Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

DIPLOMA ENGINEERING – SEMESTER-C to D Bridge Course EXAMINATION – Winter- 2019

Subject Code: C320003 Date: 03-01-2020

Subject Name: ADVANCED MATHEMATICS(GROUP-2)

Time: 02:30 PM TO 04:00 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 programmable & Communication aids are strictly prohibited.**
5. **Use of only simple calculator is permitted in Mathematics.**
6. **English version is authentic**.

No. Question Text and Option. પ્રશ્ન અને વિકલ્પો.

1. The distance between points A(0,-4) and B(2,-8)is _____units.

A. 20 B. $2\sqrt{5}$

C. $5\sqrt{2}$ D. $3\sqrt{2}$

૧. બિંદુઓ A(0,-4) અને B(2,-8) વચ્ચેનું અંતર _____એકમ છે.

A. 20 B. $2\sqrt{5}$

C. $5\sqrt{2}$ D. $3\sqrt{2}$

2. The locus of a point which is equidistance from the point (2,0) and the line x=-2 is_____

A. $x^2 = 8y$ B. $y^2 = 8x$

C. $y^2 = -8x$ D. $x^2 = -8y$

૨. રેખા x=-2 અને બિંદુ (2,0) થી સરખા અંતરે રહી ગતિ કરતા બિંદુનો બિંદુપથ_____છે.

A. $x^2 = 8y$ B. $y^2 = 8x$

C. $y^2 = -8x$ D. $x^2 = -8y$

3. The Circumcentre of the triangle having vertices (0,0), (5,0) and (0,12) is_____

A. $\left(6, \frac{5}{2}\right)$ B. $\left(\frac{5}{2}, 6\right)$

C. $(5, 12)$ D. $(12, 5)$

૩. (0,0), (5,0) અને (0,12) શિરોબિંદુઓવાળા ત્રિકોણનું પરિકેન્દ્ર _____છે.

A. $\left(6, \frac{5}{2}\right)$ B. $\left(\frac{5}{2}, 6\right)$

C. $(5, 12)$ D. $(12, 5)$

4. Slope of line $\overleftrightarrow{AB}$ passes from points A(-2,6) and B(3,-4) is _____.

A. $\frac{10}{5}$ B. $\frac{2}{5}$

C. $\frac{-2}{5}$ D. $\frac{-10}{5}$

૪. A(-2,6) અને B(3,-4) હોય તો રેખા AB નો ઢાળ _____છે.

A. $\frac{10}{5}$ B. $\frac{2}{5}$

C. $\frac{-2}{5}$ D. $\frac{-10}{5}$

5. The equation of the line passing through the point (1,5) and (3,-2) is _____.

A. $7x - 2y - 17 = 0$ B. $7x + 2y - 17 = 0$

C. $3x + 4y + 13 = 0$ D. $3x - 4y - 13 = 0$

બિંદુઓ (1,5) અને (3,-2) માંથી પસાર થતી રેખાનું સમીકરણ _____છે.

૫. A. $7x - 2y - 17 = 0$ B. $7x + 2y - 17 = 0$

C. $3x + 4y + 13 = 0$ D. $3x - 4y - 13 = 0$

The radius of the circle $x^2 + y^2 = 50$ is _____

6. A. $2\sqrt{5}$ B. $2\sqrt{2}$

C. $5\sqrt{2}$ D. $5\sqrt{5}$

વર્તુળ $x^2 + y^2 = 50$ ની ત્રિજ્યા _____છે.

૬. A. $2\sqrt{5}$ B. $2\sqrt{2}$

C. $5\sqrt{2}$ D. $5\sqrt{5}$

The equation of a circle passing through (3,4) and centred at (4,3) is _____

7. A. $x^2 + y^2 - 8x - 6y + 23 = 0$ B. $x^2 + y^2 - 6x - 8y - 23 = 0$

C. $x^2 + y^2 - 8x - 6y + 27 = 0$ D. $x^2 + y^2 - 8x - 6y - 27 = 0$

(4,3) કેંદ્રવાળા અને (3,4) માંથી પસાર થતા વર્તુળનું સમીકરણ _____છે.

