ B. -5
 C. 5 D. $-\sqrt{5}$

સંકર સંખ્યા $z = 4 - 3i$ માટે $|z| = \underline{\hspace{2cm}}$.

૧. A. $\sqrt{5}$ B. -5
 C. 5 D. $-\sqrt{5}$

 $1 + i + i^2 = \underline{\hspace{2cm}}$.

2. A. 1 B. i
 C. i^2 D. $-i$

 $1 + i + i^2 = \underline{\hspace{2cm}}$.

૨. A. 1 B. 1
 C. i^2 D. i^2

For $z = 3$, $\arg(z) = \underline{\hspace{2cm}}$.

3. A. π B. $-\pi$
 C. 0 D. $\pi/2$

 $z = 3$ માટે $\arg(z) = \underline{\hspace{2cm}}$.

૩. A. π B. $-\pi$
 C. 0 D. $\pi/2$

If $z_1 = 4 + 2i$ and $z_2 = 2 - 3i$ then $z_1 \cdot z_2 = \underline{\hspace{2cm}}$.

4. A. $14 + 8i$ B. $2 + 8i$
 C. $2 - 8i$ D. $14 - 8i$

જો $z_1 = 4 + 2i$ અને $z_2 = 2 - 3i$ તો $z_1 \cdot z_2 = \underline{\hspace{2cm}}$.

૪. A. $14 + 8i$ B. $2 + 8i$
 C. $2 - 8i$ D. $14 - 8i$

 $z\bar{z} = \underline{\hspace{2cm}}$.

5. A. $|z|^2$ B. $|z|$
 C. 0 D. $|\bar{z}|$

 $z\bar{z} = \underline{\hspace{2cm}}$.

૫. A. $|z|^2$ B. $|z|$
 C. 0 D. $|\bar{z}|$

For $z_1 = 5 + 2i$ and $z_2 = 3 - 4i$ then $z_1 + z_2 =$ _____.

6. A. $5 + 2i$ B. $8 + 2i$
C. $8 + i$ D. $8 - 2i$

જો $z_1 = 5 + 2i$ અને $z_2 = 3 - 4i$ તો $z_1 + z_2 =$ _____.

૬. A. $5 + 2i$ B. $8 + 2i$
C. $8 + i$ D. $8 - 2i$

If $z = 2 + 6i$ then $\bar{z} =$ _____.

7. A. $-2 + 6i$ B. $2 + 6i$
C. $2 - 6i$ D. $-2 - 6i$

$z = 2 + 6i$ માટે $\bar{z} =$ _____.

૭. A. $-2 + 6i$ B. $2 + 6i$
C. $2 - 6i$ D. $-2 - 6i$

For $z = \frac{1}{3 + 2i}$, $\text{Re}(z) =$ _____.

8. A. $-\frac{2}{13}$ B. $\frac{3}{13}$
C. 3 D. 2

$z = \frac{1}{3 + 2i}$ માટે, $\text{Re}(z) =$ _____.

૮. A. $-\frac{2}{13}$ B. $\frac{3}{13}$
C. 3 D. 2

If $3 - bi = a + 6i$ then $a =$ _____, $b =$ _____.

9. A. $3, -6$ B. $3, 6$
C. $-3, -6$ D. $-3, 6$

જો $3 - bi = a + 6i$ તો $a =$ _____, $b =$ _____.

૯. A. $3, -6$ B. $3, 6$
C. $-3, -6$ D. $-3, 6$

$(\cos \theta + i \sin \theta)^2 =$ _____.

10. A. $\cos 2\theta + i \sin 2\theta$ B. $\cos 2\theta - i \sin 2\theta$
C. $\cos \theta + i \sin \theta$ D. $\cos \theta - i \sin \theta$

$(\cos \theta + i \sin \theta)^2 =$ _____.

૧૦. A. $\cos 2\theta + i \sin 2\theta$ B. $\cos 2\theta - i \sin 2\theta$
C. $\cos \theta + i \sin \theta$ D. $\cos \theta - i \sin \theta$

$\lim_{x \rightarrow 0} \frac{\tan 3x}{6x} =$ _____.

11. A. $\frac{1}{2}$ B. 2
C. 3 D. 6

$\lim_{x \rightarrow 0} \frac{\tan 3x}{6x} =$ _____.

૧૧. A. $\frac{1}{2}$ B. 2
C. 3 D. 6

If $f(x) = 6x^2 - 11x + 3$ then $f(0) =$ _____.

