EduSahara™ Assignment

Name : Matrix Miscellaneous

Chapter : Matrices

Grade : ICSE Grade X

1. Which of the following is an identity matrix ?

(i) $\begin{bmatrix} 3 & 0 \\ 0 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ (iii) $\begin{bmatrix} 2 & 0 \\ 0 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 0 & 0 \\ 0 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

2. Matrix A = $\begin{bmatrix} 3 & -4 & 4 \\ 4 & 1 & 4 \\ 1 & 0 & -1 \end{bmatrix}$ is the additive inverse of

(i) $\begin{bmatrix} -3 & 1 & -4 \\ -4 & -1 & -4 \\ -1 & 0 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} -3 & 4 & -4 \\ -4 & -1 & -4 \\ -1 & 0 & 1 \end{bmatrix}$ (iii) $\begin{bmatrix} -3 & 4 & -5 \\ -4 & -1 & -4 \\ -1 & 0 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} -3 & 4 & -4 \\ -4 & -1 & -4 \\ 2 & 0 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} -3 & 4 & -4 \\ -4 & -1 & -3 \\ -1 & 0 & 1 \end{bmatrix}$

3. If A = $\begin{bmatrix} -1 & -4 & -4 \\ -2 & 0 & -4 \\ -4 & 0 & 4 \end{bmatrix}$, then 10A =

(i) $\begin{bmatrix} -10 & -40 & -40 \\ -20 & 0 & -40 \\ -40 & 0 & 40 \end{bmatrix}$ (ii) $\begin{bmatrix} -10 & -40 & -40 \\ -17 & 0 & -40 \\ -40 & 0 & 40 \end{bmatrix}$ (iii) $\begin{bmatrix} -10 & -40 & -40 \\ -20 & 0 & -40 \\ -40 & -1 & 40 \end{bmatrix}$ (iv) $\begin{bmatrix} -10 & -40 & -42 \\ -20 & 0 & -40 \\ -40 & 0 & 40 \end{bmatrix}$ (v) $\begin{bmatrix} -10 & -40 & -40 \\ -20 & 0 & -39 \\ -40 & 0 & 40 \end{bmatrix}$

4. If A = $\begin{bmatrix} 0 & -1 & -2 \\ -6 & 4 & -5 \\ -6 & 2 & -2 \end{bmatrix}$ and O = $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$, then A + O =

(i) $\begin{bmatrix} 0 & -1 & -2 \\ -6 & 4 & -8 \\ -6 & 2 & -2 \end{bmatrix}$ (ii) $\begin{bmatrix} 0 & -1 & -2 \\ -6 & 4 & -5 \\ -6 & 2 & -1 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & -1 & -2 \\ -6 & 4 & -5 \\ -6 & 1 & -2 \end{bmatrix}$ (iv) $\begin{bmatrix} 0 & -1 & -2 \\ -4 & 4 & -5 \\ -6 & 2 & -2 \end{bmatrix}$ (v) $\begin{bmatrix} 0 & -1 & -2 \\ -6 & 4 & -5 \\ -6 & 2 & -2 \end{bmatrix}$

5. If A = $\begin{bmatrix} -2 & -6 \\ 2 & 7 \end{bmatrix}$, then find B satisfying A + B = O

(i) $\begin{bmatrix} 2 & 6 \\ -2 & -10 \end{bmatrix}$ (ii) $\begin{bmatrix} 2 & 9 \\ -2 & -7 \end{bmatrix}$ (iii) $\begin{bmatrix} 2 & 6 \\ -2 & -7 \end{bmatrix}$ (iv) $\begin{bmatrix} 2 & 6 \\ -2 & -8 \end{bmatrix}$ (v) $\begin{bmatrix} 3 & 6 \\ -2 & -7 \end{bmatrix}$

6. If A = $\begin{bmatrix} -1 & 4 \\ -1 & 4 \end{bmatrix}$, then find B satisfying A + B = I

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

7. If A = $\begin{bmatrix} 1 & 0 \\ 4 & 4 \end{bmatrix}$, then find AI

(i) $\begin{bmatrix} 1 & 0 \\ 4 & 4 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & -2 \\ 4 & 4 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 0 \\ 4 & 5 \end{bmatrix}$ (iv) $\begin{bmatrix} 1 & 0 \\ 3 & 4 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 2 \\ 4 & 4 \end{bmatrix}$

8. If $A = \begin{bmatrix} 9 & 8 \\ 2 & 9 \end{bmatrix}$, then find B satisfying A + B = A

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

9. If $A = \begin{bmatrix} 5 & 8 \\ -4 & -6 \end{bmatrix}$, then find B satisfying A × B = A

(i) $\begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 1 & -3 \\ 0 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & -1 \\ 0 & 1 \end{bmatrix}$

10. 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) {b,c} (iii) {a,c} (iv) {d,a,c}

11. Which of the following are true?

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

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

12. Which of the following are true?

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

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

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

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

14. Which of the following are true ?

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

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

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

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

(iv) multiplicative identity of A

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

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

(iv) additive identity of A

17. Which of the following are true?

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

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

18. A 3×2 matrix has

a) 3 rows and 6 columns
b) 3 rows and 2 columns
c) 2 rows and 3 columns
d) 5 rows and 2 columns

