

Algebra of Matrices

Part - 3

ASSERTION-REASON QUESTIONS

In the following questions, a statement of Assertion (A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices.

- (a) Both A and R are true and R is the correct explanation of A.
- (b) Both A and R are true but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) A is false and R is also false.

1. **Assertion (A) :** A matrix $A = [1 \ 2 \ 0 \ 3]$ is a row matrix of order 1×4 .

Reason (R) : A matrix having one row and any number of column is called a row matrix.

2. **Assertion (A) :** If $\begin{bmatrix} x^2 - 4x & x^2 \\ x^2 & x^3 \end{bmatrix} = \begin{bmatrix} -3 & 1 \\ -x + 2 & 1 \end{bmatrix}$, then the value of $x = 1$.

Reason (R) : Two matrices $A = [a_{ij}]_{m \times n}$ and $B = [b_{ij}]_{m \times n}$ of same order $m \times n$ are equal, if $a_{ij} = b_{ij}$ for all $i = 1, 2, 3, \dots, m$ and $j = 1, 2, 3, \dots, n$.

3. **Assertion (A) :** If A and B are symmetric matrices of same order then $AB - BA$ is also a symmetric matrix.

Reason (R) : Any square matrix A is said to be skew-symmetric matrix if $A = -A^T$, where A^T is the transpose of matrix A.

Answers

1. (a) 2. (a) 3. (d)