Padasalai's

Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padasalai's NEWS - Group

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- Lesson Plan - Group

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- 9th Standard - Group

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- TNPSC - Group

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KK NAGAR SALAM

STD : XII MARKS : 50

DATE : 17.10.19 **ONE MARK TEST – VOL –I** TIME : 30 min

I. CHOOSE THE CORRECT ANSWER : 50 X 1 = 50

1. If $A=\begin{bmatrix}3 & 5\\ 1 & 2\end{bmatrix}$, B = adj A and C = 3A, then $\frac{|adj\,B|}{|C|}=$
   1) $\frac{1}{3}$ 2) $\frac{1}{9}$ 3) $\frac{1}{4}$ 4) 1
2. If $A=\begin{bmatrix}7 & 3\\ 4 & 2\end{bmatrix}$, Then $9I_2 - A =$
   1) A^{-1} 2) $\frac{A^{-1}}{2}$ 3) $3A^{-1}$ 4) $2A^{-1}$
3. If $A=\begin{bmatrix}\cos\theta & \sin\theta\\ -\sin\theta & \cos\theta\end{bmatrix}$ and A(adj A) $=\begin{bmatrix}k & 0\\ 0 & k\end{bmatrix}$, then k=
   1) 0 2) $\sin\theta$ 3) $\cos\theta$ 4) 1
4. If $x^a y^b = e^m$, $x^c y^d = e^n$, $\Delta_1=\begin{vmatrix}m & b\\ n & d\end{vmatrix}$, $\Delta_2=\begin{vmatrix}a & m\\ c & n\end{vmatrix}$, $\Delta_3=\begin{vmatrix}a & b\\ c & d\end{vmatrix}$, then the value of x and y are respectively,
   1) $e^{(\Delta_2/\Delta_1)}$, $e^{(\Delta_3/\Delta_1)}$ 2) $\log(\Delta_1/\Delta_3)$, $\log\Delta_2/\Delta_3$
   3) $\log(\Delta_2/\Delta_1)$, $\log\Delta_3/\Delta_1$ 4) $e^{(\Delta_1/\Delta_3)}$, $e^{(\Delta_1/\Delta_3)}$
5. If $A^T A^{-1}$ is symemetic, then $A^2 =$
   1) A^{-1} 2) $(A^T)^2$ 3) A^T 4) $(A^{-1})^2$
6. If $\rho(A)=\rho([A|B])$, then the system AX =B of linear equation is
   1) Consistent and has a unique solution 2) Consistent
   3) Consistent and has infinitely many solution 4) Inconsisitent
7. Let $A=\begin{bmatrix}2 & -1 & 1\\ -1 & 2 & -1\\ 1 & -1 & 2\end{bmatrix}$ and 4 $B=\begin{bmatrix}3 & 1 & -1\\ 1 & 3 & x\\ -1 & 1 & 3\end{bmatrix}$. If B is the inverse of A , then the value of x is
   1) 2 2) 4 3) 3 4) 1
8. The rank of matrix $\begin{bmatrix}1 & 2 & 3 & 4\\ 2 & 4 & 6 & 8\\ -1 & -2 & -3 & -4\end{bmatrix}$ is
   1) 1 2) 2 3) 4 4) 3
9. The conjugate of a complex number is $\frac{1}{i-2}$. Then the complex number is
   1) $\frac{1}{i+2}$ 2) $\frac{-1}{i+2}$ 3) $\frac{-1}{i-2}$ 4) $\frac{1}{i-2}$
10. If $\left|z-\frac{3}{z}\right|=2$, then the least value of |z| is
    1) 1 2) 2 3) 3 4) 5
11. z_1, z_2 *and* z_3 are complex numbers such that $z_1+z_2+z_3=0$ and $|z_1|=|z_2|=|z_3|=1$ then $z_1^2+z_2^2+z_3^2$ is
    1) 3 2) 2 3) 1 4) 0
12. The solution of the equation $|z|-z=1+2i$ is
    1) $\frac{3}{2}-2i$ 2) $-\frac{3}{2}+2i$ 3) $2-\frac{3}{2}i$ 4) $2+\frac{3}{2}i$
13. If z is a non zero complex number, such that $2iz^2=\bar{z}$ then |z| is
    1) $\frac{1}{2}$ 2) 1 3) 2 4) 3
14. The principal argument of $(\sin 40^\circ + i\cos 40^\circ)^5$ is
    1) $-110°$ 2) $-70°$ 3) $70°$ 4) $110°$
15. The principal argument of the complex number $\frac{(1+i\sqrt{3})^2}{4i(1-i\sqrt{3})}$ is
    1) $\frac{2\pi}{3}$ 2) $\frac{\pi}{6}$ 3) $\frac{5\pi}{6}$ 4) $\frac{\pi}{2}$

