1. **The equation of the normal to the circle x2 + y2 = a2 at point (x′ y′) will be :**
   (1) $x'y - xy' = 0$ (2) $xx' - yy' = 0$
   (3) $x'y + xy' = 0$ (4) $xx' + yy' = 0$

2. **Equation of the bisector of the acute angle between lines 3x + 4y + 5 = 0 and 12x – 5y – 7 = 0 is :**
   (1) $21x + 77y + 100 = 0$
   (2) $99x - 27y + 30 = 0$
   (3) $99x + 27y + 30 = 0$
   (4) $21x - 77y - 100 = 0$

3. **Equation to the line passing through the point (-4,5) and perpendicular to 3x = 4y = 7 :**
   (1) 3x-4y+32=0 (2) 4x+3y+1= 0
   (3) 3x+4y-8=0 (4) 4x-3y+31=0

4. **If θ is the angle between two straight lines represented by $ax^2 + 2hxy + by^2 = 0$ then :**
   (1) $\tan\theta = \frac{2\sqrt{h^2 + ab}}{a + b}$
   (2) $\cos\theta = \frac{2\sqrt{h^2 - ab}}{a + b}$
   (3) $\tan\theta = \frac{\sqrt{h^2 - ab}}{a + b}$
   (4) $\tan\theta = \frac{2\sqrt{h^2 - ab}}{a + b}$

5. **The real part of cos h (α + iβ):**
   (1) sin α sin hβ (2) cos α cos hβ
   (3) 2 cos nθ (4) cos hα cos β

6. **If z = cos θ + i sin θ, then the value of $z^n + \frac{1}{z^n}$ will be :**
   (1) sin 2nθ (2) 2 sin nθ (3) 2 cos nθ (4) cos 2nθ

7. **If α and β are the roots of the equation $x^2 - 2x + 4 = 0$ then the value of $\alpha^n + \beta^n$ will be :**
   (1) $i2^{n+1} \sin(n\pi/3)$ (2) $2^{n+1} \cos(n\pi/3)$
   (3) $i2^{n-1} \sin(n\pi/3)$ (4) $2^{n-1} \cos(n\pi/3)$

8. **$[\sin(\alpha + \theta) - e^{ai} \sin\theta]^n$ is equal to :**
   (1) $\cos^n \alpha\, e^{in\theta}$ (2) $\sin^n \alpha\, e^{in\theta}$
   (3) $\cos^n \alpha\, e\text{-}^{in\theta}$ (4) $\sin^n \alpha\, e^{-in\theta}$

9. If A is a skew symmetric matrix of second order and C is a column matrix of second order then CAC is equal to :

(1) [0] (2) [1] (3) $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ (4) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

10. If A = $\begin{pmatrix} 3 & 1 \\ -1 & 2 \end{pmatrix}$ and I = $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ then the correct statement is :

then the correct statement is :

(1) $A^2+5A-7I = 0$
(2) $-A^2+5A+7I = 0$
(3) $A^2-5A+7I = 0$
(4) $A^2+5A+7I = 0$

11. If A and B are the two matrices of the same order and $A^2-b^2 = (A+B)(A-B)$, then the correct statement will be :

(1) $A'B' = AB$ (2) $AB=BA$ (3) $A^2+B^2 = A^2-B^2$ (4) none of these

12. The value of the determinant $\begin{vmatrix} a-b-c & 2a & 2a \\ 2b & b-c-a & 2b \\ 2c & 2c & c-a-b \end{vmatrix}$ will be :

(1) $(a-b-c)(a^2+b^2+c^2)$ (2) $(a+b+c)^3$ (3) $(a+b+c)(ab+bc+ca)$ (4) none of these

13. If $(1+x)^n = C_0 + C_1x + C_2x^2 + \ldots + C_nx^n$, then $C_0-C_1+C_2-C_3+\ldots+(-1)^n C_n$ is equal to:

(1) 3^n (2) 2^n (3) 1 (4) 0

14. The term independent of x in the expansion of $\left(x + \frac{1}{x}\right)^{2n}$ is :

(1) $\frac{1.3.5\ldots\ldots(2n-1)}{n!} \cdot 2^{n-1}$

(2) $\frac{1.3.5\ldots\ldots(2n-1)}{n!} \cdot 2^n$

(3) $a.3.5\ldots\ldots(2n-1) \cdot 2^n$

(4) none of these

15. $(1-x)^3$ is equal to :

