EduSahara™ Assignment

Name : Matrix Concepts

Chapter : Matrices

Grade : ICSE Grade X

1. Find the transpose of matrix A = $\begin{bmatrix} -5 & 2 \\ 5 & 3 \end{bmatrix}$

   (i) $\begin{bmatrix} -5 & 5 \\ 2 & 3 \end{bmatrix}$ (ii) $\begin{bmatrix} -5 & 2 \\ 2 & 3 \end{bmatrix}$ (iii) $\begin{bmatrix} -5 & 5 \\ 2 & 2 \end{bmatrix}$ (iv) $\begin{bmatrix} -5 & 5 \\ 4 & 3 \end{bmatrix}$ (v) $\begin{bmatrix} -4 & 5 \\ 2 & 3 \end{bmatrix}$

2. Which of the following is an identity matrix ?

   (i) $\begin{bmatrix} 1 & 0 \\ 1 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ (iv) $\begin{bmatrix} 3 & 0 \\ 0 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

3. The number of rows in matrix A = $\begin{bmatrix} 5 & 6 & 5 \\ 4 & 6 & 5 \\ 4 & 5 & 4 \end{bmatrix}$ is

   (i) 3 (ii) 4 (iii) 5 (iv) 2 (v) 1

4. The number of columns in matrix A = $\begin{bmatrix} 6 & -5 \\ 3 & -4 \end{bmatrix}$ is

   (i) 3 (ii) 2 (iii) 0 (iv) 4 (v) 1

5. The order of matrix A = $\begin{bmatrix} -2 \\ 4 \\ 1 \end{bmatrix}$ is

   (i) 3×2 (ii) 2×1 (iii) 4×1 (iv) 3×1 (v) 1×3

6. Which of the following are true?

   a) A column matrix is a square matrix
   b) A null matrix is a square matrix
   c) An identity matrix is a square matrix
   d) A row matrix is a square matrix

   (i) {c} (ii) {d,a,c} (iii) {b,c} (iv) {a,c}

7. Which of the following are true?

   a) A scalar matrix has all elements with same value
   b) A 1×1 matrix has only one element
   c) A unit matrix has only one row and one column
   d) A zero matrix is a square matrix

   (i) {a,c,b} (ii) {b,c} (iii) {a,d,b} (iv) {a,b} (v) {d,c}

8. Which of the following are true?

a) If a matrix is symmetric, then it is a square matrix
b) A rectangular matrix cannot be symmetric
c) A matrix is symmetric if the principal diagonal elements are same
d) If a matrix is symmetric then it is equal to its transpose

(i) {c,d} (ii) {c,b} (iii) {a,b,d} (iv) {c,a} (v) {c,a,b}

9. If the transpose of a matrix is equal to its additive inverse, that matrix is called ____?

(i) identity matrix (ii) symmetric matrix (iii) scalar matrix (iv) skew symmetric matrix

10. Which of the following are true ?

a) A square matrix whose determinant is zero is called a non-singular matrix
b) A square matrix whose determinant is zero is called a singular matrix
c) Rectangular matrices can also have determinants
d) Only square matrices have determinants

(i) {a,b} (ii) {c,d} (iii) {a,c,b} (iv) {a,d,b} (v) {b,d}

11. If the elements of matrix A are multiplied with -1 , we get

(i) multiplicative identity of A (ii) additive identity of A (iii) additive inverse of A

(iv) multiplicative inverse of A

12. If the elements of matrix A are multiplied with 0 , we get

(i) additive identity of A (ii) multiplicative inverse of A (iii) additive inverse of A

(iv) multiplicative identity of A

13. Which of the following are true?

a) A scalar matrix is an identity matrix
b) An identity matrix is a square matrix
c) An identity matrix is a scalar matrix
d) A null matrix is a scalar matrix

(i) {b,c} (ii) {a,d,b} (iii) {a,c,b} (iv) {a,b} (v) {d,c}

14. A 4×3 matrix has

a) 4 rows and 12 columns
b) 3 rows and 4 columns
c) 4 rows and 3 columns
d) 7 rows and 3 columns

(i) {b,c} (ii) {a,c} (iii) {d,a,c} (iv) {c}

15. Which of the following are true for matrices A and B ?

a) If A and B can be multiplied, they must have the same order
b) If $AB = 0$, $A = 0$ or $B = 0$ or both A and B are zero matrices
c) If A and B can be added, they must have the same order
d) The orders of $(A \times B)$ and $(B \times A)$ are same

(i) {c} (ii) {a,c} (iii) {b,c} (iv) {d,a,c}

16. If $(A+B)=0$, then

a) A is the additive inverse of B
b) B is the additive inverse of A
c) A is the additive identity of B
d) B is the additive identity of A

(i) {a,b} (ii) {c,a} (iii) {c,d,a} (iv) {c,b,a} (v) {d,b}

17. Which of the following is a square matrix?

(i) $\begin{bmatrix} 2 & 6 & 6 \\ 8 & 7 & 2 \\ 1 & 1 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 7 & 4 & 5 & 3 \\ 3 & 5 & 4 & 9 \\ 9 & 5 & 7 & 7 \end{bmatrix}$ (iii) $\begin{bmatrix} 9 & 9 & 5 \\ 6 & 4 & 7 \\ 3 & 6 & 3 \\ 8 & 5 & 6 \end{bmatrix}$ (iv) $\begin{bmatrix} 5 & 9 & 5 \\ 5 & 5 & 9 \end{bmatrix}$ (v) $\begin{bmatrix} 6 & 6 & 1 & 9 \\ 7 & 5 & 5 & 3 \\ 2 & 4 & 3 & 9 \\ 5 & 7 & 3 & 7 \\ 7 & 3 & 2 & 1 \end{bmatrix}$