16. The product of all four values of $\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)^{\frac{3}{4}}$ is

1) −2 2) −1 3) 1 4) 2

17. If (1 +i) (1+2i)(1+3i)….(1+ni) = x + iy, then 2.5.10…$(1+n^2)$ is

1) 1 2) i 3) $x^2 + y^2$ 4) $1 + n^2$

18. If $\omega = \text{cis}\frac{2\pi}{3}$, then the number of distinct roots of $\begin{vmatrix} z+1 & \omega & \omega^2 \\ \omega & z+\omega^2 & 1 \\ \omega^2 & 1 & z+\omega \end{vmatrix} = 0$

1) 1 2) 2 3) 3 4) 4

19. If f and g are polynomials of degrees m and n respectively, and if h(x) = (f ∘ g) (x), then the degree of h is

1) mn 2) m + n 3) m^n 4) n^m

20. According to the rational root theorem, which number is not possible rational zero of $4x^7+2x^4-10x^3-5$?

1) −1 2) $\frac{5}{4}$ 3) $\frac{4}{5}$ 4) 5

21. If α, β and γ are the zeros of x3 + px^2 + qx+ r, then $\sum\frac{1}{\alpha}$ is

1) $-\frac{q}{r}$ 2) $-\frac{p}{r}$ 3) $\frac{q}{r}$ 4) $-\frac{q}{p}$

22. A zero of $x^3 + 64$ is

1) 0 2) 4 3) 4i 4) −4

23. A polynomial equation in x of degree n always has

1) n distinct roots 2) n real roots 3) n imaginary roots 4) at most one root.

24. The number of real numbers in $[0,2\pi]$ satisfying $\sin^4 x - 2\sin^2 x + 1$ is

1) 2 2) 4 3) 1 4) ∞

25. The polynomial x3 + 2x + 3 has

1) one negative and two imaginary zeros 2) one positive and two imaginary zeros
3) three real zeros 4) no zeros

26. The polynomial $x^3 - kx^2 + 9x$ has three real zeros if and only if, k satisfies

1) $|k| \le 6$ 2) k = 0 3) $|k| > 6$ 4) $|k| \ge 6$

27. If $\sin^{-1} x + \sin^{-1} y = \frac{2\pi}{3}$; then $\cos^{-1} x + \cos^{-1} y$ is equal to

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

28. If $\cot^{-1} 2$ and $\cot^{-1} 3$ are two angles of a triangle, then the third angle is

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

29. If $\cot^{-1}(\sqrt{\sin\alpha}) + \tan^{-1}(\sqrt{\sin\alpha}) = u$, then $\cos 2u$ is equal to

1) $\tan^{-1}\alpha$ 2) 0 3) −1 4) $\tan 2\alpha$

30. If $\sin^{-1} x + \cot^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{2}$, then x is equal to

1) $\frac{1}{2}$ 2) $\frac{1}{\sqrt{5}}$ 3) $\frac{2}{\sqrt{5}}$ 4) $\frac{\sqrt{3}}{2}$

31. $\sin^{-1}(2\cos^2 x - 1) + \cos^{-1}(1 - 2\sin^2 x) =$

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

32. The value of $\sin^{-1}(\cos x), 0 \le x \le \pi$ is

1) $\pi - \pi$ 2) $x - \frac{\pi}{2}$ 3) $\frac{\pi}{2} - x$ 4) $x - \pi$

33. The equation $\tan^{-1} x - \cot^{-1} x = \tan^{-1}\left(\frac{1}{\sqrt{3}}\right)$ has

1) no solution 2) Unique solution
3) tow solutions 4) infinite number of solutions

34. If the function $f(x) = \sin^{-1}(x^2 - 3)$, then x belongs to

1) [-1,1] 2) $[\sqrt{2}, 2]$ 3) $[-2, -\sqrt{2}] \cup [\sqrt{2}, 2]$ 4) $[-2, -\sqrt{2}]$

35. The circle $x^2+y^2 = 4x + 8y + 5$ intersects the line 3x −4y = m at two distinct points if

1) 15 < m < 65 2) 35 < m < 85 3) −85 < m < −35 4) −35 < m < 15

36. The eccentricity of the ellipse $(x-3)^2 + (y-4)^2 = \frac{y^2}{9}$ is

1) $\frac{\sqrt{3}}{2}$ 2) $\frac{1}{3}$ 3) $\frac{1}{3\sqrt{2}}$ 4) $\frac{1}{\sqrt{3}}$