૭. A. $x^2 + y^2 = 8x - 6y + 23 = 0$ B. $x^2 + y^2 - 6x - 8y - 23 = 0$

C. $x^2 + y^2 - 8x - 6y + 27 = 0$ D. $x^2 + y^2 - 8x - 6y - 27 = 0$

If the radius of the circle $x^2 + y^2 - 4x - 8y + k = 0$ is 4 then $k =$_____.

8. A. -4 B. 4

C. 2 D. -2

જો વર્તુળ $x^2 + y^2 - 4x - 8y + k = 0$ ની ત્રિજ્યા 4 હોય તો $k =$_____.

૮. A. -4 B. 4

C. 2 D. -2

If two lines $2x + 3y - 1 = 0$ and $kx + 3y - 5 = 0$ are parallel then $k =$_____

9. A. 2 B. -5

C. -1 D. 3

જો સુરેખાઓ $2x + 3y - 1 = 0$ અને $kx + 3y - 5 = 0$ પરસ્પર સમાંતર હોય તો $k =$_____

૯. A. 2 B. -5

C. -1 D. 3

X-intercept of the line $5x + 3y + 4 = 0$ is _____

10. A. $\frac{-5}{3}$ B. $\frac{-4}{5}$

C. $\frac{-3}{5}$ D. $\frac{-5}{4}$

રેખા $5x + 3y + 4 = 0$ માટે X-અંત:ખંડ _____છે.

૧૦. A. $\frac{-5}{3}$ B. $\frac{-4}{5}$

C. $\frac{-3}{5}$ D. $\frac{-5}{4}$

Centre of the circle $x^2 + y^2 = 18$ is _____

11. A. $(0, 3\sqrt{2})$ B. $(3\sqrt{2}, 0)$

C. $(0, 0)$ D. $(3\sqrt{2}, 3\sqrt{2})$

વર્તુળ $x^2 + y^2 = 18$ નું કેન્દ્ર _____છે.

૧૧. A. $(0, 3\sqrt{2})$ B. $(3\sqrt{2}, 0)$

C. $(0, 0)$ D. $(3\sqrt{2}, 3\sqrt{2})$

Equation of normal to the circle is $x^2 + y^2 - 2y - 7 = 0$ at point (2,3) is _____

12. A. $x + y - 1 = 0$ B. $x - y + 1 = 0$

C. $x - y - 5 = 0$ D. None of these

વર્તુળ $x^2 + y^2 - 2y - 7 = 0$ ના (2,3) બિંદુ આગળના અભિલંબનું સમીકરણ _____ છે.

૧૨. A. $x + y - 1 = 0$ B. $x - y + 1 = 0$

C. $x - y - 5 = 0$ D. None of these

13. Two lines having slopes m_1 and m_2 respectively are perpendicular if _____

A. $m_1 = m_2 + 1$ B. $m_1.m_2 = 1$

C. $m_1.m_2 = -1$ D. $m_1 = m_2$

બે લંબ રેખાઓ કે જેના ઢાળ અનુક્રમે m_1 અને m_2 હોય તો _____.

૧૩. A. $m_1 = m_2 + 1$ B. $m_1.m_2 = 1$

C. $m_1.m_2 = -1$ D. $m_1 = m_2$

The vertices of ΔABC are A(1,2), B(2,3) and C(p,5) and $m\angle A = \frac{\pi}{2}$ then p=_____

14. A. 2 B. 0

C. -2 D. 0,-2

ΔABC ના શિરોબિંદુઓ A(1,2), B(2,3) અને C(p,5) હોય અને $m\angle A = \frac{\pi}{2}$ તો p=_____

