

Seat No. \_\_\_\_\_

Enrolment No.: \_\_\_\_\_

# Gujarat Technological University

## Diploma Engineering C to D Bridge Course Examination

**Subject Code: C320002**

**Date: 02 -01 -2017**

**Subject Name: Advance mathematics (group-1)**

**Time: 02:30 PM TO 04:00 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.

If  $z$  is complex number  $z + \bar{z} =$

- |         |                            |
|---------|----------------------------|
| 1. A. 1 | B. $2\operatorname{Re}(z)$ |
| C. -1   | D. $2\operatorname{Im}(z)$ |

જો  $z$  સંકર સંખ્યા હોય તો  $z + \bar{z} =$

- |         |                            |
|---------|----------------------------|
| 1. A. 1 | B. $2\operatorname{Re}(z)$ |
| C. -1   | D. $2\operatorname{Im}(z)$ |

If  $z$  is complex number  $z \cdot \bar{z} =$

- |                     |                 |
|---------------------|-----------------|
| 2. A. Real number   | B. $i$          |
| C. Imaginary number | D. Not possible |

જો  $z$  સંકર સંખ્યા હોય તો  $z \cdot \bar{z} =$

- |                       |             |
|-----------------------|-------------|
| 2. A. વાસ્તવિક સંખ્યા | B. $i$      |
| C. કાલ્પનિક સંખ્યા    | D. શક્ય નથી |

$i^{19} =$

- |         |         |
|---------|---------|
| 3. A. 0 | B. $i$  |
| C. -1   | D. $-i$ |

$i^{19} =$

- |         |         |
|---------|---------|
| 3. A. 0 | B. $i$  |
| C. -1   | D. $-i$ |

If  $z_1 = 1 - 2i$ ,  $z_2 = 1 + 2i$  then  $\overline{z_1 + z_2} =$

- |          |       |
|----------|-------|
| 4. A. -2 | B. -1 |
| C. 1     | D. 2  |

જો  $z_1 = 1 - 2i$ ,  $z_2 = 1 + 2i$  ત૱િ  $\overline{z_1 + z_2} =$

- |          |       |
|----------|-------|
| 8. A. -2 | B. -1 |
| C. 1     | D. 2  |

$1 + i + i^2 + i^3 =$

- |         |        |
|---------|--------|
| 5. A. 1 | B. -1  |
| C. 0    | D. $i$ |

$1 + i + i^2 + i^3 =$

- |         |        |
|---------|--------|
| 6. A. 1 | B. -1  |
| C. 0    | D. $i$ |

$z = -5i$  then  $|\bar{z}| =$

- |          |        |
|----------|--------|
| 6. A. -5 | B. 5   |
| C. $-i$  | D. $i$ |

$z = -5i$  ત૱િ  $|\bar{z}| =$

- |          |        |
|----------|--------|
| 5. A. -5 | B. 5   |
| C. $-i$  | D. $i$ |