12. A. 2 B. 3
C. 6 D. 14

$f(x) = 6x^2 - 11x + 3$ માટે $f(0) =$ _____.

૧૨. A. 2 B. 3
C. 6 D. 14

13. $\lim_{x \rightarrow 2} \frac{x^3 + 2}{x + 2} = \underline{\hspace{2cm}}$.
 A. 0
 C. 1
 B. 4
 D. 2
13. $\lim_{x \rightarrow 2} \frac{x^3 + 2}{x + 2} = \underline{\hspace{2cm}}$.
 A. 0
 C. 1
 B. 4
 D. 2
14. $\lim_{n \rightarrow \infty} \frac{9n^2 - 2n + 4}{3n^2 + 3n + 7} = \underline{\hspace{2cm}}$.
 A. 9
 C. 0
 B. 3
 D. 2
14. $\lim_{n \rightarrow \infty} \frac{9n^2 - 2n + 4}{3n^2 + 3n + 7} = \underline{\hspace{2cm}}$.
 A. 9
 C. 0
 B. 3
 D. 2
15. For $f(x) = \log_4 x$, $f(4) = \underline{\hspace{2cm}}$.
 A. 4
 C. 1
 B. 0
 D. 16
15. $f(x) = \log_4 x$ ။ $f(4) = \underline{\hspace{2cm}}$.
 A. 4
 C. 1
 B. 0
 D. 16
16. $\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} = \underline{\hspace{2cm}}$.
 A. $\frac{1}{2}$
 C. 2
 B. 2
 D. 0
16. $\lim_{x \rightarrow 0} \frac{e^x - 1}{2x} = \underline{\hspace{2cm}}$.
 A. $\frac{1}{2}$
 C. 2
 B. 2
 D. 0
17. $\lim_{x \rightarrow 3} \frac{x^4 - 81}{x - 3} = \underline{\hspace{2cm}}$.
 A. 3
 C. 27
 B. 0
 D. 81
17. $\lim_{x \rightarrow 3} \frac{x^4 - 81}{x - 3} = \underline{\hspace{2cm}}$.
 A. 3
 C. 27
 B. 0
 D. 81
18. $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = \underline{\hspace{2cm}}$.
 A. 1
 C. e
 B. 0
 D. $\frac{1}{e}$
18. $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x = \underline{\hspace{2cm}}$.
 A. 1
 C. e
 B. 0
 D. $\frac{1}{e}$
19. $\lim_{x \rightarrow 0} \frac{\sin 2x}{x} = \underline{\hspace{2cm}}$.

- A. 0
C. $\frac{1}{2}$
- B. 2
D. 1

$$\lim_{x \rightarrow 0} \frac{\sin 2x}{x} = \underline{\hspace{2cm}}.$$

16. A. 0
C. $\frac{1}{2}$
- B. 2
D. 1

$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2} = \underline{\hspace{2cm}}.$$

20. A. 1
C. 2
- B. 0
D. $\frac{1}{2}$

$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2} = \underline{\hspace{2cm}}.$$

