SEAT NUMBER - | | | | | | |

Dnyansagar Coaching Classes, A'nagar

MHT-CET

(Matrices)

Std. - XII	Time - 45 min.
Sub- Math - I	Max Marks - 50

1) **If** $A = \begin{bmatrix} 0 & 1 & -2 \\ -1 & 0 & 5 \\ 2 & -5 & 0 \end{bmatrix}$ **then**

a) $A^{|} = A$ b) $A^{|} = -A$

c) $A^{|} = 2A$ d) none

2) **A matrix $A = [a_{ij}]$ is an upper triangular matrix if -**

a) it is a square matrix and $a_{ij} = 0, i < j$

b) it is a square matrix and $a_{ij} = 0, i > j$

c) it is not square matrix & $a_{ij} = 0, i > j$

d) it is not square matrix & $a_{ij} = 0, i < j$

3) **The matrix** $\begin{bmatrix} a & h & g \\ h & b & f \\ g & f & c \end{bmatrix}$ **is**

a) Scalar b) Diagonal

c) Symmetric d) Skew symmetric

4) **The order of matrix** $\begin{bmatrix} 1 & 2 \\ 3 & 5 \\ -1 & 0 \end{bmatrix}$ **is -**

a) 2×3 b) 3×2

c) 3×3 d) 3×1

5) **If each element of a 3×3 matrix is multiplied by 3 then the determinant of the newly formed matrix is**

a) $3|A|$ b) $9|A|$

c) $27|A|$ d) $|A|^3$

6) **If** $A = \begin{bmatrix} 1 & 3 \\ 2 & 1 \end{bmatrix}$ **then determinant of** $A^2 - 2A =$

a) 5 b) -5

c) 25 d) -25

7) **If** $A = \begin{bmatrix} 2 & 3-i & -i \\ 3+i & \pi & 7+i \\ i & 7-i & e \end{bmatrix}$ **then A is**

a) Hermitian b) Skew hermitian

c) Symmetric d) None

8) **If** $A + I = \begin{bmatrix} 8 & -2 \\ -4 & 1 \end{bmatrix}$ **then (A+I) (A-I) =**

a) $\begin{bmatrix} 56 & -14 \\ -28 & 7 \end{bmatrix}$ b) $\begin{bmatrix} -56 & -14 \\ -28 & 7 \end{bmatrix}$

c) $\begin{bmatrix} 56 & -14 \\ -28 & -7 \end{bmatrix}$ d) $\begin{bmatrix} 56 & 14 \\ -28 & 7 \end{bmatrix}$

9) **det** $\begin{bmatrix} 1 & w & w^2 \\ w & w^2 & 1 \\ w^2 & 1 & w \end{bmatrix}$ **= where w is cube root of unity**

a) 1 b) 3

c) 2 d) 0

10) **If** $A = \begin{bmatrix} 2 & 3 & -4 \\ -5 & 1 & 0 \\ -1 & 0 & 6 \end{bmatrix}$ **then the additive inverse of A is**

a) $\begin{bmatrix} 2 & 3 & -4 \\ -5 & 1 & 0 \\ -1 & 0 & 6 \end{bmatrix}$ b) $\begin{bmatrix} 2 & -5 & 1 \\ 3 & 1 & 0 \\ -4 & 0 & 6 \end{bmatrix}$

c) $\begin{bmatrix} -2 & -3 & 4 \\ 5 & -1 & 0 \\ 1 & 0 & -6 \end{bmatrix}$ d) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

11) **If A is a non-singular matrix, then A(adj A) =**

a) A b) I

c) $|A|I$ d) $|A^2|I$

12) If A is singular then adj A is

a) singular b) non-singular
c) symmetric d) not defined

13) If $A = \begin{bmatrix} -2 & 0 & 0 \\ -2 & -1 & 3 \end{bmatrix}$ $b = \begin{bmatrix} 0 & 1 \\ 2 & 3 \\ 1 & -1 \end{bmatrix}$ **then**

a) $(AB)^{-1}$ not exists b) $(AB)^{-1}$ is null matrix
c) $(AB)^{-1}$ exists d) $(AB)^{-1}$ unit matrix

14) If $A = \begin{bmatrix} 2 & -3 \\ -4 & 7 \end{bmatrix}$ **then** $2A^{-1}$ **is**

a) 8I - 2A b) 9I - A
c) 2I - 2A d) A - 9I

15) If $A = \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ **then A = ?**

a) 2A b) A
c) -A d) 1

16) the values of x, y z of the following equation 2x + y + z = 2, x + y + z = 0, 4x - y - 3z = 20 are

a) x= 1, y = 2, z = -5
b) x= 1, y = -2, z = 5
c) x= 2, y = 1, z = 1
d) x= 2, y = 3, z = -5

17) If $A = \begin{bmatrix} a & 0 & 0 \\ 0 & a & 0 \\ 0 & 0 & a \end{bmatrix}$ **then the value of | adj A | is equal to**

a) a^3 b) a^6
c) a^9 d) a^{27}

18) If $A = \begin{bmatrix} 1 & 0 & 2 \\ -1 & 1 & -2 \\ 0 & 2 & 1 \end{bmatrix}$ **and**

$$\text{adj } A = \begin{bmatrix} 5 & x & -2 \\ 1 & 1 & 0 \\ -2 & -2 & y \end{bmatrix}$$

then the value of (a, y) =

a) (4, -1) b) (-4, 1)
c) (-4, 10) d) (4, 1)

19) Let $A = \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 4 & -3 \\ 5 & 6 \\ 0 & 1 \end{bmatrix}$ **then**

a) AB exists.
b) AB and BA both exists
c) neither AB nor BA exists
d) BA exists, but AB does not exists

20) If A (adj A) = 8I for a 3 × 3 matrix A, then determinant A is equal to

a) 1 b) 2
c) 4 d) 8

21) Every diagonal element of hermitian matrix is -

a) 0 b) 1
c) Purely real d) Purely imaginary

22) A is square matrix of order n and AA' = I = AA' then A is

a) Orthogonal matrix
b) Unit matrix
c) Involuntary matrix
d) Nilpotent matrix

23) A matrix A = $[a_{ij}]$ m × n is said to be rectangular if -

a) m=n b) m ≠ n
c) m = p d) m = r

24) The order of matrix $\begin{bmatrix} -1 \\ 1 \\ 2 \end{bmatrix}$ **is -**

a) 3 × 1 b) 1 × 3
c) 2 × 3 d) 3 × 3

25) A square matrix $[a_{ij}]$ is such that $a_{ij} = 0$ for i ≠ j and a_{ij} = k (constant) for i = j then it is called

a) Null matrix
b) Diagonal matrix
c) Unit matrix
d) Sealar matrix

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Std. - XII	*(Matrices - Answersheet)*	Time - 45 min.
Sub- Math - I		Max Marks - 50

1. b
2. b
3. c
4. b
5. c
6. c
7. a
8. a
9. d
10. c
11. c
12. a
13. c
14. b
15. b
16. d
17. b
18. d
19. d
20. d
21. c
22. a
23. b
24. a
25. d