7. If  $z_1 = 2i$ ,  $z_2 = 2 - i$  then  $|z_1 \cdot z_2| =$

- |  |   |   |     |
|--|---|---|-----|
| A.   | 8   | B.  | -20 |
| C.   | 20  | D.  | -8  |
| $\forall z_1 = 2i, z_2 = 2 - i \text{ એ }  z_1 \cdot z_2  =$ |   |   |     |
| 9.   | A. 8<br>C. 20   | B. -20<br>D. -8   |     |
| If $z_1 = 3 - 2i, z_2 = -i$ then $z_1 \cdot z_2 =$           |   |   |     |
| 8.   | A. $3i - 2$<br>C. $3i + 2$  | B. $-3i - 2$<br>D. $-3i + 2$  |     |
| $\forall z_1 = 3 - 2i, z_2 = -i \text{ એ } z_1 \cdot z_2 =$  |   |   |     |
| 6.   | A. $3i - 2$<br>C. $3i + 2$  | B. $-3i - 2$<br>D. $-3i + 2$  |     |
| If $z_1 \cdot z_2 = 0$ then                                  |   |   |     |
| 9.   | A. $z_1 = 0$ or $z_2 = 0$<br>C. $z_1 = i, z_2 = -i$                     | B. $z_1 \neq 0, z_2 \neq 0$<br>D. None                                    |     |
| $\forall z_1 \cdot z_2 = 0 \text{ એ } z_1 \cdot z_2 =$       |   |   |     |
| 6.   | A. $z_1 = 0$ or $z_2 = 0$<br>C. $z_1 = 0$ or $z_2 = 0$                  | B. $z_1 \neq 0, z_2 \neq 0$<br>D. એક પણ નથી.                              |     |
| $(\cos\theta + i\sin\theta)^{-3} =$                          |   |   |     |
| 10.  | A. $\cos 3\theta + i\sin 3\theta$<br>C. $-\cos 3\theta - i\sin 3\theta$ | B. $\cos 3\theta + i\sin(-3\theta)$<br>D. $\cos 3\theta - i\sin 3\theta$  |     |
| $(\cos\theta + i\sin\theta)^{-3} =$                          |   |   |     |
| 10.  | A. $\cos 3\theta + i\sin 3\theta$<br>C. $\cos 3\theta - i\sin 3\theta$  | B. $\cos 3\theta + i\sin(-3\theta)$<br>D. $-\cos 3\theta - i\sin 3\theta$ |     |
| If $z = i$ then $Im(z) =$                                    |   |   |     |
| 11.  | A. 1<br>C. 0  | B. -1<br>D. $i$   |     |
| $\forall z = i \text{ એ } Im(z) =$                           |   |   |     |
| 11.  | A. 1<br>C. 0  | B. -1<br>D. $i$   |     |
| If $z = 1 + i$ then $\theta =$                               |   |   |     |
| 12.  | A. $\frac{\pi}{2}$<br>C. $\frac{\pi}{4}$                                | B. $-\frac{\pi}{2}$<br>D. $-\frac{\pi}{4}$                                |     |
| If $z = 1 + i$ એ $\theta =$                                  |   |   |     |
| 12.  | A. $\frac{\pi}{2}$<br>C. $\frac{\pi}{4}$                                | B. $-\frac{\pi}{2}$<br>D. $-\frac{\pi}{4}$                                |     |
| If $z = -4$ then $Im(z) =$                                   |   |   |     |
| 13.  | A. 0<br>C. -4   | B. 4<br>D. None   |     |
| $\forall z = -4 \text{ એ } Im(z) =$                          |   |   |     |
| 13.  | A. 0<br>C. -4   | B. 4<br>D. એક પણ નથી.   |     |
| If $z = 5 + 3i$ then $\bar{z} =$                             |   |   |     |
| 14.  | A. $5 + 3i$<br>C. $-5 - 3i$   | B. $-5 + 3i$<br>D. $5 - 3i$   |     |
| $\forall z = 5 + 3i \text{ એ } \bar{z} =$                    |   |   |     |
| 14.  | A. $5 + 3i$<br>C. $-5 - 3i$   | B. $-5 + 3i$<br>D. $5 - 3i$   |     |
| If $f(x) = 3x^3 - 2x + 1$ then $f(1) =$                      |   |   |     |
| 15.  | A. 0<br>C. 1  | B. 3<br>D. 2  |     |
| $\forall f(x) = 3x^3 - 2x + 1 \text{ એ } f(1) =$             |   |   |     |
| 15.  | A. 0  | B. 1  |     |