(1) x^3+3x^2+3x-1 (2) x^3-3x^2+3x-1
(3) x^3-3x^2-3x+1 (4) x^3+3x^2+3x+1

16. If $n \in N$, then $\sum_{m=1}^{n} m^2$ is equal to :

(1) $\frac{m(m+1)(2m+1)}{6}$

(2) $\frac{n(n-1)(2n-1)}{6}$

(3) $\frac{m((m-1)(2m-1)}{6}$

(4) $\frac{n(n+1)(2n+1)}{6}$

17. If A.M. and H.M. between two numbers are 27 and 12 respectively then their G.M. is:

(1) 9 (2) 18 (3) 24 (4) 36

18. If $\frac{1}{q+r}$, $\frac{1}{r+p}$, $\frac{1}{p+q}$, are in A.P. then :

(1) p2,q2, r2 are in A.P.

(2) p,q,r are in A.P.

(3) p,q,r are in G.P.

(4) $\frac{1}{p}$, $\frac{1}{q}$, $\frac{1}{r}$ are in A.P.

19. If α and β are the roots of the equation $x^2 - ax + b = 0$ and $v_n = \alpha^n + \beta^n$ then :

(1) $v_{n+1} = av_n + bv^{n-1}$

(2) $v_{n+1} = bv_n - av_{n-1}$

(3) $v^{n+1} = av_n - bv_{n-1}$

(4) $v^{n+1} = bv_n + av_{n-1}$

20. If α and $\frac{1}{\alpha}$ are the roots of the equation $5x^2+13x+k = 0$ then k will be:

(1) 5 (2) – 5 (3) 13 (4) 1

21. The value $i^3-i^5-i^{10}-i^{16}$ will be :

(1) 0 (2) i (3) – 2 – 2i (4) 2 – 2i

22. A coin tossed m + n (m > n) , times then the probability that the head appears m times continuosly is :

(1) $\frac{m+n}{2^{m+n}}$ (2) $\frac{n+2}{2^{m+1}}$ (3) $\frac{m}{2^{m+n}}$ (4) $\frac{m+2}{2^{n+1}}$

23. For any two events A and B if P(A ∪ B) = 5/6, P(A ∩ B) = 1/3, P(B) = ½ then P(A) is :

(1) ½ (2) 2/3 (3) 1/3 (4) none of these

24. If M and N are any two events , then the probability of happening exactly one event is:

(1) P(M) + P(N) – P(MN)

(2) P(M) + P(N) – 2P(MN)

(3) $P(\bar{M}) + P(\bar{N}) + 2P(\overline{MN})$

(4) none of these

25. A bag contains 3 white and 5 black balls. One ball is drawn at random. Then the probability that it is black is :

(1) $\frac{1}{8}$ (2) $\frac{3}{8}$ (3) $\frac{5}{8}$ (4) $\frac{3}{5}$

26. A box contains 100 bulbs, out of these 10 are used. 5 bulbs are choosen at random. Then the probability that no one is fused is :

(1) $\left(\frac{9}{10}\right)^5$ (2) $\frac{^{90}C_5}{^{100}C_5}$ (3) $\left(\frac{1}{2}\right)^5$ (4) 10^{-5}

27. For any two events A and B the correct statement is :

(1) $P(A \cap B) \le P(A) + P(B)$
(2) $P(A \cap B) \le P(A) + P(B) - 1$
(3) $P(A \cap B) \ge P(A) + P(B) - 1$
(4) $P(A \cap B) \ge P(A) + P(B)$

28. For any non zero vector $\vec{a}$ the correct statement is :

(1) $\vec{a} \cdot \vec{a} \le 0$ (2) $\vec{a} \cdot \vec{a} = 0$ (3) $\vec{a} \cdot \vec{a} > 0$ (4) $\vec{a} \cdot \vec{a} \ge 0$