20. A. 1
C. 2
- B. 0
D. $\frac{1}{2}$

$$\lim_{x \rightarrow 0} \frac{6^x - 1}{x} = \underline{\hspace{2cm}}.$$

21. A. 1
C. $\log 6$
- B. 0
D. $\log x$

$$\lim_{x \rightarrow 0} \frac{6^x - 1}{x} = \underline{\hspace{2cm}}.$$

21. A. 1
C. $\log 6$
- B. 0
D. $\log x$

If $f(x) = \log(\cos x) + 1$ then $f(0) = \underline{\hspace{2cm}}.$

22. A. 1
C. 0
- B. 2
D. ∞

$f(x) = \log(\cos x) + 1$ and $f(0) = \underline{\hspace{2cm}}.$

22. A. 1
C. 0
- B. 2
D. ∞

$$\frac{d}{dx}(x) = \underline{\hspace{2cm}}.$$

23. A. x
C. x^2
- B. 1
D. 0

$$\frac{d}{dx}(x) = \underline{\hspace{2cm}}.$$

23. A. x
C. x^2
- B. 1
D. 0

For $y = \cos x$, $\frac{d^2 y}{dx^2} = \underline{\hspace{2cm}}.$

24. A. $\cos x$
C. $-\cos x$
- B. $\sin x$
D. $-\sin x$

$y = \cos x$ and $\frac{d^2 y}{dx^2} = \underline{\hspace{2cm}}.$

24. A. $\cos x$
C. $-\cos x$
- B. $\sin x$
D. $-\sin x$

$$\frac{d}{dx}(\log x) = \underline{\hspace{2cm}}.$$

25. A. x
C. $\frac{-1}{x}$
- B. $-x$
D. $\frac{1}{x}$

- $\frac{d}{dx}(\log x) = \underline{\hspace{2cm}}$.
24. A. x B. $-x$
 C. $\frac{-1}{x}$ D. $\frac{1}{x}$
- If $y = x \sin x$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
26. A. $x \cos x - \sin x$ B. $x \cos x + \sin x$
 C. $-x \cos x + \sin x$ D. $\cos x + x \sin x$
- $y = x \sin x$ and $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
25. A. $x \cos x - \sin x$ B. $x \cos x + \sin x$
 C. $-x \cos x + \sin x$ D. $\cos x + x \sin x$
- $\frac{d}{dx}(\tan^{-1} x) = \underline{\hspace{2cm}}$.
27. A. $\frac{-1}{1+x^2}$ B. $\frac{-1}{1-x^2}$
 C. $\frac{1}{1+x^2}$ D. $\frac{1}{1-x^2}$
- $\frac{d}{dx}(\tan^{-1} x) = \underline{\hspace{2cm}}$
29. A. $\frac{-1}{1+x^2}$ B. $\frac{-1}{1-x^2}$
 C. $\frac{1}{1+x^2}$ D. $\frac{1}{1-x^2}$
- $\frac{d}{dx}\left(\frac{1+x}{1-x}\right) = \underline{\hspace{2cm}}$.
28. A. $\frac{2}{(1-x)^2}$ B. $\frac{2x}{(1-x)^2}$
 C. 1 D. 0
- $\frac{d}{dx}\left(\frac{1+x}{1-x}\right) = \underline{\hspace{2cm}}$.
28. A. $\frac{2}{(1-x)^2}$ B. $\frac{2x}{(1-x)^2}$
 C. 1 D. 0
- If $y = x^2 - 4$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
29. A. $2x - 4$ B. $2x + 4$
 C. $x - 4$ D. $2x$
- $y = x^2 - 4$ and $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
29. A. $2x - 4$ B. $2x + 4$
 C. $x - 4$ D. $2x$
- For $y = \sin 90^\circ$, $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
30. A. $\cos 90^\circ$ B. 1
 C. 0 D. $-\cos 90^\circ$
- $y = \sin 90^\circ$, and $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
30. A. $\cos 90^\circ$ B. 1
 C. 0 D. $-\cos 90^\circ$

31. $y = \sin \theta, x = \cos \theta$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
- A. $-\cot \theta$ B. $\cot \theta$
C. $\tan \theta$ D. $-\tan \theta$

32. $y = \sin \theta, x = \cos \theta$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
- A. $-\cot \theta$ B. $\cot \theta$
C. $\tan \theta$ D. $-\tan \theta$

32. $\frac{d}{dx}[\sin^2 x + \cos^2 x] = \underline{\hspace{2cm}}$.
- A. 1 B. 0
C. -1 D. 2

33. $\frac{d}{dx}[\sin^2 x + \cos^2 x] = \underline{\hspace{2cm}}$.
- A. 1 B. 0
C. -1 D. 2

33. $\frac{d}{dx}[\log(\tan x)] = \underline{\hspace{2cm}}$.
- A. $\tan x$ B. $\sec^2 x$
C. $\frac{1}{\sec x}$ D. $\frac{\sec^2 x}{\tan x}$

33. $\frac{d}{dx}[\log(\tan x)] = \underline{\hspace{2cm}}$.
- A. $\tan x$ B. $\sec^2 x$
C. $\frac{1}{\sec x}$ D. $\frac{\sec^2 x}{\tan x}$

34. If $x + y = 2x^2$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
- A. $4x - 1$ B. $4x$
C. $x - 1$ D. $2x - 1$

34. $x + y = 2x^2$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}$.
- A. $4x - 1$ B. $4x$
C. $x - 1$ D. $2x - 1$

35. The minimum value of a function $f(x) = \sin x$ is $\underline{\hspace{2cm}}$.
- A. 0 B. 1
C. -1 D. 2

35. $f(x) = \sin x$ ની ન્યૂનતમ કીમત $\underline{\hspace{2cm}}$ છે.
- A. 0 B. 1
C. -1 D. 2