16. C. 2  
*If  $f(x) = x^2$ ,  $g(x) = x$  then  $f \circ g(1) =$*   
 A. 1 B. -1  
 C. 4 D. -4
17. A. 1 B. -1  
 C. 4 D. -4  
*If  $f(x) = \sin x + \cos x$  then  $f(\pi/2) =$*   
 A. 0 B. -1  
 C. 1 D. 2
18. A.  $f(x) - f(y)$  B.  $f(x) \cdot f(y)$   
 C.  $f(x) + f(y)$  D.  $f(x)/f(y)$   
*If  $f(x) = e^x$  ત્થા  $f(x+y) =$*   
 A.  $f(x) - f(y)$  B.  $f(x) \cdot f(y)$   
 C.  $f(x) + f(y)$  D.  $f(x)/f(y)$
19. A.  $\sin^2 x$  B.  $\cos^2 x$   
 C. 0 D. 1  
*If  $f(x) = x^2$  then  $f(\sin x) + f(\cos x) =$*   
 A.  $\sin^2 x$  B.  $\cos^2 x$   
 C. 0 D. 1
20. A. 1 B. -1  
 C. 2 D. None  
*If  $f(x) = (x+1)^{-1}$  then  $f(1) =$*   
 A. 1 B. -1  
 C. 2 D. એક પણ નિઃ.
21.  $\lim_{x \rightarrow 2} \frac{x^2 + 2x - 1}{x - 1} =$   
 A. 5 B. 6  
 C. 7 D. 8
22.  $\lim_{x \rightarrow 1} \frac{x^2 + 2x - 1}{x - 1} =$   
 A. 1 B. 0  
 C. -1 D. 2
23.  $\lim_{x \rightarrow -1} \frac{2x + 1}{x + 2} =$   
 A. 0 B. 1  
 C. -1 D. 2

23.  $\lim_{x \rightarrow -1} \frac{2x + 1}{x + 2} =$   
A. 0      B. 1  
C. -1      D. 2
24.  $\lim_{x \rightarrow \infty} \frac{8x^2 - 3x + 1}{4x^2 + 5x - 1} =$   
A. 2      B. 1  
C. 0      D. -2
28.  $\lim_{x \rightarrow \infty} \frac{8x^2 - 3x + 1}{4x^2 + 5x - 1} =$   
A. 2      B. 1  
C. 0      D. -2
25.  $\lim_{x \rightarrow 2} \frac{x}{\sqrt{2+x} - 1} =$   
A. 5      B. -3  
C. 2      D. 1
24.  $\lim_{x \rightarrow 2} \frac{x}{\sqrt{2+x} - 1} =$   
A. 5      B. -3  
C. 2      D. 1
26.  $\lim_{x \rightarrow 0} \frac{e^x + x \cos x - 1}{x} =$   
A. 0      B. 1  
C. -1      D. 2
25.  $\lim_{x \rightarrow 0} \frac{e^x + x \cos x - 1}{x} =$   
A. 0      B. 1  
C. -1      D. 2
27.  $\lim_{x \rightarrow 0} \frac{\sin 9x}{x} =$   
A.  $\cos x$       B. 9  
C.  $\sin x$       D. 0
29.  $\lim_{x \rightarrow 0} \frac{\sin 9x}{x} =$   
A.  $\cos x$       B. 9  
C.  $\sin x$       D. 0
28.  $\lim_{x \rightarrow 0} \frac{5^{2x} - 1}{x} =$   
A.  $\log 25$       B.  $\log 5$   
C. 25      D. 5
26.  $\lim_{x \rightarrow 0} \frac{5^{2x} - 1}{x} =$   
A.  $\log 25$       B.  $\log 5$   
C. 25      D. 5
29.  $\lim_{x \rightarrow \infty} \left(1 + \frac{3}{2x}\right)^x =$   
A.  $e^3$       B.  $e^2$   
C.  $e^{3/2}$       D.  $e^{2/3}$
26.  $\lim_{x \rightarrow \infty} \left(1 + \frac{3}{2x}\right)^x =$   
A.  $e^3$       B.  $e^2$   
C.  $e^{3/2}$       D.  $e^{2/3}$
30.  $\lim_{x \rightarrow \infty} \left(1 + \frac{x}{2}\right)^{1/x} =$

