EduSahara™ Assignment

Name : Matrix Miscellaneous

Chapter : Matrices

Grade : ICSE Grade X

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1. Which of the following is an identity matrix ?

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

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

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

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

(i) $\begin{bmatrix} 3 & -6 & 9 \\ -9 & 11 & 9 \\ -9 & -3 & 12 \end{bmatrix}$ (ii) $\begin{bmatrix} 6 & -6 & 9 \\ -9 & 12 & 9 \\ -9 & -3 & 12 \end{bmatrix}$ (iii) $\begin{bmatrix} 3 & -6 & 6 \\ -9 & 12 & 9 \\ -9 & -3 & 12 \end{bmatrix}$ (iv) $\begin{bmatrix} 3 & -6 & 9 \\ -9 & 12 & 9 \\ -9 & -3 & 12 \end{bmatrix}$ (v) $\begin{bmatrix} 3 & -6 & 9 \\ -9 & 12 & 10 \\ -9 & -3 & 12 \end{bmatrix}$

4. If A = $\begin{bmatrix} 3 & 3 & -5 \\ -3 & 0 & 5 \\ 3 & 5 & -2 \end{bmatrix}$ and O = $\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$, then A + O =

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

5. If A = $\begin{bmatrix} 3 & 6 \\ 0 & -9 \end{bmatrix}$, then find B satisfying A + B = O

(i) $\begin{bmatrix} -3 & -6 \\ 0 & 6 \end{bmatrix}$ (ii) $\begin{bmatrix} -3 & -6 \\ 0 & 8 \end{bmatrix}$ (iii) $\begin{bmatrix} -3 & -6 \\ 0 & 9 \end{bmatrix}$ (iv) $\begin{bmatrix} -3 & -6 \\ 0 & 10 \end{bmatrix}$ (v) $\begin{bmatrix} -3 & -6 \\ 0 & 11 \end{bmatrix}$

6. If A = $\begin{bmatrix} -1 & 0 \\ -2 & 4 \end{bmatrix}$, then find B satisfying A + B = I

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

7. If A = $\begin{bmatrix} -1 & 2 \\ 2 & 0 \end{bmatrix}$, then find AI

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

8. If $A = \begin{bmatrix} -7 & 9 \\ 6 & 4 \end{bmatrix}$, then find B satisfying A + B = A

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

9. If $A = \begin{bmatrix} 4 & -5 \\ -1 & 9 \end{bmatrix}$, then find B satisfying A × B = A

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

10. Which of the following are true?

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

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

11. Which of the following are true?

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

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

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

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

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

14. Which of the following are true ?

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

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

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

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

(iv) multiplicative identity of A

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

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

(iv) multiplicative identity of A

17. Which of the following are true?

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

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

18. A 2×3 matrix has

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

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

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

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

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

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

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

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

21. Which of the following is a square matrix?

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

22. Which of the following is a rectangular matrix?

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

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 matrices A & B can be added, they must have the same order
d) If AB = 0, then A = 0 or B = 0 or both A & B are 0

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

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

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

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

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

26. Which of the following is a row matrix

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

27. Which of the following is a column matrix

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

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

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

29. Which of the following is a diagonal matrix ?

(i) $\begin{bmatrix} -6 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & -9 \end{bmatrix}$ (ii) $\begin{bmatrix} -6 & 0 & -2 \\ 0 & 3 & 0 \\ 0 & 0 & -9 \end{bmatrix}$ (iii) $\begin{bmatrix} 0 & 0 & -6 \\ 0 & 3 & 0 \\ -9 & 0 & 0 \end{bmatrix}$ (iv) $\begin{bmatrix} -6 & 0 & -6 \\ 0 & 3 & 0 \\ -9 & 0 & -9 \end{bmatrix}$ (v) $\begin{bmatrix} -6 & 0 & 0 \\ 0 & 3 & 0 \\ -2 & 0 & -9 \end{bmatrix}$

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

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

The principal diagonal elements of the given matrix

31. $\begin{bmatrix} 2 & -2 \\ -4 & 3 \end{bmatrix}$ are

(i) 2 , -4 (ii) 2 , 3 (iii) -2 , 3 (iv) -2 , -4

The principal diagonal elements of the given matrix

32. $\begin{bmatrix} -2 & 3 & 2 \\ 7 & -9 & -8 \\ 9 & 6 & -7 \end{bmatrix}$ are

(i) -2 , -9 , -7 (ii) 2 , -9 , 9 (iii) -2 , 2 , -9 (iv) 3 , 7 , 6

33. If $A = \begin{bmatrix} -5 & 7 \\ -2 & 8 \end{bmatrix}$ and the sum of the values of elements of matrix kA = 40 , find k

(i) 2 (ii) 4 (iii) 6 (iv) 5 (v) 8

34. If $A = \begin{bmatrix} 9 & 6 \\ -9 & -2 \end{bmatrix}$, the value of -A =

(i) $\begin{bmatrix} -9 & -6 \\ 10 & 2 \end{bmatrix}$ (ii) $\begin{bmatrix} -9 & -7 \\ 9 & 2 \end{bmatrix}$ (iii) $\begin{bmatrix} -9 & -6 \\ 9 & 2 \end{bmatrix}$ (iv) $\begin{bmatrix} -9 & -6 \\ 7 & 2 \end{bmatrix}$ (v) $\begin{bmatrix} -9 & -4 \\ 9 & 2 \end{bmatrix}$

35. Find the multiplicative identity of matrix $A = \begin{bmatrix} 2 & 0 \\ -1 & 5 \end{bmatrix}$

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

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

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

37. Find the additive identity of matrix $A = \begin{bmatrix} 4 & -2 \\ -7 & 9 \end{bmatrix}$

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

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

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

Assignment Key

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

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