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

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

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

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

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

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

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

21. Which of the following is a square matrix?

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

22. Which of the following is a rectangular matrix?

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

23. Which of the following are true ?

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

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

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

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

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

25. If the order of matrix A is $m \times n$ and B is $n \times o$, then the order of $(A \times B)$ is

(i) $m \times n$ (ii) $m \times o$ (iii) $o \times m$ (iv) $n \times o$

26. Which of the following is a row matrix

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

27. Which of the following is a column matrix

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

28. Which of the following are true ?

a) If A X B is possible, the no of rows in A must be equal to no of cols in B
b) If A X B is possible, the no of cols in A must be equal to no of rows in B
c) If A X B is possible, the no of rows in A must be equal to no of rows in B
d) If A X B is possible, the no of cols in A must be equal to no of cols in B

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

29. Which of the following is a diagonal matrix ?

(i) $\begin{bmatrix} 0 & 0 & -6 \\ 0 & -9 & 0 \\ -3 & 0 & 0 \end{bmatrix}$ (ii) $\begin{bmatrix} -6 & 0 & -6 \\ 0 & -9 & 0 \\ -3 & 0 & -3 \end{bmatrix}$ (iii) $\begin{bmatrix} -6 & 0 & -5 \\ 0 & -9 & 0 \\ 0 & 0 & -3 \end{bmatrix}$ (iv) $\begin{bmatrix} -6 & 0 & 0 \\ 0 & -9 & 0 \\ -5 & 0 & -3 \end{bmatrix}$ (v) $\begin{bmatrix} -6 & 0 & 0 \\ 0 & -9 & 0 \\ 0 & 0 & -3 \end{bmatrix}$

30. If $A = \begin{bmatrix} 3 & 0 \\ 0 & x \end{bmatrix}$ is a scalar matrix, then x = ?

(i) *9* (ii) *x* (iii) *0* (iv) *3* (v) *1*

The principal diagonal elements of the given matrix

31. $\begin{bmatrix} 4 & -7 \\ 5 & -3 \end{bmatrix}$ are

(i) -7 , -3 (ii) 4 , 5 (iii) -7 , 5 (iv) 4 , -3

The principal diagonal elements of the given matrix

32. $\begin{bmatrix} 9 & -8 & -7 \\ 8 & -2 & 5 \\ 6 & 2 & 7 \end{bmatrix}$ are

(i) -8 , 8 , 2 (ii) 9 , -7 , -2 (iii) -7 , -2 , 6 (iv) 9 , -2 , 7

33. If $A = \begin{bmatrix} -7 & -1 \\ -8 & -6 \end{bmatrix}$ and the sum of the values of elements of matrix kA = -66 , find k

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

34. If $A = \begin{bmatrix} -1 & -5 \\ -7 & -7 \end{bmatrix}$, the value of -A =

(i) $\begin{bmatrix} 1 & 5 \\ 7 & 7 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & 7 \\ 7 & 7 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 6 \\ 7 & 7 \end{bmatrix}$ (iv) $\begin{bmatrix} 0 & 5 \\ 7 & 7 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 5 \\ 4 & 7 \end{bmatrix}$

35. Find the multiplicative identity of matrix $A = \begin{bmatrix} 7 & 8 \\ 8 & -6 \end{bmatrix}$

(i) $\begin{bmatrix} 3 & 0 \\ 0 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & 0 \\ -1 & 1 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 1 \\ 0 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 1 & 0 \\ 0 & -2 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

36. Find the multiplicative identity of matrix $A = \begin{bmatrix} 2 & -1 & -4 \\ -4 & 1 & 3 \\ 0 & -4 & 1 \end{bmatrix}$

(i) $\begin{bmatrix} 1 & 1 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (ii) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (iii) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 2 & 1 \end{bmatrix}$ (iv) $\begin{bmatrix} 1 & 0 & -1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ (v) $\begin{bmatrix} 1 & 0 & 0 \\ 0 & -2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$

37. Find the additive identity of matrix $A = \begin{bmatrix} 2 & -1 \\ 3 & -3 \end{bmatrix}$

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

38. Find the additive identity of matrix $A = \begin{bmatrix} 3 & -4 & -1 \\ -3 & 3 & 0 \\ -2 & -1 & 4 \end{bmatrix}$

(i) $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 1 & 0 & 0 \end{bmatrix}$ (ii) $\begin{bmatrix} 0 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & -2 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ (iv) $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$ (v) $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 2 & 0 \end{bmatrix}$

Assignment Key

1) (v)	2) (ii)	3) (i)	4) (v)	5) (iii)	6) (v)
7) (i)	8) (v)	9) (ii)	10) (i)	11) (iv)	12) (ii)
13) (i)	14) (ii)	15) (ii)	16) (iv)	17) (ii)	18) (i)
19) (i)	20) (v)	21) (iv)	22) (ii)	23) (i)	24) (v)
25) (ii)	26) (iv)	27) (ii)	28) (iv)	29) (v)	30) (iv)
31) (iv)	32) (iv)	33) (v)	34) (i)	35) (v)	36) (ii)
37) (iii)	38) (iv)				