- |    |       |    |          |
|----|-------|----|----------|
| A. | $e^1$ | B. | $e^2$    |
| C. | $e^3$ | D. | $e^{-2}$ |
30.  $\lim_{x \rightarrow \infty} \left(1 + \frac{x}{2}\right)^{1/x} =$
- |    |       |    |          |
|----|-------|----|----------|
| A. | $e^1$ | B. | $e^2$    |
| C. | $e^3$ | D. | $e^{-2}$ |
- If  $f(x) = x^2$  then  $f'(2) =$
31. A. 1      B. 2  
C. 3      D. 4
- જો  $f(x) = x^2$  ત્થા  $f'(2) =$
32. A. 1      B. 2  
C. 3      D. 4
- If  $f(x) = e^{2x}$  then  $f'(x) =$
33. A.  $2e^{2x}$       B.  $2e^x$   
C.  $4e^{2x}$       D.  $4e^x$
- જો  $f(x) = e^{2x}$  ત્થા  $f'(x) =$
34. A.  $2e^{2x}$       B.  $2e^x$   
C.  $4e^{2x}$       D.  $4e^x$
- If  $f(x) = e^x + \log 5$  then  $f'(x) =$
35. A.  $e^x + 1/5$       B.  $e^x$   
C.  $e^x - 1$       D.  $e^x + 1$
- જો  $f(x) = e^x + \log 5$  ત્થા  $f'(x) =$
36. A.  $e^x + 1/5$       B.  $e^x$   
C.  $e^x - 1$       D.  $e^x + 1$
- If  $x = k\sin\theta, y = k\cos\theta$ , where  $k$  is constant then  $dy/dx =$
37. A.  $\cot\theta$       B.  $-\cot\theta$   
C.  $-\tan\theta$       D.  $\tan\theta$
- જો  $x = r\sin\theta, y = r\cos\theta$ , જ્યાં  $r$  અનુભાવ છે ત્થા  $dy/dx =$
38. A.  $\cot\theta$       B.  $-\cot\theta$   
C.  $-\tan\theta$       D.  $\tan\theta$
- If  $y = x + 5$  then  $y_2 =$
39. A. 5      B. 1  
C. -2      D. 0
- જો  $y = x + 5$  ત્થા  $y_2 =$
40. A. 5      B. 1  
C. -2      D. 0
- If  $x + y = 5$  then  $dy/dx =$
41. A.  $5 - x$       B. 5  
C. 0      D. -1
- જો  $x + y = 5$  ત્થા  $dy/dx =$
42. A.  $5 - x$       B. 5  
C. 0      D. -1
- If  $y = e^{x+9}$  then  $y_4 =$
43. A.  $e^x + 9$       B.  $e^{x+9}$   
C.  $e^x - 9$       D.  $e^x$
- જો  $y = e^{x+9}$  ત્થા  $y_4 =$
44. A.  $e^x + 9$       B.  $e^{x+9}$   
C.  $e^x - 9$       D.  $e^x$
- If  $y = \sin(\cos(e))$  then  $dy/dx =$
45. A. 0      B.  $-\cos(\cos(e))$   
C.  $\cos(\cos(e))$       D.  $\sin(\cos(e))$
- If  $y = \sin(\cos(e))$  then  $dy/dx =$
46. A. 0      B.  $-\cos(\cos(e))$   
C.  $\cos(\cos(e))$       D.  $\sin(\cos(e))$