૧૪. A. 2 B. 0

C. -2 D. 0,-2

If $f(x) = \log x$ then $f(xy) =$ _____

15. A. $f(x).f(y)$ B. $f(x) + f(y)$

C. $f(x) - f(y)$ D. $\frac{f(x)}{f(y)}$

જો $f(x) = \log x$ હોય તો $f(xy) =$ _____

૧૫. A. $f(x).f(y)$ B. $f(x) + f(y)$

C. $f(x) - f(y)$ D. $\frac{f(x)}{f(y)}$

If $f(x) = e^x$ then $f'(0) =$ _____

16. A. 1 B. -1

C. e D. 0

જો $f(x) = e^x$ હોય તો $f'(0) =$ _____

૧૬. A. 1 B. -1

C. e D. 0

If $f(x) = \sin x$ then $f\left(\frac{\pi}{2} + x\right) =$ _____

17. A. $-\sin x$ B. $\cos x$

C. $-\cos x$ D. $\sin x$

જો $f(x) = \sin x$ હોય તો $f\left(\frac{\pi}{2} + x\right) =$ _____

૧૭. A. $-\sin x$ B. $\cos x$

C. $-\cos x$ D. $\sin x$

18. $\lim_{x \to 0} \frac{x}{\sin x} =$ _____

A. 0 B. $\sin x$

C. x D. 1

૧૮. $\lim_{x \to 0} \frac{x}{\sin x} =$ _____

A. 0 B. $\sin x$

C. x D. 1

19. $\lim_{x \to 3} \frac{x^3 - 27}{x - 3} =$ _____

A. 9 B. 27

C. 3 D. 0

১৯. $\lim_{x\to 3}\frac{x^3-27}{x-3}=$ _____

A. 9 B. 27

C. 3 D. 0

20. $\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n=$ _____

A. 1 B. e

C. $\frac{1}{e}$ D. $\log_e n$

২০. $\lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n=$ _____

A. 1 B. e

C. $\frac{1}{e}$ D. $\log_e n$

21. $\lim_{x\to 0}\frac{(1+x)^4-1}{x}=$ _____

A. 4 B. 5

C. 6 D. 7

২১. $\lim_{x\to 0}\frac{(1+x)^4-1}{x}=$ _____

A. 4 B. 5

C. 6 D. 7

22. $\lim_{x\to 4}\frac{x^2-2x-8}{x^2-5x+4}=$ _____

A. $\frac{1}{2}$ B. 0

C. -2 D. 2

২২. $\lim_{x\to 4}\frac{x^2-2x-8}{x^2-5x+4}=$ _____

A. $\frac{1}{2}$ B. 0

C. -2 D. 2

23. $\lim_{x\to 1}\frac{x^9-1}{x^7-1}=$ _____

A. $\frac{7}{9}$ B. $\frac{-7}{9}$

C. $\frac{9}{7}$ D. $\frac{-9}{7}$

২৩. $\lim_{x\to 1}\frac{x^9-1}{x^7-1}=$ _____

A. $\frac{7}{9}$ B. $\frac{-7}{9}$

C. $\frac{9}{7}$ D. $\frac{-9}{7}$

24. $\lim_{x\to 3}\frac{3-x}{\sqrt{3+x}-\sqrt{6}}=$ _____

A. $2\sqrt{6}$ B. 0

C. $-2\sqrt{6}$ D. None of these

$\lim_{x\to 3}\frac{3-x}{\sqrt{3+x}-\sqrt{6}}=$_____

২৪. A. $2\sqrt{6}$ B. 0

C. $-2\sqrt{6}$ D. None of these

$\lim_{x\to 0}\frac{e^x-1}{x}=$ _____

25. A. e B. 1

C. -1 D. 0

$\lim_{x\to 0}\frac{e^x-1}{x}=$ _____

২৫. A. e B. 1

C. -1 D. 0