37. The locus of a point whose distance from $(-2,0)$ is $\frac{2}{3}$ times its distance from the line $x = \frac{-9}{2}$ is

1) a parabola 2) a hyperbola 3) an ellipse 4) a circle

38. The area of quadrilateral formed with foci of the hyperbolas $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ and $\frac{x^2}{a^2} + \frac{y^2}{b^2} = -1$

1) $4(a^2 + b^2)$ 2) $2(a^2 + b^2)$ 3) $a^2 + b^2$ 4) $\frac{1}{2}(a^2 + b^2)$

39. The centre of the circle inscribed in a square formed by the lines $x^2 - 8x - 12 = 0$ and $y^2 - 14y + 45 = 0$ is

1) (4,7) 2) (7,4) 3) (9,4) 4) (4,9)

40. The length of the diameter of the circle which touches the x-axis at the point(1,0) and passes through the point (2, 3)

1) $\frac{6}{5}$ 2) $\frac{5}{3}$ 3) $\frac{10}{3}$ 4) $\frac{3}{5}$

41. If $x + y = k$ is a normal to the parabola $y^2 = 12x$, then the value of k is

1) 3 2) -1 3) 1 4) 9

42. If P(x,y) be any point on $16x^2 + 25y^2 = 400$ with foci $F_1(3,0)$ and $F_2(-3,0)$ then $PF_1 + PF_2$ is

1) 8 2) 6 3) 10 4) 12

43. If $\vec{a}.\vec{b} = \vec{b}.\vec{c} = \vec{c}.\vec{a} = 0$, then the value of $[\vec{a}, \vec{c}, \vec{b}]$ is

1) $|\vec{a}|\,|\vec{b}|\,|\vec{c}|$ 2) $\frac{1}{3}|\vec{a}|\,|\vec{b}|\,|\vec{c}|$ 3) 1 4) -1

44. The volume of the parallelepiped with its edges represented by the vectors $\hat{\imath} + \hat{\jmath}, \hat{\imath} + 2\hat{\jmath}, \hat{\imath} + \hat{\jmath} + \pi\hat{k}$ is

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

45. If $\vec{a}, \vec{c}, \vec{b}$ are non-coplanar vectors such that $\vec{a} \times (\vec{b} \times \vec{c}) = \frac{\vec{b} + \vec{c}}{\sqrt{2}}$, then the angle between $\vec{a}$ and $\vec{b}$ is

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

46. If $[\vec{a}, \vec{c}, \vec{b}] = 1$, then the value of $\frac{\vec{a}.(\vec{b} \times \vec{c})}{(\vec{c} \times \vec{a}).\vec{b}} + \frac{\vec{b}.(\vec{c} \times \vec{a})}{(\vec{a} \times \vec{b}).\vec{c}} + \frac{\vec{c}.(\vec{a} \times \vec{b})}{(\vec{c} \times \vec{b}).\vec{a}}$ is

1) 1 2) -1 3) 2 4) 3

47. If $\vec{a}, \vec{c}, \vec{b}$ are non-coplanar, non-zero vectors such that $[\vec{a}, \vec{c}, \vec{b}] = 3$ than $\{[\vec{a} \times \vec{b}, \vec{b} \times \vec{c}, \vec{c} \times \vec{a}]\}^2$ is equal to

1) 81 2) 9 3) 27 4) 18

48. If the direction cosines of a line are $\frac{1}{c}, \frac{1}{c}, \frac{1}{c}$, then

1) $c = \pm 3$ 2) $c = \pm\sqrt{3}$ 3) $c > 0$ 4) $0 < c < 1$

49. If the length of the perpendicular from the origin to the plane $2x + 3y + \lambda z = 1, \lambda > 0$ is $\frac{1}{5}$, then the value of λ is

1) $2\sqrt{3}$ 2) $3\sqrt{2}$ 3) 0 40 1

50. The vector equation $\vec{r} = (\hat{\imath} - 2\hat{\jmath} - \hat{k}) + t(6\hat{\imath} + \hat{\jmath} - \hat{k})$ represents a straight line passing through the points

1) $(0,6,-1)$ and $(1,-2,-1)$ 2) $(0,6,-1)$ and $(-1,-4,-2)$

3) $(1,-2,-1)$ and $(-1,4,-2)$ 4) $(1,-2,-1)$ and $(0,-6,1)$

** HARD WORK NEVER FAILS EVERYWHERE**