36. The maximum value of a function $f(x) = \cos x$ is $\underline{\hspace{2cm}}$.
- A. 0 B. 1
C. -1 D. 2

36. $f(x) = \cos x$ ની મહત્તમ કીમત $\underline{\hspace{2cm}}$ છે.
- A. 0 B. 1
C. -1 D. 2

37. Equation of the motion of moving particle is given by $s = 2t^2 - 2t + 25$, then acceleration at $t = 1$ seconds is $\underline{\hspace{2cm}}$.
- A. 1 B. 4
C. 0 D. 3

37. એક ગતિ કરતા કણનું સમીકરણ $s = 2t^2 - 2t + 25$ છે, $t = 1$ સેકન્ડે તેનો પ્રવેગ $\underline{\hspace{2cm}}$ હશે.

- A. 1
C. 0
- B. 4
D. 3

Equation of the motion of moving particle is given by $s = t^2 + 3t + 13$, then velocity at $t = 2$ seconds is ____.

38. A. 7
C. 3
- B. 0
D. 9

એક ગતિ કરતા કણનું સમીકરણ $s = t^2 + 3t + 13$ છે, $t = 2$ સેકન્ડે તેનો વેગ ____ હશે

3૮. A. 7
C. 3
- B. 0
D. 9

If $y = e^{3x}$ then $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$.

39. A. $3e^x$
C. $3e^{2x}$
- B. $9e^{3x}$
D. $3e^{3x}$

$y = e^{3x}$ માટે $\frac{d^2y}{dx^2} = \underline{\hspace{2cm}}$.

3૯. A. $3e^x$
C. $3e^{2x}$
- B. $9e^{3x}$
D. $3e^{3x}$

If $y = e^{\sin x}$ then $\frac{dy}{dx} = \underline{\hspace{2cm}}$.

40. A. $e^{\sin x} \cos x$
C. $e^{\sin x}$
- B. $e^{\sin x} \tan x$
D. $e^{\sin x} \sec^2 x$

$y = e^{\sin x}$ માટે $\frac{dy}{dx} = \underline{\hspace{2cm}}$.

૪૦. A. $e^{\sin x} \cos x$
C. $e^{\sin x}$
- B. $e^{\sin x} \tan x$
D. $e^{\sin x} \sec^2 x$

$\int (\cos x + 2) dx = \underline{\hspace{2cm}}$.

41. A. $-\sin x + 2x + c$
C. $\sin x + 2x + c$
- B. $\sin x + x + c$
D. $-\sin x + x + c$

$\int (\cos x + 2) dx = \underline{\hspace{2cm}}$.

૪૧. A. $-\sin x + 2x + c$
C. $\sin x + 2x + c$
- B. $\sin x + x + c$
D. $-\sin x + x + c$

$\int 1 dx = \underline{\hspace{2cm}}$.

42. A. 0
C. $-x + c$
- B. $x + c$
D. $2x + c$

$\int 1 dx = \underline{\hspace{2cm}}$.

૪૨. A. 0
C. $-x + c$
- B. $x + c$
D. $2x + c$

$\int 2e^{2x} dx = \underline{\hspace{2cm}}$.

43. A. $e^{2x} + c$
C. $e^x + c$
- B. $2e^{2x} + c$
D. $e^{-2x} + c$

$\int 2e^{2x} dx = \underline{\hspace{2cm}}$.

૪૩. A. $e^{2x} + c$
C. $e^x + c$
- B. $2e^{2x} + c$
D. $e^{-2x} + c$

$\int \frac{f'(x)}{f(x)} dx = \underline{\hspace{2cm}}$.

