St. Peter's Senior Secondary School

(Affiliated to C.B.S.E. No. 2630043)

CLASS- XII(NON-MED)

ASSIGNMENT- 6 (MATHS)

CH-3 (MATRICES ABD DETERMINANTS)

❖ 1 MARK QUESTION:

1.The matrix A = $\begin{bmatrix} 0 & 0 & 4 \\ 0 & 4 & 0 \\ 4 & 0 & 0 \end{bmatrix}$ is a

(A) square matrix
(B) diagonal matrix
(C) unit matrix
(D) none of these

2. Total number of possible matrices of order 3 X 3 with each entry 2 or 0 is
(A) 9
(B) 27
(C) 81
(D) 512

3. If A and B are two matrices of the order 3 × m and 3 × n, respectively and m= n, then order of matrix (5A – 2B) is
(A) m× 3
(B) 3 × 3
(C) m× n
(D) 3 × n

4. If matrix A = $[a_{ij}]_{2x2}$, where a_{ij} = 1 if i ≠ j, and 0 if i= j then A^2 is equal to
(A) I
(B) A
(C) 0
(D) None of these

5. The matrix $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 4 \end{bmatrix}$ is a
(A) identity matrix
(B) symmetric matrix
(C) skew-symmetric matrix
(D) None of these

6. If a matrix has 24 elements, what are possible orders it can have? What, if it has 13 elements?

7. Construct a 2 x 2 matrix A = $[a_{ij}]$ whose elements are given by:

i) $a_{ij}=\frac{(i+j)^2}{2}$

ii) $a_{ij}=\frac{i}{j}$

iii) $a_{ij}=\frac{(i+2j)^2}{2}$

❖ 2 MARKS QUESTION:

8. Compute the following:

$$\begin{bmatrix} a & b \\ -b & a \end{bmatrix} + \begin{bmatrix} a & b \\ b & a \end{bmatrix}$$

9. Compute the following:

i) $\begin{bmatrix} a & b \\ -b & a \end{bmatrix}\begin{bmatrix} a & -b \\ b & a \end{bmatrix}$

ii) $\begin{bmatrix} 1 \\ 2 \\ 3 \end{bmatrix}\begin{bmatrix} 2 & 3 & 4 \end{bmatrix}$

❖ 4 MARKS QUESTION:

10. Find X and Y, if:

(i) X + Y = $\begin{bmatrix} 7 & 0 \\ 2 & 5 \end{bmatrix}$ and X – Y = $\begin{bmatrix} 3 & 0 \\ 0 & 3 \end{bmatrix}$

(ii) 2X + 3Y = $\begin{bmatrix} 2 & 3 \\ 4 & 0 \end{bmatrix}$ and 3X + 2Y= $\begin{bmatrix} -2 & -2 \\ -1 & 5 \end{bmatrix}$

11. If A' = $\begin{bmatrix} -2 & 3 \\ 1 & 2 \end{bmatrix}$ and B = $\begin{bmatrix} -1 & 0 \\ 1 & 2 \end{bmatrix}$ then find $(\mathrm{A} + 2\mathrm{B})'$.

12. For the matrices A and B, verify that $(\mathrm{AB})'$ = $B'\,A'$, where:

i)A = $\begin{bmatrix} 1 \\ -4 \\ 3 \end{bmatrix}$, B = $\begin{bmatrix} -1 & 2 & 1 \end{bmatrix}$

ii) A = $\begin{bmatrix} 0 \\ 1 \\ 2 \end{bmatrix}$, B = $\begin{bmatrix} 1 & 5 & 7 \end{bmatrix}$

13. Express the following matrices as the sum of a symmetric and skew symmetric matrix:

i) $\begin{bmatrix} 3 & 5 \\ 1 & -1 \end{bmatrix}$

ii) $\begin{bmatrix} 6 & -2 & 2 \\ -2 & 3 & -1 \\ 2 & -1 & 3 \end{bmatrix}$

- **SOURCES –** Please refer siDream learning mobile app.
- **e-books –** NCERT e-books are available on diksha app.