$\lim_{x\to 0}\frac{\sin 7x}{\sin 4x}=$ _____

26. A. $\frac{7}{4}$ B. $\frac{4}{7}$

C. 11 D. 3

$\lim_{x\to 0}\frac{\sin 7x}{\sin 4x}=$ _____

২৬. A. $\frac{7}{4}$ B. $\frac{4}{7}$

C. 11 D. 3

$\frac{d}{dx}\sqrt[3]{x}=$ _____

27. A. $\frac{1}{3}x^{\frac{4}{3}}$ B. $3x^{\frac{4}{3}}$

C. $\frac{1}{3}x^{\frac{-2}{3}}$ D. $3x^{\frac{-2}{3}}$

$\frac{d}{dx}\sqrt[3]{x}=$ _____

২৭. A. $\frac{1}{3}x^{\frac{4}{3}}$ B. $3x^{\frac{4}{3}}$

C. $\frac{1}{3}x^{\frac{-2}{3}}$ D. $3x^{\frac{-2}{3}}$

$\frac{d}{dx}e^{2x+7}=$ _____

28. A. $e^{2x+7}2$ B. $14e^{2x+7}$

C. e^{2x+7} D. None of these

$\frac{d}{dx}e^{2x+7}=$ _____

২৮. A. $e^{2x+7}2$ B. $14e^{2x+7}$

C. e^{2x+7} D. None of these

$\frac{d}{dx}\sqrt{\cos x}=$ _____

29. A. $\sqrt{-\sin x}$ B. $\frac{1}{2\sqrt{\cos x}}$

C. $\frac{-\sin x}{2\sqrt{\cos x}}$ D. $\frac{-\cos x}{2\sqrt{\sin x}}$

$\frac{d}{dx}\sqrt{\cos x} = $ _____

૨૯. A. $\sqrt{-\sin x}$ B. $\frac{1}{2\sqrt{\cos x}}$

C. $\frac{-\sin x}{2\sqrt{\cos x}}$ D. $\frac{-\cos x}{2\sqrt{\sin x}}$

If $x = at^2$ and $y = 2at$ then $\frac{dy}{dx} = $ _____

30. A. t B. at

C. $\frac{a}{t}$ D. $\frac{1}{t}$

જો $x = at^2$ અને $y = 2at$ હોય તો $\frac{dy}{dx} = $ _____

૩૦. A. t B. at

C. $\frac{a}{t}$ D. $\frac{1}{t}$

$\frac{d}{dx}\left(\cos^3 x\right) = $ _____

31. A. $3x^2\cos^2 x$ B. $3\sin^3 x$

C. $-3\cos^2 x.\sin x$ D. $-\sin^3 x$

$\frac{d}{dx}\left(\cos^3 x\right) = $ _____

૩૧. A. $3x^2\cos^2 x$ B. $3\sin^3 x$

C. $-3\cos^2 x.\sin x$ D. $-\sin^3 x$

$\frac{d}{dx}3^{4x} = $ _____

32. A. $3^{4x}\log_e 3$ B. $4.3^{4x}\log_e 3$

C. $\log_e 3^{4x}$ D. None of these

$\frac{d}{dx}3^{4x} = $ _____

૩૨. A. $3^{4x}\log_e 3$ B. $4.3^{4x}\log_e 3$

C. $\log_e 3^{4x}$ D. None of these

$\frac{d}{dx}e^x.\sin x = $ _____

33. A. $e^x.\cos x$ B. $-e^x.\cos x + e^x\sin x$

C. $e^x.\cos x + e^x\sin x$ D. None of these

$\frac{d}{dx}e^x.\sin x = $ _____

૩૩. A. $e^x.\cos x$ B. $-e^x.\cos x + e^x\sin x$

C. $e^x.\cos x + e^x\sin x$ D. None of these

$\frac{d}{dx}\cos ecx = $ _____

34. A. $\cot^2 x$ B. $-\cos ecx.\cot x$

C. $\cos ecx.\cot x$ D. $-\cos ecx.\tan x$

