

15. The modulus and amplitude of $e^{(3 - i\frac{\pi}{4})^3}$ are
 a) $e^9, \frac{\pi}{2}$ b) $e^9, -\frac{\pi}{2}$ c) $e^6, -\frac{3\pi}{4}$ d) $e^9, -\frac{3\pi}{4}$
16. $Z_n = \cos \frac{n\pi}{3} + i \sin \frac{n\pi}{3}$ then $z_1 z_2 \dots z_6$ is a) 1 b) -1 c) i d) -i
17. If $\Delta \neq 0$ then the system is
 a) consistent and has unique solution b) consistent and has infinitely many solution
 c) inconsistent d) Either consistent or inconsistent
18. Which of the following statement is correct regarding homogeneous system ?
 a) always inconsistent b) has only trivial solutions
 c) has only non-trivial solutions d) has only trivial solution only if rank of the coefficient matrix is equal to the number of unknowns
19. $(A^T)^{-1}$ is equal to a) A^{-1} b) A^T c) A d) $(A^{-1})^T$
20. If $ae^x + be^y = c$, $pe^x + qe^y = d$ and $\Delta_1 = \begin{vmatrix} a & b \\ p & q \end{vmatrix}$, $\Delta_2 = \begin{vmatrix} c & b \\ d & q \end{vmatrix}$, $\Delta_3 = \begin{vmatrix} a & c \\ p & d \end{vmatrix}$ then the value of (x, y) is
 a) $\left(\frac{\Delta_2}{\Delta_1}, \frac{\Delta_3}{\Delta_1}\right)$ b) $\left(\log \frac{\Delta_2}{\Delta_1}, \log \frac{\Delta_3}{\Delta_1}\right)$ c) $\left(\log \frac{\Delta_1}{\Delta_3}, \log \frac{\Delta_1}{\Delta_2}\right)$ d) $\log \frac{\Delta_1}{\Delta_2}, \log \frac{\Delta_1}{\Delta_3}$
21. If A is a square matrix of order n then $|\text{adj } A|$ is
 a) $|A|^2$ b) $|A|^n$ c) $|A|^{n-1}$ d) $|A|$
22. If A is a scalar matrix with scalar 3 of order 3 then A^{-1} is
 a) $\frac{1}{9} I$ b) $\frac{1}{27} I$ c) $\frac{1}{3} I$ d) $3I$
23. If $\rho(A) = \rho(A, B) =$ the number of unknowns then the system is
 a) consistent and has infinitely many solution
 b) consistent and has a unique solution
 c) consistent
 d) inconsistent
24. If $A = \begin{bmatrix} 2 & 5 \\ 1 & 3 \end{bmatrix}$ then $(\text{adj } A) A =$ a) $\begin{bmatrix} 1 & 0 \\ 5 & 0 \\ 0 & 1 \\ 0 & 5 \end{bmatrix}$ b) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ c) $\begin{bmatrix} 5 & 0 \\ 0 & -5 \end{bmatrix}$ d) $\begin{bmatrix} 5 & 0 \\ 0 & 5 \end{bmatrix}$
25. The directrix of parabola $y^2 = x + 4$ is
 a) $x = \frac{15}{4}$ b) $x = -\frac{15}{4}$ c) $x = -\frac{17}{4}$ d) $x = \frac{17}{4}$
26. The length of the semi major and the length of minor axis of the ellipse $\frac{x^2}{144} + \frac{y^2}{169} = 1$ are
 a) 26, 12 b) 13, 24 c) 144, 169 d) 13, 12
27. The line $4x + 2y = c$ is a tangent to the parabola $y^2 = 16x$ then c is
 a) -1 b) -2 c) 4 d) -4
28. The asymptotes of the hyperbola $36y^2 - 25x^2 + 900 = 0$ are
 a) $y = \pm \frac{6}{5} x$ b) $y = \pm \frac{5}{6} x$ c) $y = \pm \frac{36}{25} x$ d) $y = \pm \frac{25}{36} x$
29. The equations of the major and minor axis of $4x^2 + 3y^2 = 12$ are
 a) $x = \sqrt{3}, y = 2$ b) $x = 0, y = 0$ c) $x = -\sqrt{3}, y = -2$ d) $y = 0, x = 0$
30. The product of the perpendicular drawn from the point (8,0) on the hyperbola to its asymptotes is $\frac{x^2}{64} - \frac{y^2}{36} = 1$ is
 a) $\frac{25}{576}$ b) $\frac{576}{25}$ c) $\frac{6}{25}$ d) $\frac{25}{6}$
31. The chord of contact of tangents from any point on the directrix of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ passes through its
 a) vertex b) focus c) directrix d) latusrectum
32. One of the foci of the rectangular hyperbola $xy = 18$ is
 a) (6,6) b) (3,3) c) (4,4) d) (5,5)