29. $\vec{a} \cdot (\vec{b} \times \vec{c}) = 0$ then the correct statement is :

(1) out of $\vec{a}, \vec{b}, \vec{c}$ any two vectors are parallel
(2) $\vec{a}, \vec{b}, \vec{c}$ are coplanar
(3) any two are equal $\vec{a}, \vec{b}, \vec{c}$
(4) at least one above statement is correct

30. If $\vec{A} \times \vec{B} = \vec{0}$ where $\vec{A}$ and $\vec{B}$ are non zero vectors then :

(1) $\vec{A}$ and $\vec{B}$ are perpendicular to each other
(2) the angle between $\vec{A}$ and $\vec{B}$ is π
(3) $\vec{A}$ and $\vec{B}$ parallel vectors
(4) $\vec{B}$ is unit vector

^^ ^^ ^^ ^^ ^^ ^^

31. If 2i + j - k and i – 4j + λk are perpendicular to each other then λ is equal to:

(1) – 3 (2) – 2 (3) – 1 (4) 0

32. If $\frac{d}{dx}\phi(x) = f(x)$ then $\int_1^2 f(x)\,dx$ is equal to :

(1) f(1) – f(2) (2) $\phi(1) - \phi(2)$ (3) f(2) – f(1) (4) $\phi(2) - \phi(1)$

33. If f (a – x) = f(x), then $\int_0^a x f(x)\,dx$ is equal to :

(1) $\int_0^a f(x)dx$ (2) $a\int_0^{a/2} f(x)dx$ (3) $a\int_0^a f(x)dx$ (4) none of these

34. $\int_{-a}^{a} f(x)dx = 2\int_0^a f(x)dx$ when :

(1) f(2a-x) = - fx (2) f(2a-x)=f(x) (3) f(-x)=-f(x) (4) f(-x)=f(x)

35. $\int_0^2 |1 - x|\,dx$ is equal to :

(1) 0 (2) 1 (3) $\frac{3}{2}$ (4) $\frac{1}{2}$

36. For any integer n the value of $\int_0^{\pi} e^{\cos 2} \cos^3 (2n+1)x\,dx$ will be:

(1) e^2 (2) 0 (3) 1 (4) e

37. $\int \frac{\sin 2x}{\sin^4 x + \cos^4 x}\,dx$ is equal to :

(1) $2\tan^{-1}(\tan^2 x) + C$
(2) $\tan^{-1}(x \tan^2 x) + C$
(3) $\tan^{-1}(\tan^2 x) + C$
(4) none of these

38. $\int \frac{1}{x^5}\,dx$ is equal to :

(1) $-\frac{1}{5x^4} + C$ (2) $-\frac{1}{5x^6} + C$ (3) $-\frac{1}{4x^4} + C$ (4) $\frac{-5}{x^6} + C$

39. The function sin x + cos x is maximum when x is equal to :

(1) $\frac{\pi}{6}$ (2) $\frac{\pi}{4}$ (3) $\frac{\pi}{3}$ (4) $\frac{\pi}{2}$

40. If the normal to a curve is parallel to axis of x, then the correct statement is :

(1) $\frac{dx}{dy} = -1$ (2) $\frac{dx}{dy}$ (3) $\frac{dx}{dy} = 0$ (4) $\frac{dy}{dx} = 0$

41. $\frac{d}{dx}\sin^{-1} x$ is equal to :

(1) $-\frac{1}{\sqrt{x^2-1}}$ (2) $\frac{1}{\sqrt{x^2-1}}$ (3) $\frac{1}{\sqrt{1-x^2}}$ (4) $-\frac{1}{\sqrt{1-x^2}}$

42. The differential coefficient of e^{x-3} is :

(1) $2x^3e^{x3}$ (2) $3x(e^{x3})$ (3) e^{x3} (4) $3x^2e^{x3}$

43. $\frac{d}{dx}(x^x)$ is equal to :