$\frac{d}{dx}\cos ecx = $ _____

૩૪. A. $\cot^2 x$ B. $-\cos ecx.\cot x$

C. $\cos ecx.\cot x$ D. $-\cos ecx.\tan x$

35. $\frac{d}{dx}\sin^{-1}\left(2x^2\right) =$ _____

A. $\frac{2x}{\sqrt{1-2x^2}}$ B. $\frac{2x}{\sqrt{1-4x^2}}$

C. $\frac{4x}{\sqrt{1-4x^2}}$ D. $\frac{4x}{\sqrt{1+4x^2}}$

૩૫. $\frac{d}{dx}\sin^{-1}\left(2x^2\right) =$ _____

A. $\frac{2x}{\sqrt{1-2x^2}}$ B. $\frac{2x}{\sqrt{1-4x^2}}$

C. $\frac{4x}{\sqrt{1-4x^2}}$ D. $\frac{4x}{\sqrt{1+4x^2}}$

36. $\frac{d}{dx}\left(\frac{\log x}{x}\right) =$ _____

A. $\frac{1+\log x}{x^2}$ B. $\frac{1-\log x}{x^2}$

C. $\frac{x\log x-\log x}{x^2}$ D. None of these

૩૬. $\frac{d}{dx}\left(\frac{\log x}{x}\right) =$ _____

A. $\frac{1+\log x}{x^2}$ B. $\frac{1-\log x}{x^2}$

C. $\frac{x\log x-\log x}{x^2}$ D. None of these

37. $\frac{d}{dx}\tan^{-1} x =$ _____

A. $\frac{1}{1+x^2}$ B. $\frac{1}{1-x^2}$

C. $\frac{1}{\sqrt{1-x^2}}$ D. $-\frac{1}{1-x^2}$

૩૭. $\frac{d}{dx}\tan^{-1} x =$ _____

A. $\frac{1}{1+x^2}$ B. $\frac{1}{1-x^2}$

C. $\frac{1}{\sqrt{1-x^2}}$ D. $-\frac{1}{1-x^2}$

38. Minimum value of $f(x) = x^2 - 4x + 2$ is _____

A. 1 B. -2

C. 2 D. -1

૩૮. $f(x) = x^2 - 4x + 2$ નું ન્યૂનત્તમ મૂલ્ય _____છે.

A. 1 B. -2

C. 2 D. -1

39. The equation of motion of a particle $s = t^3 - 6t^2 - 15t$ then the velocity of the particle will be zero at $t =$ _____

A. -5 B. 3

C. -3 D. 5

૩૯. એક કણનું ગતિસૂત્ર $s = t^3 - 6t^2 - 15t$ છે, તો તે કણનો વેગ $t =$ _____ સમયે શૂન્ય થાય.

A. -5 B. 3

C. -3 D. 5

Maximum value of $f(x)=x^3-3x+11$ is_____

40. A. 9 B. 6
C. 13 D. -6

$f(x)=x^3-3x+11$ નું મહત્તમ મૂલ્ય _____છે.

૪૦. A. 9 B. 6
C. 13 D. -6

Minimum value of $f(x)=\sin x+\cos x,\ x\in\left[0,\frac{\pi}{2}\right]$ is _____

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

$f(x)=\sin x+\cos x,\ x\in\left[0,\frac{\pi}{2}\right]$ નું ન્યૂનત્તમ મૂલ્ય _____છે.

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

The equation of motion of a particle is $s=t^3-3t^2+4t+3$,It's velocity at $t=2$ is_____

42. A. 6 B. 4
C. -4 D. -6

એક કણનું ગતિસૂત્ર $s=t^3-3t^2+4t+3$ છે, અને $t=2$ સેકન્ડ હોય તો તે કણનો વેગ_____થાય.