18. Which of the following is a rectangular matrix?

(i) $\begin{bmatrix} 2 \end{bmatrix}$ (ii) $\begin{bmatrix} 9 & 8 & 6 \\ 3 & 2 & 4 \\ 6 & 7 & 4 \end{bmatrix}$ (iii) $\begin{bmatrix} 3 & 1 \\ 9 & 4 \end{bmatrix}$ (iv) $\begin{bmatrix} 8 & 8 & 6 & 1 \\ 9 & 1 & 1 & 8 \\ 3 & 8 & 8 & 9 \end{bmatrix}$ (v) $\begin{bmatrix} 2 & 1 & 7 & 3 \\ 4 & 1 & 8 & 2 \\ 5 & 6 & 8 & 5 \\ 6 & 4 & 7 & 2 \end{bmatrix}$

19. Which of the following are true ?

a) If AB = 0, then A = 0 or B = 0 or both A & B are 0
b) If matrices A & B can be multiplied, they must have the same order
c) The order of $(A\times B)$ and $(B\times A)$ is same
d) If matrices A & B can be added, they must have the same order

(i) {a,d} (ii) {b,d} (iii) {c,a,d} (iv) {d}

20. Which of the following are true for matrices A, B and C ?

a) $(A\times B)=(B\times A)$
b) $(A+B)\times C=(A\times B)+(A\times C)$
c) $A\times(B+C)=(A\times B)+(A\times C)$
d) $(A\times I)=(I\times A)=A$
e) $A\times(B\times C)=(A\times B)\times C$
f) $(A\times I)=(I\times A)=I$

(i) {f,a,e} (ii) {b,c,d} (iii) {c,d,e} (iv) {a,c} (v) {b,d}

21. Which of the following is a row matrix

(i) $\begin{bmatrix} 1 \\ 3 \\ 2 \end{bmatrix}$ (ii) $\begin{bmatrix} 3 & 2 \end{bmatrix}$ (iii) $\begin{bmatrix} 5 \\ 4 \\ 2 \\ 1 \\ 8 \end{bmatrix}$ (iv) $\begin{bmatrix} 1 \\ 4 \\ 9 \\ 8 \end{bmatrix}$ (v) $\begin{bmatrix} 3 \\ 4 \end{bmatrix}$

22. Which of the following is a column matrix

(i) $\begin{bmatrix} 4 & 6 & 9 \\ 9 & 8 & 4 \\ 2 & 8 & 9 \end{bmatrix}$ (ii) $\begin{bmatrix} 7 \\ 4 \\ 7 \end{bmatrix}$ (iii) $\begin{bmatrix} 2 & 3 & 3 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 7 & 5 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} 3 & 1 \end{bmatrix}$

23. Which of the following is a diagonal matrix ?

(i) $\begin{bmatrix} -5 & 0 & 0 \\ 0 & 9 & 0 \\ 0 & 0 & -5 \end{bmatrix}$ (ii) $\begin{bmatrix} -5 & 0 & 3 \\ 0 & 9 & 0 \\ 0 & 0 & -5 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & 0 & -5 \\ 0 & 9 & 0 \\ -5 & 0 & 0 \end{bmatrix}$ (iv) $\begin{bmatrix} -5 & 0 & -5 \\ 0 & 9 & 0 \\ -5 & 0 & -5 \end{bmatrix}$ (v) $\begin{bmatrix} -5 & 0 & 0 \\ 0 & 9 & 0 \\ 3 & 0 & -5 \end{bmatrix}$

24. The principal diagonal elements of the given matrix $\begin{bmatrix} -2 & -3 \\ -5 & 9 \end{bmatrix}$ are

(i) $-3, -5$ (ii) $-2, -5$ (iii) $-2, 9$ (iv) $-3, 9$

25. The principal diagonal elements of the given matrix $\begin{bmatrix} -6 & 2 & -2 \\ 8 & 1 & -9 \\ 4 & -8 & -3 \end{bmatrix}$ are

(i) $-2, 1, 4$ (ii) $-6, 1, -3$ (iii) $-6, -2, 1$ (iv) $2, 8, -8$

26. If $A = \begin{bmatrix} -7 & 5 \\ -3 & -8 \end{bmatrix}$ and the sum of the values of elements of matrix $kA = -91$, find k

(i) 7 (ii) 8 (iii) 5 (iv) 10 (v) 6

Assignment Key

1) (i)	2) (v)	3) (i)	4) (ii)	5) (iv)	6) (i)
7) (ii)	8) (iii)	9) (iv)	10) (v)	11) (iii)	12) (i)
13) (i)	14) (iv)	15) (i)	16) (i)	17) (i)	18) (iv)
19) (iv)	20) (iii)	21) (ii)	22) (ii)	23) (i)	24) (iii)
25) (ii)	26) (i)				