



# SHIKSHA CLASSES

Subject : Maths - I

BOARD QUESTION PAPER

Total Marks : 20

Class : XII

Topic: 2 Matrices

Time : 1 Hr.

## Section A

**Q.1 : Choose the correct option :**

4

i) The cofactor of element in second row and second column of matrix

$$\begin{bmatrix} 2 & 1 \\ 3 & 5 \end{bmatrix}$$

- a) 1                                      b) 2                                      c) 3                                      d) 5

ii) Which of the matrix is not invertible

- a)  $\begin{bmatrix} 2 & 1 \\ 0 & 1 \end{bmatrix}$                                       b)  $\begin{bmatrix} 2 & 5 \\ 4 & 5 \end{bmatrix}$                                       c)  $\begin{bmatrix} 2 & 3 \\ -1 & 3 \end{bmatrix}$                                       d)  $\begin{bmatrix} -3 & 3 \\ -5 & 5 \end{bmatrix}$

**Q.2 : Solve the following questions:**

2

i) If  $A = \begin{bmatrix} 1 & 0 \\ -1 & 3 \end{bmatrix}$  apply the transformation  $R_1 \leftrightarrow R_2$  on A.

ii) Apply the given elementary transformation on each of the following matrices.

$$\begin{pmatrix} 1 & -1 & 3 \\ 2 & 5 & 4 \end{pmatrix} R_1 \rightarrow R_1 - R_2$$

## Section B

**Solve the following : (ANY2)**

4

**Q.3:** Find the adjoint of matrix

$$A = \begin{bmatrix} 2 & -3 \\ 4 & 1 \end{bmatrix}$$

**Q.4:** Find the inverse of the matrix by adjoint method

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

**Q.5 :** Solve the following equation by inversion method

$$x + 2y = 2, 2x + 3y = 3$$

### Section C

**: Solve the following : (ANY 2)**

6

**Q.6 :** If  $A = \begin{bmatrix} \sin \theta & 0 \\ 0 & \cos \theta \end{bmatrix}$ , then find the adjoint of matrix A.

**Q.7 :** If  $A = \begin{bmatrix} 1 & 2 \\ 3 & 4 \end{bmatrix}$  and X is a  $2 \times 2$  matrix such that  $AX = I$ , then find X.

**Q.8 :** Three chairs and two tables cost Rs.1850. Five chairs and three tables cost Rs.2850. Find the cost of four chairs and one table.

### Section D

**: Answer the following : (ANY 1)**

4

**Q.9 :** If  $A = \begin{bmatrix} 1 & 1 \\ 1 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 4 & 1 \\ 3 & 1 \end{bmatrix}$  and  $C = \begin{bmatrix} 24 & 7 \\ 31 & 9 \end{bmatrix}$  then find matrix X such that  $AXB = C$ .

**Q.10:** Find the inverse of

$$A = \begin{bmatrix} \cos \theta & -\sin \theta & 0 \\ \sin \theta & \cos \theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

by elementary transformation.

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