૪૨.
A. 6 B. 4
C. -4 D. -6

If $y=\log\sin x$, then $\frac{dy}{dx}=$ _____

43. A. $\cos x$ B. $\cot x$
C. $\frac{1}{\sin x}$ D. $\log\cos x$

જો $y=\log\sin x$, હોય તો $\frac{dy}{dx}=$ _____

૪૩. A. $\cos x$ B. $\cot x$
C. $\frac{1}{\sin x}$ D. $\log\cos x$

$\frac{d}{dx}\left(\sin^{-1}x+\cos^{-1}x\right)=$ _____

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

$\frac{d}{dx}\left(\sin^{-1}x+\cos^{-1}x\right)=$ _____

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

45. $\int\frac{1}{x^2+4}dx=$ _____$+c$

A. $\frac{1}{2}\tan^{-1}\frac{x}{2}$ B. $\frac{1}{4}\tan^{-1}\frac{x}{4}$

C. $\frac{1}{2}\tan^{-1}x$ D. $\frac{1}{4}\tan^{-1}\frac{x}{2}$

$\int \frac{1}{x^2+4}dx = \_\_\_\_\_ + c$

৪৭. A. $\frac{1}{2}\tan^{-1}\frac{x}{2}$ B. $\frac{1}{4}\tan^{-1}\frac{x}{4}$

C. $\frac{1}{2}\tan^{-1}x$ D. $\frac{1}{4}\tan^{-1}\frac{x}{2}$

$\int \frac{\log x}{x}dx = \_\_\_\_\_ + c$

46. A. $\log|x|$ B. $\left[\log|x|\right]^2$

C. $\frac{1}{2}(\log x)^2$ D. e^x

$\int \frac{\log x}{x}dx = \_\_\_\_\_ + c$

৪৬. A. $\log|x|$ B. $\left[\log|x|\right]^2$

C. $\frac{1}{2}(\log x)^2$ D. e^x

$\int \frac{dx}{\sqrt{x^2-a^2}} = \_\_\_\_\_ + c$

47. A. $\log\left|x-\sqrt{x^2-a^2}\right|$ B. $\log\left|x+\sqrt{x^2-a^2}\right|$

C. $\log\left|x+\sqrt{x^2+a^2}\right|$ D. $\log\left|x-\sqrt{x^2+a^2}\right|$

$\int \frac{dx}{\sqrt{x^2-a^2}} = \_\_\_\_\_ + c$

৪৩. A. $\log\left|x-\sqrt{x^2-a^2}\right|$ B. $\log\left|x+\sqrt{x^2-a^2}\right|$

C. $\log\left|x+\sqrt{x^2+a^2}\right|$ D. $\log\left|x-\sqrt{x^2+a^2}\right|$

$\int \cos ec^2 x dx = \_\_\_\_\_ + c$

48. A. $-\cos ecx.\cot x$ B. $\cot x$

C. $-\cot x$ D. $\tan x$

$\int \cos ec^2 x dx = \_\_\_\_\_ + c$

৪৮. A. $-\cos ecx.\cot x$ B. $\cot x$

C. $-\cot x$ D. $\tan x$

$\int x^4 dx = \_\_\_\_\_ + c$

49. A. $\frac{x^5}{5}$ B. $4x^3$

C. x^5 D. $4x^5$

$\int x^4 dx = \_\_\_\_\_ + c$

৪৫. A. $\frac{x^5}{5}$ B. $4x^3$

C. x^5 D. $4x^5$

50. $\int_1^3 \frac{1}{x}dx = \_\_\_\_\_$

A. $\log 2$ B. $\log 3$

C. 0 *D.* $\log 4$

૫૦. $\int_1^3 \frac{1}{x}dx = \_\_\_\_\_$

A. $\log 2$ B. $\log 3$

C. 0 *D.* $\log 4$

51. $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x dx = \_\_\_\_\_$

A. 2 B. -2

C. 0 D. 1

૫૧. $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \cos x dx = \_\_\_\_\_$

A. 2 B. -2

C. 0 D. 1

52. $\int_0^1 xe^x dx = \_\_\_\_\_$

A. e B. 0

C. $e-1$ D. 1

૫૨. $\int_0^1 xe^x dx = \_\_\_\_\_$

A. e B. 0

C. $e-1$ D. 1

53. If $\int_0^1 \left(3x^2+2x+k\right)dx = 0$ then $k = \_\_\_\_\_$

A. 2 B. 1

C. 4 D. -2

૫૩. જો $\int_0^1 \left(3x^2+2x+k\right)dx = 0$ હોય તો $k = \_\_\_\_\_$

A. 2 B. 1

C. 4 D. -2

54. $\int \frac{\sin(\log x)}{x}dx = \_\_\_\_\_ + c$

A. $\cos(\log x)$ B. $-\cos(\log x)$

C. $\frac{-\cos(\log x)}{x^2}$ D. None of these

૫૪. $\int \frac{\sin(\log x)}{x}dx = \_\_\_\_\_ + c$

A. $\cos(\log x)$ B. $-\cos(\log x)$

C. $\frac{-\cos(\log x)}{x^2}$ D. None of these

55. The area enclosed by the curve $y = x^2$,the x-axis and the $x = 2$ is_____units.

A. $\frac{8}{3}$ B. $\frac{16}{3}$

C. $\frac{32}{3}$ D. $\frac{64}{3}$

૫૫. વક્ર $y = x^2$, x-અક્ષ અને $x = 2$ વડે ઘેરાયેલા પ્રદેશનું ક્ષેત્રફળ _____ એકમ થાય.