44. A. $\log[f'(x)] + c$
C. $n[f(x)]^{n-1} + c$
- B. $\log|f(x)| + c$
D. $\log[f(x) + f'(x)] + c$

- $\int \frac{f'(x)}{f(x)} dx = \underline{\hspace{2cm}}$.
 88. A. $\log[f'(x)] + c$ B. $\log|f(x)| + c$
 C. $n[f(x)]^{n-1} + c$ D. $\log[f(x) + f'(x)] + c$
- $\int \frac{1}{1+x^2} dx = \underline{\hspace{2cm}}$.
 45. A. $-\tan^{-1} x + c$ B. $\tan x + c$
 C. $\tan^{-1} x + c$ D. $\tan x^2 + c$
- $\int \frac{1}{1+x^2} dx = \underline{\hspace{2cm}}$.
 84. A. $-\tan^{-1} x + c$ B. $\tan x + c$
 C. $\tan^{-1} x + c$ D. $\tan x^2 + c$
- $\int 4^x dx = \underline{\hspace{2cm}}$.
 46. A. $\frac{5^x}{\log_e 5}$ B. $\frac{4^x}{\log_e 4}$
 C. $4^x \log_e 4$ D. $7^x \log_e 8$
- $\int 4^x dx = \underline{\hspace{2cm}}$.
 89. A. $\frac{5^x}{\log_e 5}$ B. $\frac{4^x}{\log_e 4}$
 C. $4^x \log_e 4$ D. $7^x \log_e 8$
- $\int \frac{1}{25+x^2} dx = \underline{\hspace{2cm}}$.
 47. A. $\frac{1}{5} \tan^{-1} \frac{x}{5} + c$ B. $\frac{1}{5} \tan^{-1} x + c$
 C. $\tan^{-1} x + c$ D. $-\tan^{-1} x + c$
- $\int \frac{1}{25+x^2} dx = \underline{\hspace{2cm}}$.
 89. A. $\frac{1}{5} \tan^{-1} \frac{x}{5} + c$ B. $\frac{1}{5} \tan^{-1} x + c$
 C. $\tan^{-1} x + c$ D. $-\tan^{-1} x + c$
- $\int \sec^2 \theta d\theta = \underline{\hspace{2cm}}$.
 48. A. $\sec \theta + c$ B. $\sec^2 \theta + c$
 C. $-\sec \theta + c$ D. $\tan \theta + c$
- $\int \sec^2 \theta d\theta = \underline{\hspace{2cm}}$.
 88. A. $\sec \theta + c$ B. $\sec^2 \theta + c$
 C. $-\sec \theta + c$ D. $\tan \theta + c$
- $\int \frac{2x+3}{x^2+3x+11} dx = \underline{\hspace{2cm}}$.
 49. A. $\log|x^2-3x+11| + c$ B. $\log|x^2+3x| + c$
 C. $\log|x^2+3x+11| + c$ D. $\log|2x+3| + c$
- $\int \frac{2x+3}{x^2+3x+11} dx = \underline{\hspace{2cm}}$.
 88. A. $\log|x^2-3x+11| + c$ B. $\log|x^2+3x| + c$
 C. $\log|x^2+3x+11| + c$ D. $\log|2x+3| + c$

50. $\int \frac{1}{x+4} dx = \underline{\hspace{2cm}}$.
- | | |
|-----------------|------------------|
| A. $\log x +c$ | B. $\log x+4 +c$ |
| C. $\log 4x +c$ | D. $\log x-4 +c$ |

40. $\int \frac{1}{x+4} dx = \underline{\hspace{2cm}}$.
- | | |
|-----------------|------------------|
| A. $\log x +c$ | B. $\log x+4 +c$ |
| C. $\log 4x +c$ | D. $\log x-4 +c$ |

51. $\int_{-3}^3 x dx = \underline{\hspace{2cm}}$.
- | | |
|---------|--------|
| A. $9x$ | B. 0 |
| C. 1 | D. 9 |

49. $\int_{-3}^3 x dx = \underline{\hspace{2cm}}$.
- | | |
|---------|--------|
| A. $9x$ | B. 0 |
| C. 1 | D. 9 |

52. $\int_{-\pi}^{\pi} \cos x dx = \underline{\hspace{2cm}}$.
- | | |
|-----------|-----------|
| A. 0 | B. π |
| C. $-\pi$ | D. 2π |

42. $\int_{-\pi}^{\pi} \cos x dx = \underline{\hspace{2cm}}$.
- | | |
|-----------|-----------|
| A. 0 | B. π |
| C. $-\pi$ | D. 2π |

53. $\int \left[\frac{d}{dx}(\sqrt{\cos 4x}) \right] dx = \underline{\hspace{2cm}}$.
- | | |
|--------------------------|-----------------------------------|
| A. $\sqrt{\cos 4x} + c$ | B. $\frac{\sqrt{\cos 4x}}{4} + c$ |
| C. $4\sqrt{\cos 4x} + c$ | D. $\sqrt{\sin 4x} + c$ |