39.  $\frac{d}{dx}\left(\frac{1}{x^{-1}}\right) =$
- A.  $\frac{1}{x^2}$       B.  $\frac{-1}{x^2}$   
 C.  $\frac{1}{x^{-2}}$       D. 1
36.  $\frac{d}{dx}\left(\frac{1}{x^{-1}}\right) =$
- A.  $\frac{1}{x^2}$       B.  $\frac{-1}{x^2}$   
 C.  $\frac{1}{x^{-2}}$       D. 1
40.  $\frac{d}{dx}(\log x^2) =$
- A.  $\frac{1}{x^2}$       B.  $\frac{2}{x^2}$   
 C.  $\frac{1}{x}$       D.  $\frac{2}{x}$
40.  $\frac{d}{dx}(\log x^2) =$
- A.  $\frac{1}{x^2}$       B.  $\frac{2}{x^2}$   
 C.  $\frac{2}{x}$       D.  $\frac{1}{x}$

Maximum value of the  $f(x) = x$  is

41. A. 1      B. -1  
 C. 0      D. Not possible

$f(x) = x$  ની મહત્વમાંકિત =

42. A. 1      B. -1  
 C. 0      D. શક્ય નથી

Manimum value of the  $f(x) = x^2 + x$  is

42. A. -100      B. 0  
 C. 5      D. 1

$f(x) = x^2 + x$  ની ન્યુનતમાંકિત =

42. A. -100      B. 0  
 C. 5      D. 1

For  $f'(t) = 0, f''(t) < 0$  then at  $x = t$   $f(x)$  is

43. A. 0      B. Maximum  
 C. Minimum      D. Not possible

$f'(t) = 0, f''(t) < 0$  માટે, તો  $x = t$  પાસે  $f(x)$

43. A. 0      B. મહત્વમાંક  
 C. ન્યુનતમાંક      D. શક્ય નથી

For  $f'(t) = 0, f''(t) = 0$  then at  $x = t$   $f(x)$  is

44. A. Maximum & Minimum      B. Maximum  
 C. Neither Maximum nor Minimum      D. Minimum

$f'(t) = 0, f''(t) = 0$  માટે, તો  $x = t$  પાસે  $f(x)$

44. A. મહત્વમાંક અને ન્યુનતમાંક      B. મહત્વમાંક  
 C. મહત્વમાંક અને ન્યુનતમાંક માંથી એક      D. ન્યુનતમાંક  
 પણ નહિ

45. If  $f(x) = x^2 + x - 1$  then  $f'(5) =$   
<http://www.gujaratstudy.com>

- |   |  |
|---|--|
| <p>A. 11<br/>C. 30<br/>જો <math>f(x) = x^2 + x - 1</math> તો <math>f'(5) =</math></p> <p>45. A. 11<br/>C. 30<br/><i>Equation of motion is <math>S(t) = 2t^3 + 3t^2 - 12t + 5</math> then velocity at <math>t = 2</math> sec is</i></p> <p>46. A. 18<br/>C. 22<br/><i>ગતિસૂત્ર <math>S(t) = 2t^3 + 3t^2 - 12t + 5</math> હોય તો <math>t = 2</math> માટે વેગા =</i></p> <p>47. A. 18<br/>C. 22<br/><i>Equation of motion is <math>S(t) = t^2 - 4t</math> then <math>v = 0</math> at <math>t =</math></i></p> <p>48. A. 2<br/>C. 3<br/><i>ગતિસૂત્ર <math>S(t) = t^2 - 4t</math> હોય તો <math>v = 0</math> ત્યારે <math>t =</math></i></p> <p>49. A. 2<br/>C. 3<br/><i>Equation of motion is <math>S(t) = -5t^3 + 15t + 3</math> then at <math>t = 2</math> acceleration <math>a =</math></i></p> <p>50. A. -5<br/>C. -30<br/><i>ગતિસૂત્ર <math>S(t) = -5t^3 + 15t + 3</math> હોય તો <math>t = 2</math> માટે પ્રવેગ <math>a =</math></i></p> <p>46. A. -5<br/>C. -30<br/><math>\int \sin(2x) dx =</math></p> <p>47. A. <math>\cos(2x) + c</math><br/>C. <math>(-\csc(2x)/2) + c</math><br/><math>\int \sin(2x) dx =</math></p> <p>48. A. <math>\cos(2x) + c</math><br/>C. <math>(-\csc(2x)/2) + c</math><br/><math>\int 