(1) $x^x \log (e/x)$ (2) $x^x \log ex$ (3) $\log ex$ (4) $x^x \log x$

44. $\lim_{x\to a}$ [f(x),g(x)] will exist, when :

(1) $\lim_{x\to a} \frac{f(x)}{g(x)}$ is exists

(2) $\lim_{x\to a} [f(x)]^{g(x)}$ is exists

(3) $\lim_{x\to a}$ f (x) or lim g(x) is exists

(4) $\lim_{x\to a}$ f (x) and $\lim_{x\to a}$ g(x) both exists

45. $\lim_{x\to 0} \frac{\sin x}{x}$ is equal to :

(1) 2 (2) – 1 (3) 1 (4) 0

46. If f(x) = sin [x] , [x] ≠ 0 where [x] is a greatest integer less or equal to x then $\lim_{x\to 0}$ f(x) is equal to :

(1) – 1 (2) 0 (3) 1 (4) does not exist

47. If A = {-2, -1, 0, 1,2} and f:A→R such that f(x) = x^2 + 1, then the range of f will be:

(1) {1, ± 2, ±5} (2) {1,2,5} (3) {-2, -1, 0, 1,2} (4) none of these

48. The point (at3, at2) will lies on the curve :

(1) $x^3 = ay^2$ (2) $x^2 = ay$ (3) $y^2 = ac$ (4) $y^3 = ax^2$

49. The diameter of the circle $x^2 + y^2 + 4x - 6y = 0$, is :

(1) $\sqrt{52}$ (2) $\sqrt{13}$ (3) $\sqrt{26}$ (4) $\sqrt{20}$

50. The pole of the line τx + my + n = 0 w.r.t. the circle $x^2 + y^2 = a^2$ is :

(1) $\left(-\frac{n}{1}a^2, -\frac{n}{m}a^2\right)$

(2) $\left(-\frac{a}{na^2}, \frac{m}{ma^2}\right)$

(3) $\left(-\frac{1}{n}a^2, \frac{m}{n}a^2\right)$

(4) $\left(\frac{1}{n}a^2, -\frac{m}{n}a^2\right)$

51. Two dice thrown together then the probability of getting a sum of 7, is :

(1) $\frac{7}{36}$ (2) $\frac{6}{36}$ (3) $\frac{5}{36}$ (4) $\frac{8}{36}$

52. For any two events A and B, $P(A\cap\overline{B})$ is equal :

(1) P(A) – P(A∩B) (2) P(A) – P(A ∩B)

(3) P(A) – P(A∪B) (4) $P(A) + (\overline{A} \cap \overline{B})$

53. If A and B are two events, then $P(\overline{A / B})$ is equal to :

(1) $P(\overline{A}) / P(\overline{B})$ (2) $\frac{1-P(A+B)}{P(\overline{B})}$

(3) 1- P(AB) (4) 1- P(A/B)

P(B)

54. If $A \subseteq B$, then $B \cup A$ will be :

(1) [0] (2) ϕ (3) A (4) B

55. $P\left(\frac{\overline{A}}{\overline{A \cup B}}\right)$ is equal :

(1) $\frac{P(A)}{P(A \cup B)}$ (2) $\frac{P(\overline{A} \cap B)}{P(A \cap B)}$ (3) $\frac{P(\overline{A})}{P(A \cup B)}$ (4) $\frac{P(\overline{B})}{P(A \cup B)}$

56. The period of $\sin^4 x + \cos^4 x$ will be :

(1) $\frac{3\pi}{2}$ (2) 2π (3) π (4) $\frac{\pi}{2}$

57. $\vec{a} \times (\vec{b} \times \vec{c})$ is equal to :