43. $\int \left[\frac{d}{dx}(\sqrt{\cos 4x}) \right] dx = \underline{\hspace{2cm}}$.
- | | |
|--------------------------|-----------------------------------|
| A. $\sqrt{\cos 4x} + c$ | B. $\frac{\sqrt{\cos 4x}}{4} + c$ |
| C. $4\sqrt{\cos 4x} + c$ | D. $\sqrt{\sin 4x} + c$ |

54. $\int 7(7x-6)^5 dx = \underline{\hspace{2cm}}$.
- | | |
|-----------------------------|-----------------------------|
| A. $\frac{(7x-6)^6}{6} + c$ | B. $\frac{(7x-6)^6}{7} + c$ |
| C. $(7x-6)^4 + c$ | D. $7(7x-6)^4 + c$ |

48. $\int 7(7x-6)^5 dx = \underline{\hspace{2cm}}$.
- | | |
|-----------------------------|-----------------------------|
| A. $\frac{(7x-6)^6}{6} + c$ | B. $\frac{(7x-6)^6}{7} + c$ |
| C. $(7x-6)^4 + c$ | D. $7(7x-6)^4 + c$ |

55. Area of the region bounded by the curves $y = x^2$ and lines $x = 0, x = 2$ is $\underline{\hspace{2cm}}$.

- | | |
|------------------|------------------|
| A. $\frac{4}{3}$ | B. $\frac{8}{3}$ |
| C. 2 | D. 0 |

વક્રો $y = x^2$ અને રેખાઓ $x=0, x=2$ થી આચ્છાદિત પ્રદેશનું ક્ષેત્રફળ _____ થશે .

૫૫. A. $\frac{4}{3}$ B. $\frac{8}{3}$
C. 2 D. 0

$\int (\operatorname{cosec}^2 x - \cot^2 x) dx = \underline{\hspace{2cm}}$.

56. A. $\tan x + c$ B. $x^2 + c$
C. $x + c$ D. $\cot x + c$

$\int (\operatorname{cosec}^2 x - \cot^2 x) dx = \underline{\hspace{2cm}}$.

૫૬. A. $\tan x + c$ B. $x^2 + c$
C. $x + c$ D. $\cot x + c$

Order of the differential equation $\left(\frac{d^3 y}{dx^3}\right)^2 - 3\frac{dy}{dx} + y = 0$ is _____.

57. A. 1 B. 2
C. 4 D. 3

વિકલ સમીકરણ $\left(\frac{d^3 y}{dx^3}\right)^2 - 3\frac{dy}{dx} + y = 0$ ની કક્ષા _____ છે.

૫૭. A. 1 B. 2
C. 4 D. 3

Degree of the differential equation $\left(\frac{d^2 y}{dx^2}\right)^2 - 3\left(\frac{dy}{dx}\right)^4 + 2y = 0$ is _____.

58. A. 2 B. 1
C. 3 D. 4

વિકલ સમીકરણ $\left(\frac{d^2 y}{dx^2}\right)^2 - 3\left(\frac{dy}{dx}\right)^4 + 2y = 0$ નું પરિમાણ _____ છે.

૫૮. A. 2 B. 1
C. 3 D. 4

Which of the following is not a differential equation?

59. A. $\cot x + y = 0$ B. $y' + y = \sin x$
C. $y'' + y = 0$ D. $y' + y = 0$

નીચેના માંથી કયું સમીકરણ વિકલ સમીકરણ નથી?

૫૯. A. $\cot x + y = 0$ B. $y' + y = \sin x$
C. $y'' + y = 0$ D. $y' + y = 0$

Solution of the differential equation $x dx - y dy = 0$ is _____.

60. A. $x^2 + y^2 = c$ B. $x + y = c$
C. $x^2 - y^2 = c$ D. $xy = c$

વિકલ સમીકરણ $x dx - y dy = 0$ નો ઉકેલ _____ છે.

૬૦. A. $x^2 + y^2 = c$ B. $x + y = c$
C. $x^2 - y^2 = c$ D. $xy = c$

Degree of the differential equation $y = \log\left(\frac{d^2 y}{dx^2}\right)$ is _____.

61. A. 1 B. 2
C. 0 D. Not defined.

વિકલ સમીકરણ $y = \log\left(\frac{d^2 y}{dx^2}\right)$ નું પરિમાણ _____ છે.