2x \sin(x^2) dx =</math></p> <p>49. A. <math>-\cos(x^2) + c</math><br/>C. <math>-\csc(x^2) + c</math><br/><math>\int 2x \sin(x^2) dx =</math></p> <p>50. A. <math>-\cos(x^2) + c</math><br/>C. <math>-\csc(x^2) + c</math><br/><math>\int 2x \sin(x^2) dx =</math></p> <p>51. A. <math>\frac{3}{\log 3} + c</math><br/>C. <math>\frac{3}{\log 3^x} + c</math><br/><math>\int 3^x dx =</math></p> <p>52. A. <math>\frac{3}{\log 3} + c</math><br/>C. <math>\frac{3}{\log 3^x} + c</math><br/><math>\int \frac{\sin(\log x)}{x} dx =</math></p> | <p>B. 26<br/>D. 35<br/>B. 26<br/>D. 35<br/>B. 20<br/>D. 24<br/>B. 20<br/>D. 24<br/>B. 4<br/>D. 0<br/>B. 4<br/>D. 0<br/>B. -15<br/>D. -33<br/>B. -15<br/>D. -33<br/>B. <math>(-\cos(2x)/2) + c</math><br/>D. <math>-\csc(2x) + c</math><br/>B. <math>(-\cos(2x)/2) + c</math><br/>D. <math>-\csc(2x) + c</math><br/>B. <math>-\sec(x^2) + c</math><br/>D. <math>-\cot(x^2) + c</math><br/>B. <math>-\sec(x^2) + c</math><br/>D. <math>-\cot(x^2) + c</math><br/>B. <math>\frac{3^x}{\log 3^x} + c</math><br/>D. <math>\frac{3^x}{\log 3} + c</math><br/>B. <math>\frac{3^x}{\log 3^x} + c</math><br/>D. <math>\frac{3^x}{\log 3} + c</math></p> |
|---|--|

42.  $\int \frac{\sin(\log x)}{x} dx =$
- A.  $-\cos(\log x^2) + c$   
B.  $-\cos(\log x) + c$   
C.  $-\cos x \cdot \log x + c$   
D.  $-\cos x^2 \cdot \log x + c$
43.  $\int \frac{1}{x^2 - 4} dx =$
- A.  $\frac{1}{4} \log \left| \frac{x-a}{x+a} \right| + c$   
B.  $\frac{1}{4} \log \left| \frac{x+a}{x-a} \right| + c$   
C.  $\frac{1}{2} \log \left| \frac{x+a}{x-a} \right| + c$   
D.  $\frac{1}{2} \log \left| \frac{x-a}{x+a} \right| + c$
44.  $\int \frac{1}{x^2 - 4} dx =$
- A.  $\frac{1}{4} \log \left| \frac{x-a}{x+a} \right| + c$   
B.  $\frac{1}{4} \log \left| \frac{x+a}{x-a} \right| + c$   
C.  $\frac{1}{2} \log \left| \frac{x+a}{x-a} \right| + c$   
D.  $\frac{1}{2} \log \left| \frac{x-a}{x+a} \right| + c$
45.  $\int \tan x dx =$
- A.  $\log|\sin x| + c$   
B.  $\log|\cos x| + c$   
C.  $\log|\cot x| + c$   
D.  $\log|\sec x| + c$
46.  $\int \tan x dx =$
- A.  $\log|\sin x| + c$   
B.  $\log|\cos x| + c$   
C.  $\log|\cot x| + c$   
D.  $\log|\sec x| + c$
47.  $\int x^3 dx =$
- A.  $\frac{x^3}{3} + c$   
B.  $\frac{x^2}{2} + c$   
C.  $\frac{x^4}{4} + c$   
D.  $\frac{x^5}{5} + c$
48.  $\int x^3 dx =$
- A.  $\frac{x^3}{3} + c$   
B.  $\frac{x^2}{2} + c$   
C.  $\frac{x^4}{4} + c$   
D.  $\frac{x^5}{5} + c$
49.  $\int_0^{2\pi} \sin x \cdot \cos x dx =$
- A. 1  
B. 0  
C. -1  
D. 2
50.  $\int_0^{2\pi} \sin x \cdot \cos x dx =$
- A. 1  
B. 0  
C. -1  
D. 2
51.  $\int_0^{\pi/2} \log(\tan x) dx =$
- A. 0  
B. 2  
C. 4  
D. 1