A. $\frac{8}{3}$ B. $\frac{16}{3}$

C. $\frac{32}{3}$ D. $\frac{64}{3}$

56. The area of the standard circle $x^2 + y^2 = a^2, (a>0)$=_____

A. $2\pi a$ B. πa^2

C. πa^3 D. $\frac{\pi a^2}{4}$

૫૬. વર્તુળ $x^2 + y^2 = a^2, (a>0)$ નું ક્ષેત્રફળ _____ થાય.

A. $2\pi a$ B. πa^2

C. πa^3 D. $\frac{\pi a^2}{4}$

57. $\int \frac{x^2+3x-4}{x-1} dx = \_\_\_\_\_ + c$

A. $\frac{1}{3}x^2 + x^2 - 4x$ B. $\frac{1}{2}x^2 + 4x$

C. $\frac{1}{4}x^2 + 4x$ D. $2(x+2).\log|x-1|$

૫૭. $\int \frac{x^2+3x-4}{x-1} dx = \_\_\_\_\_ + c$

A. $\frac{1}{3}x^2 + x^2 - 4x$ B. $\frac{1}{2}x^2 + 4x$

C. $\frac{1}{4}x^2 + 4x$ D. $2(x+2).\log|x-1|$

58. $\int_{-1}^{1} \frac{dx}{1+x^2} = \_\_\_\_\_ + c$

A. $\frac{\pi}{4}$ B. $\frac{\pi}{2}$

C. π D. 0

૫૮. $\int_{-1}^{1} \frac{dx}{1+x^2} = \_\_\_\_\_ + c$

A. $\frac{\pi}{4}$ B. $\frac{\pi}{2}$

C. π D. 0

59. $\int a^x dx = \_\_\_\_\_ + c$

A. xa^{x-1} B. $\frac{\log a}{a^x}$

C. $\frac{a^x}{\log a}$ D. a^x

૫૯. $\int a^x dx = \_\_\_\_\_ + c$

A. xa^{x-1} B. $\frac{\log a}{a^x}$

C. $\frac{a^x}{\log a}$ D. a^x

Volume of solid generated by revolving region bounded by $y = f_1(x)$ and $y = f_2(x)$ around X-axis is $V = |I|$ where $I =$ _____

60. A. $\pi\int\left[\{f_1(x)\}^2 + \{f_2(x)\}^2\right]dx$ unit B. $\pi\int\left[\{f_1(x)\}^2 - \{f_2(x)\}^2\right]dx$ unit
C. $-\pi\int\left[\{f_1(x)\}^2 - \{f_2(x)\}^2\right]dx$ unit D. $-\pi\int\left[\{f_1(x)\}^2 + \{f_2(x)\}^2\right]dx$ unit

$y = f_1(x)$ અને $y = f_2(x)$ થી ઘેરાયેલા પ્રદેશને X-અક્ષની આજુબાજુ ઘુમાવતા બનતા ઘનપદાર્થનું ઘનફળ $V = |I|$ જ્યાં $I =$ _____

૬૦. A. $\pi\int\left[\{f_1(x)\}^2 + \{f_2(x)\}^2\right]dx$ unit B. $\pi\int\left[\{f_1(x)\}^2 - \{f_2(x)\}^2\right]dx$ unit
C. $-\pi\int\left[\{f_1(x)\}^2 - \{f_2(x)\}^2\right]dx$ unit D. $-\pi\int\left[\{f_1(x)\}^2 + \{f_2(x)\}^2\right]dx$ unit

Mode of the observation 11,2,7,3,5,7,6,10,9,7 and 8 is_____

61. A. 11 B. 9
C. 7 D. 3

માહિતિના અવલોકનો 11,2,7,3,5,7,6,10,9,7 અને 8 હોય તો તેનો બહુલક _____થાય.