૬૧. A. 1 B. 2
C. 0 D. વ્યાખ્યાયિત નથી

- _____ is a solution of differential equation $\frac{dy}{dx} - y + 1 = 0$.
62. A. $y = e^x$ B. $y = e^x + 1$
C. $y = e^{2x} + 1$ D. $y = 2e^x$

_____ એ વિકલ સમીકરણ $\frac{dy}{dx} - y + 1 = 0$ નો ઉકેલ _____ છે.

૬૨. A. $y = e^x$ B. $y = e^x + 1$
C. $y = e^{2x} + 1$ D. $y = 2e^x$

For the linear differential equation $\frac{dy}{dx} - \frac{y \sin x}{x} = e^x$, $P(x) =$ _____ .

63. A. $-\frac{\sin x}{x}$ B. $\frac{\sin x}{x}$
C. $-x$ D. x

વિકલ સમીકરણ $\frac{dy}{dx} - \frac{y \sin x}{x} = e^x$ માટે $P(x) =$ _____ .

૬૩. A. $-\frac{\sin x}{x}$ B. $\frac{\sin x}{x}$
C. $-x$ D. x

The integrating factor (I.F.) of a differential equation $\frac{dy}{dx} + 2y = x^2$ is _____.

64. A. $2e^x$ B. e^{-2x}
C. e^{2x} D. $-e^{2x}$

વિકલ સમીકરણ $\frac{dy}{dx} + 2y = x^2$ નો સંકલ્પકારક અવયવ _____ છે.

૬૪. A. $2e^x$ B. e^{-2x}
C. e^{2x} D. $-e^{2x}$

For differential equation _____, $y = \cos x$ is one of the solution.

65. A. $\frac{dy}{dx} = y$ B. $\frac{dy}{dx} = 0$
C. $\frac{d^2y}{dx^2} = -y$ D. $\frac{d^2y}{dx^2} = y$

વિકલ સમીકરણ _____ માટે $y = \cos x$ એ એક ઉકેલ છે.

૬૫. A. $\frac{dy}{dx} = y$ B. $\frac{dy}{dx} = 0$
C. $\frac{d^2y}{dx^2} = -y$ D. $\frac{d^2y}{dx^2} = y$

Degree of homogeneous function is $f(x, y) = xy^2 + x^3 + yx^2$ _____.

66. A. 2 B. 3
C. 1 D. 0

સમ પરીમાણીય $f(x, y) = xy^2 + x^3 + yx^2$ વિષેય ની ઘાત _____ છે.

૬૬. A. 2 B. 3
C. 1 D. 0

I.F of the linear differential equation $\frac{dy}{dx} + y \cot x = \sin x$ is _____.

67. A. $\cot x$ B. $\sin x$
C. $\tan x$ D. $\cos x$

વિકલ સમીકરણ $\frac{dy}{dx} + y \cot x = \sin x$ નો સંકલ્પકારક અવયવ _____ છે.

૬૭. A. $\cot x$ B. $\sin x$

C. $\tan x$

D. $\cos x$

I.F of the linear differential equation $\frac{dy}{dx} + y = \cos x \cdot \cot x$ is _____.

68.

A. e^x

B. e^{-x}

C. $-e^{2x}$

D. $-e^x$

વિકલ સમીકરણ $\frac{dy}{dx} + y = \cos x \cdot \cot x$ નો સંકલ્પકારક અવયવ _____ છે.

૬૮.

A. e^x

B. e^{-x}

C. $-e^{2x}$

D. $-e^x$

_____ is a homogeneous function.

69.

A. $f(x, y) = x^3 + y$

B. $f(x, y) = x^2 - y^2$

C. $f(x, y) = x + xy$

D. $f(x, y) = 2x^4 + xy$

_____ એ સમ પરીમાણીય છે.

૬૯.

A. $f(x, y) = x^3 + y$

B. $f(x, y) = x^2 - y^2$

C. $f(x, y) = x + xy$

D. $f(x, y) = 2x^4 + xy$

$y = 2x - 5$ is a solution of the differential equation _____.

70.

A. $\frac{dy}{dx} = 2x$

B. $\frac{dy}{dx} = 0$

C. $\frac{d^2y}{dx^2} = 2$

D. $\frac{d^2y}{dx^2} = 0$

$y = 2x - 5$ એ _____ વિકલ સમીકરણ નો ઉકેલ છે.

૭૦.

A. $\frac{dy}{dx} = 2x$

B. $\frac{dy}{dx} = 0$

C. $\frac{d^2y}{dx^2} = 2$

D. $\frac{d^2y}{dx^2} = 0$