49.  $\int_0^{\pi/2} \log(\tan x) dx =$
- A. 0      B. 2  
C. 4      D. 1
58.  $\int_1^e \frac{(\log x)^2}{x} dx =$
- A.  $\frac{1}{e}$       B.  $\frac{1}{3}$   
C.  $\frac{1}{3e}$       D.  $\frac{1}{2}$
46.  $\int_1^e \frac{(\log x)^2}{x} dx =$
- A.  $\frac{1}{e}$       B.  $\frac{1}{3}$   
C.  $\frac{1}{3e}$       D.  $\frac{1}{2}$
59.  $\int_0^1 \frac{2x}{x^2 + 3} dx =$
- A.  $\log \frac{3}{4}$       B.  $\log \frac{2}{3}$   
C.  $\log \frac{4}{3}$       D.  $\log \frac{3}{2}$
46.  $\int_0^1 \frac{2x}{x^2 + 3} dx =$
- A.  $\log \frac{3}{4}$       B.  $\log \frac{2}{3}$   
C.  $\log \frac{4}{3}$       D.  $\log \frac{3}{2}$
60.  $\int_0^{\pi/4} \cos x dx =$
- A.  $\frac{\pi}{4}$       B.  $\frac{\pi}{2}$   
C.  $\frac{1}{4}$       D.  $\frac{1}{\sqrt{2}}$
50.  $\int_0^{\pi/4} \cos x dx =$
- A.  $\frac{\pi}{4}$       B.  $\frac{\pi}{2}$   
C.  $\frac{1}{4}$       D.  $\frac{1}{\sqrt{2}}$
61. for differential equation  $\sqrt{\frac{d^2y}{dx^2}} + \left(\frac{dy}{dx}\right)^3 = 0$  order is =
- A. 0      B. 2  
C. 1      D. 3
51. ઇકલ સમીકરણ  $\sqrt{\frac{d^2y}{dx^2}} + \left(\frac{dy}{dx}\right)^3 = 0$  માટે કષા =
- A. 0      B. 2  
C. 1      D. 3
62. for differential equation  $\left(\frac{d^3y}{dx^3}\right)^5 + \left(\frac{dy}{dx}\right)^4 + 5 = 0$  degree is =

- A. 1  
C. 4

- B. 3  
D. 5

બેકલ સમીકરણ  $\left(\frac{d^3y}{dx^3}\right)^5 + \left(\frac{dy}{dx}\right)^4 + 5 = 0$  માટે પરિમાણ =