(1) $(\vec{a} \cdot \vec{c})\,\vec{b} - (\vec{a} \cdot \vec{b}) \cdot \vec{c}$

(2) $(\vec{a} \cdot \vec{c})\,\vec{b} + (\vec{a} \cdot \vec{b}) \cdot \vec{c}$

(3) $(\vec{a} \cdot \vec{b})\,\vec{c} + (\vec{a} \cdot \vec{b}) \cdot \vec{c}$

(4) $(\vec{a} \cdot \vec{b})\,\vec{c} - (\vec{a} \cdot \vec{c}) \cdot \vec{b}$

58. The angle between the vectors (i+j) abd (j+k) is

(1) $\frac{\pi}{4}$ (2) 0 (3) $\frac{\pi}{4}$ (4) $\frac{\pi}{3}$

59. The area of the region bounded by the curves y = x sin x, axis of x, x= 0 and x = 2π will be :

(1) 8π (2) 4π (3) 2 π (4) π

60. $\int_0^{\pi/2} \log \sin x \, dx$ is equal to :

(1) $\pi \log\left(\frac{1}{2}\right)$ (2) $\pi \log 2$ (3) $\pi \log\left(\frac{1}{2}\right)$ (4) $\frac{\pi}{2} \log 2$

61. $\int_a^b f(x)\, dx$ is equal to

(1) $\int^b f(x-a-b)\, dx$ (2) $\int^a f(a-x)dx$ (3) $\int^b f(a+b-x)dx$ (4) noneof these

a 0 a

62. $\int_0^{\pi/2} \sin 2x \log \tan x \, dx$ is equal to :

(1) 2π (2) π (3) 0 (4) $\pi/2$

63. $\int_0^{\pi} \cos^3 x \, dx$ is equal to :

(1) 4π (2) 2π (3) π (4) 0

64. $\int_0^{\pi/2} \frac{1}{1 + \sqrt{\tan x}} dx$ is equal to :

65. $\int \cot x \, dx$ is equal to :

(1) log tan x + C (2) log sec x + C
(3) log cosec x + C (4) log sin x + C

66. If z = x + y iy then |z – 5| is equal to :

(1) $\sqrt{(x - y)^2 + 5^2}$ (2) $\sqrt{(x - 5)^5 + y^2}$

(3) $\sqrt{x^2 + (y - 5)^2}$ (4) $\sqrt{(x - 5)^2 + (y - 5)^2}$

67. If α and β are the roots of the equation $4x^2 + 3x + 7 = 0$ then $\frac{1}{\alpha} + \frac{1}{\beta}$ is equal is :

(1) $\frac{7}{3}$ (2) $\frac{2}{7}$ (3) $\frac{-3}{7}$ (4) $\frac{3}{7}$

68. $2,\overline{357}$ is equal to :

(1) $\frac{2379}{999}$ (2) $\frac{2355}{999}$ (3) $\frac{2355}{997}$ (4) none of these

69. If the second term of a G.P. is 2 and the sum of its infinite terms is 8, then its first therm is :

(1) 2 (2) 4 (3) 6 (4) 8

70. (1+2+3+….+n) is equal to :

(1) $\left(\frac{n(n+1)}{2}\right)^2$ (2) n^2 (3) $\frac{n(n+1)}{2}$ (4) $\frac{n(n-1)}{2}$

71. For $n \in N$, $2^{3n} - 7n - 1$ is divisible by :

(1) 50 (2) 49 (3) 51 (4) 48

72. If $x = 2 + 2^{1/3} + 2^{2/3}$, then $x^3 - 6x^2 + 6x$ is equal to :

(1) 0 (2) 1 (3) 2 (4) 3

73. If $(1-x)^n = C_0 + C_1x + \ldots + C_nx^n$ then $C_1 + 2C_2 + 3C_3 + \ldots + nC_n$ is equal is :

(1) $n.2^{n-1}$ (2) $(n-1)^{2n-1}$ (3) $(n+1)^{2n}$ (4) $2^{n-1} - 1$

74. Determinate $\begin{vmatrix} 1+ib & c+id \\ c-id & a-ib \end{vmatrix}$ is equal to :

(1) $a^2-b^2+c^2+d^2$ (2) $a^2+b^2-c^2-d^2$
(3) $(a^2+b^2)(c^2+d^2)$ (4) $(a+b)(a-b)$

75. $\begin{vmatrix} 43 & 1 & 6 \\ 35 & 7 & 4 \\ 17 & 3 & 2 \end{vmatrix}$ is equal to:

(1) – 6 (2) – 110 (3) 0 (4) 150

76. If A = $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ then A2 is equal to:

(1) $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$ (2) $\begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}$ (3) $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ (4) $\begin{pmatrix} 1 & 1 \\ 1 & 1 \end{pmatrix}$

77. If A = $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$ then A^n is equal to :

(1) $\begin{pmatrix} 1 & n^n \\ 0 & 1 \end{pmatrix}$ (2) $\begin{pmatrix} n & n \\ 0 & n \end{pmatrix}$ (3) $\begin{pmatrix} 1 & n \\ 0 & 1 \end{pmatrix}$ (4) $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$

78. If A and B are the invertible matrix of the required order then the value of $(AB)^{-1}$ will be :

(1) $[(AB)']^{-1}$ (2) $A^{-1}B^{-1}$ (3) $B^{-1}A^{-1}$ (4) $(BA)^{-1}$

79. The value of sin 3x is :

(1) $4 \sin x - 3 \sin^3 x$ (2) $4 \sin x + 3 \sin^3 x$
(3) $3 \sin x - 4 \sin^3 x$ (4) $3 \sin x + 4 \sin^3 x$

80. The imaginary roots of $(-1)^{1/3}$ is :

(1) $\frac{1 \pm \sqrt{3}i}{4}$ (2) $\pm i$ (3) $\frac{-1 \pm \sqrt{3}}{2}$ (4) $\frac{1 \pm \sqrt{3}i}{2}$

81. The argument and modulus of the $e^{\sin i\theta\theta}$ is :

(1) 1, sin hθ (2) 1, π/2 (3) $e^{\cos}$ θ, sin hθ (4) $e^{\sin}$ θ, sin hθ

82. The minimum distance of a point (x, y) from a line ax + by + c = 0, is :

(1) $\frac{|ax1 + by1 + c|}{\sqrt{a^2 + b^2}}$ (2) $\frac{|ax1 + by1 + c|}{\sqrt{a^2 + b^2 - c}}$

(3) $\frac{|ax1 + by1 + c|}{\sqrt{a^2 + b^2 + c^2}}$ (4) $\frac{|ax1 + by1 + c|}{\sqrt{a^2 + b^2 + c}}$

83. A straight line through (1, 1) and parallel to the line 2x + 3y – 7 = 0 is :

(1) 2x + 3y + 5 = 0 (2) 3x – 2y + 7 = 0
(3) 3x + 2y – 8 = 0 (4) 2x + 3y – 5 = 0

84. Equation of the straight line passing through the points (-1, 3) and (4, -2) is :

(1) x- y = 3 (2) x + y = 3 (3) x – y = 2 (4) x + y = 2

85. The general equation of circle passing through the point of intersection of circle S = 0 and line P = 0, is :

(1) $S + \lambda P = 0, \lambda \in R$ (2) 6S + 4P = 0
(3) 3S + 4P = 0 (4) 4S + 5P = 0

86. The equation of the radial axis of two circle $x^2 + y^2 + 2g_1x + 2f_1y + c_1 = 0$ and $x^2 + y^2 + 2g_2x + 2f_2y + c_2 = 0$, is :

(1) $2 (g_1 – g_2) x + 2 (f_1 – f_2) y – c_1 – c_2 =0$
(2) $2 (g_2 – g_1) x + 2 (f_1 – f_2) y + c_1 – c_2 = 0$
(3) $2 (g_1 – g_2) x + 2 (f_1 – f_2) y + c_1 – c_2 = 0$
(4) $2 (g_1 – g_2) x + 2 (f_1 – f_2) y + c_2 – c_1 = 0$

87. If f (x) = cos (log x), then f(x) f(y) – 1 [f($\frac{x}{y}$) – f (xy)] is equal to :

(1) 0 (2) f(x+y) (3) f($\frac{x}{y}$) (4) f(xy)

88. If f(x) = $\frac{x}{x - 1}$ = y, then the value of f(y) is :

(1) 1 –x (2) x + 1 (3) x – 1 (4) x

89. $\lim_{n \to \infty} \left(\frac{1^2}{13 + n3} + \frac{2^2}{23 + n3} + \frac{1}{2n} \right)$ **is equal to :**