૬૧. A. 11 B. 9
C. 7 D. 3

From given 12 observations if $\sum X_i = 102$ and $\sum X_i^2 = 1542$ then standard deviation is _____

62. A. 11.34 B. 56.25
C. 38.33 D. 7.50

આપેલા 12 અવલોકનો માટે જો $\sum X_i = 102$ અને $\sum X_i^2 = 1542$ હોય તો પ્રમાણિત વિચલન _____ થાય.

૬૨. A. 11.34 B. 56.25
C. 38.33 D. 7.50

If the standard deviation of the variable x is12 and if $y = \frac{2x+3}{4}$, then the standard deviation of y is_____

63. A. 6 B. 4
C. 3 D. 24

જો x નું પ્રમાણિત વિચલન 12 હોય અને જો $y = \frac{2x+3}{4}$, હોય તો y નું પ્રમાણિત વિચલન _____ છે.

૬૩. A. 6 B. 4
C. 3 D. 24

For a frequency distribution $n = 5, \sum x_i = 275$ and $\sum x_i^2 = 15625$ then the standard deviation of the frequency distribution is _____

64. A. 12 B. 10
C. 15 D. 5

આવૃત્તિ વિતરણ માટે $n = 5, \sum x_i = 275$ અને $\sum x_i^2 = 15625$ હોય તો આપેલ આવૃત્તિ વિતરણનું પ્રમાણિત વિચલન _____ છે.

૬૪. A. 12 B. 10
C. 15 D. 5

Mode of the following frequency distribution of children of 50 families=_____

65.

No. Of children	0	1	2	3	4
No. of families	12	20	10	6	2

A. 20 B. 2
C. 1 D. 4

50 કુટુંબના બાળકોનું આવૃત્તિ વિતરણ આપેલ છે,તો તેનો બહુલક _____થાય.

૬૫. A. 20 B. 2
C. 1 D. 4

Median of the following observations=_____

66. 8,3,5,12,9,14,17,1,7
A. 9 B. 17
C. 8 D. 14

માહિતિના અવલોકનો 8,3,5,12,9,14,17,1,7 હોય તો તેનો મધ્યસ્થ _____થાય.

૬૬. A. 9 B. 17
C. 8 D. 14

For a frequency distribution Mean is 1.43 and Median is 1.32 then it's Mode=_____

67. A. 1.1 B. 2.75
C. 0.11 D. 2.86

આવૃત્તિ વિતરણ માટે મધ્યક 1.43 અને મધ્યસ્થ 1.32 હોય તો તેનો બહુલક _____થાય

૬૭. A. 1.1 B. 2.75
C. 0.11 D. 2.86

If the given data are 3,5,2,6,5 them Mean =_____.

68. A. 2.2 B. 21
C. 10.1 D. 4.2

જો આપેલ અવલોકનો 3,5,2,6,5 હોય તો મધ્યક =_____છે.

૬૮. A. 2.2 B. 21
C. 10.1 D. 4.2

The mean of the 5 observations $x-8, x-5, x-3, x+2, x+4$ is 8 then $x=$ _____

69. A. 16 B. 12
C. 10 D. 8

આપેલ 5 અવલોકનો $x-8, x-5, x-3, x+2, x+4$ નો મધ્યક 8 જહોય તો $x=$ _____ .

૬૯. A. 16 B. 12
C. 10 D. 8

_____Formula gives the relation between Mean, Median and Mode.

70. A. $Z=2\bar{X}-3M$ B. $Z=3M-2\bar{X}$
C. $Z-2\bar{X}=3M$ D. $Z+3M+2\bar{X}=0$

મધ્યક, મધ્યસ્થ અને બહુલક વચ્ચેનો સંબંધ _____છે.

૭૦. A. $Z=2\bar{X}-3M$ B. $Z=3M-2\bar{X}$
C. $Z-2\bar{X}=3M$ D. $Z+3M+2\bar{X}=0$

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