- A. 1  
C. 4

- B. 3  
D. 5

for  $x^2 - y^2 = 5$  differential equation is =

63. A.  $yy_1 = x$       B.  $y - y_1 = x$   
C.  $y + y_1 = x$       D.  $(y/y_1) = x$

$x^2 - y^2 = 5$  માટે બેકલ સમીકરણ =

63. A.  $yy_1 = x$       B.  $y - y_1 = x$   
C.  $y + y_1 = x$       D.  $(y/y_1) = x$

Solution of differential equation  $\frac{dy}{dx} = \frac{y}{x}$ , is =

64. A.  $y + x = c$       B.  $y - x = c$   
C.  $y = xc$       D.  $yx = c$

$\frac{dy}{dx} = \frac{y}{x}$  બેકલ સમીકરણ નો ઉકેલ =

64. A.  $y + x = c$       B.  $y - x = c$   
C.  $y = xc$       D.  $yx = c$

For differential equation  $\frac{dy}{dx} + Py = Q$ , I.F =

65. A.  $e^{\int Q dx}$       B.  $e^{\int -Q dx}$   
C.  $e^{\int -P dx}$       D.  $e^{\int P dx}$

બેકલ સમીકરણ  $\frac{dy}{dx} + Py = Q$  માટે, I.F =

65. A.  $e^{\int Q dx}$       B.  $e^{\int -Q dx}$   
C.  $e^{\int -P dx}$       D.  $e^{\int P dx}$

Solution of differential equation  $ydx + xdy = 0$ , is =

66. A.  $y - x = c$       B.  $y + x = c$   
C.  $yx = c$       D.  $y = xc$

$ydx + xdy = 0$  બેકલ સમીકરણ નો ઉકેલ =

66. A.  $y - x = c$       B.  $y + x = c$   
C.  $yx = c$       D.  $y = xc$

for differential equation  $\sqrt[4]{\frac{d^3y}{dx^3}} + \left(\frac{dy}{dx}\right)^2 - 45 = 0$  degree is =

67. A.  $\frac{1}{3}$       B.  $\frac{1}{4}$   
C.  $\frac{1}{2}$       D.  $\frac{1}{45}$

બેકલ સમીકરણ  $\sqrt[4]{\frac{d^3y}{dx^3}} + \left(\frac{dy}{dx}\right)^2 - 45 = 0$  માટે પરિમાણ =

67. A.  $\frac{1}{3}$       B.  $\frac{1}{4}$   
C.  $\frac{1}{2}$       D.  $\frac{1}{45}$

68. For differential equation  $\left(\frac{d^4y}{dx^4}\right)^{11} + \left(\frac{d^2y}{dx^2}\right)^{12} + \frac{dy}{dx} = 3$  order is =  
A. 4      B. 11  
C. 12      D. 2
56. ઇકલ સમીકરણ  $\left(\frac{d^4y}{dx^4}\right)^{11} + \left(\frac{d^2y}{dx^2}\right)^{12} + \frac{dy}{dx} = 3$  માટે કષાં =  
A. 4      B. 11  
C. 12      D. 2
- Solution of differential equation  $\frac{dy}{dx} = 1 + x + y + xy$ , is =  
69. A.  $(1+y) \cdot (1+x) = c$       B.  $(1+y) = (1+yx) + c$   
C.  $(1+xy) \cdot (1+x) = c$       D.  $(1+y) = (1+x)c$
- $\frac{dy}{dx} = 1 + x + y + xy$  ઇકલ સમીકરણ નો ઉકેલ =  
56. A.  $(1+y) \cdot (1+x) = c$       B.  $(1+y) = (1+yx) + c$   
C.  $(1+xy) \cdot (1+x) = c$       D.  $(1+y) = (1+x)c$
- Differential equation of  $y = ax + a^2$  is =  
70. A.  $\left(\frac{dy}{dx}\right)^2 + x\frac{dy}{dx} = y$       B.  $\left(\frac{dy}{dx}\right)^2 + x\frac{dy}{dx} = y^2$   
C.  $\left(\frac{dy}{dx}\right)^2 - x\frac{dy}{dx} = y$       D.  $\left(\frac{dy}{dx}\right)^3 + \frac{dy}{dx} = y^2$
- $y = ax + a^2$  નું ઇકલ સમીકરણ =  
70. A.  $\left(\frac{dy}{dx}\right)^2 + x\frac{dy}{dx} = y$       B.  $\left(\frac{dy}{dx}\right)^2 + x\frac{dy}{dx} = y^2$   
C.  $\left(\frac{dy}{dx}\right)^2 - x\frac{dy}{dx} = y$       D.  $\left(\frac{dy}{dx}\right)^3 + \frac{dy}{dx} = y^2$

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