(1) $\frac{1}{2}$ log 2 (2) 3 log 2 (3) $\frac{1}{3}$ log 2 (4) $\frac{1}{2}$ log 3

90. $\lim_{x \to a} \frac{x2 – a2}{x - a}$ **is equal to :**

(1) ∞ (2) 0 (3) a (4) 2a

91. $\frac{d}{dx}(2^x)$ **is equal to :**

(1) 1 (2) 2^x log 2 (3) x log 2 (4) 0

92. Differential coefficient of x^3 w.r.t. x^2 will be :

(1) $\frac{3}{2x}$ (2) $\frac{2}{3x}$ (3) $\frac{3}{2}$ x (4) $\frac{3x^2}{2}$

93. $\frac{d}{dx}$ (tan x) is equal to :

(1) cosec^2 x (2) sec x tan x (3) cosec x cot x (4) $\sec^2$ x

94. The coordinates of the point where the tangent to the curve x2 + y2 – 2x – 3 = 0 is parallel to the axis of x is :

(1) 1. ± $\sqrt{3}$ (2) (1,0) (3) 1, ± 2 (4) (1. ±$\sqrt{2}$)

95. The point at which tangent to the curve y = $\tau\tau^{2x}$ at the point (0, 1) meets the x-axis is :

(1) (1, 0) (2) (- ½, 0) (3) (2, 0) (4) (0, 2)

96. Maximum value of slope of a tangent to the curve y = - x^3 + $3x^2$ + 2x – 27 will be :

(1) 11 (2) – 4 (3) 5 (4) 2

97. m $\frac{\sin\sqrt{x}}{\sqrt{x}}$ dx is equal to :

(1) – 2 cos $\sqrt{x}$ + C (2) 2 cos $\sqrt{x}$ + C (3) 2 sin $\sqrt{x}$ + C (4) sin $\sqrt{x}$+C

98. Correct statement is :

(1) $(AB)^{-1} = B^{-1}A^{-1}$ (2) $(AB)^{-1} = A^{-1}B^{-1}$ (3) $(AB)^T = A^TB^T$ (4) $(AB)^{-1} = A^{-1}B^{-1}$

99. If the matrix P = $\begin{pmatrix} 1 & 2 \\ -3 & 0 \end{pmatrix}$ and Q = $\begin{pmatrix} -1 & 0 \\ 2 & 3 \end{pmatrix}$ then the correct statement is :

(1) P + Q = I (2) PQ ≠ QP (3) $Q^2 = Q$ (4) $P^2 = P$

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1.(1)	2.(4)	3.(4)	4.(4)	5.(4)	6.(3)	7.(2)	8.(4)	9.(1)	10.(3)	11.(2)
12.(2)	13.(4)	14.(2)	15.(4)	16.(4)	17.(2)	18.(1)	19.(3)	20.(1)	21.(4)	22.(2)
23.(2)	24.(2)	25.(3)	26.(2)	27.(3)	28.(3)	29.(4)	30.(3)	31.(2)	32.(4)	33.(2)
34.(4)	35.(2)	36.(2)	37.(3)	38.(1)	39.(2)	40.(3)	41.(3)	42.(4)	43.(2)	44.(4)
45.(3)	46.(4)	47.(2)	48.(4)	49.(1)	50.(4)	51.(2)	52.(1)	53.(2)	54.(4)	55.(2)
56.(4)	57.(1)	58.(4)	59.(2)	60.(3)	61.(3)	62.(3)	63.(4)	64.(4)	65.(4)	66.(2)
67.(3)	68.(2)	69.(2)	70.(3)	71.(2)	72.(3)	73.(1)	74.(2)	75.(3)	76.(3)	77.(3)
78.(3)	79.(3)	80.(4)	81.(1)	82.(1)	83.(4)	84.(4)	85.(1)	86.(3)	87.(4)	88.(4)
89.(3)	90.(4)	91.(4)	92.(3)	93.(4)	94.(3)	95.(2)	96.(3)	97.(1)	98.(1)	99.(2)