Confidence

"*Arise! Awake! Stop not till the Goal is reached*" 1

[Model Test-02A_XII(14-15)_ 22nd Apr'14]   Class-XII   [F.M-30/Time-50 min.]

PROBLEMS on MATRIX

1. If $A = \begin{bmatrix} 1 & -1 \\ -1 & 1 \end{bmatrix}$, and $A^2 = mA$, then write the value of m. [1]

2. If a matrix has 15 elements, then write all possible order it can have. [1]

3. If C_{ij} is the cofactor of the element a_{ij} of the determinant $\begin{vmatrix} 2 & -3 & 5 \\ 6 & 0 & 4 \\ 1 & 5 & -7 \end{vmatrix}$ then write the value of $a_{32}C_{32}$. [1]

4. A is a square matrix of order 3 and $|A| = 7$. Write the value of $|\text{Adj } A|$. [1]

5. Write the adjoint of the following matrix: $\begin{bmatrix} 2 & -1 \\ 4 & 3 \end{bmatrix}$. [1]

6. For what value of *x*, is the matrix $A = \begin{pmatrix} 0 & 1 & -2 \\ -1 & 0 & 3 \\ x & -3 & 0 \end{pmatrix}$ a skew-symmetric matrix ? [1]

7. If $A = \begin{bmatrix} 2 & -3 \\ 3 & 4 \end{bmatrix}$, show that $A^2 - 6A + 17I = O$. Hence find A^{-1}. [4]

8. If $A = \begin{pmatrix} 2 & 0 & 1 \\ 2 & 1 & 3 \\ 1 & -1 & 0 \end{pmatrix}$, then find the value of $A^2 - 3A + 2I$. [4]

9. Express the following matrix as the sum of a symmetric and a skew symmetric matrix. $\begin{bmatrix} 1 & 3 & 5 \\ -6 & 8 & 3 \\ -4 & 6 & 5 \end{bmatrix}$ [4]

10. Using matrices solve the following system of equations : $\begin{aligned} 4x+3y+2z &= 60 \\ x+2y+3z &= 45 \\ 6x+2y+3z &= 70 \end{aligned}$. [6]

OR, Using matrices solve the following system of equations : $\begin{aligned} 2x-3y+5z &= 11 \\ 3x+2y-4z &= -5 \\ x + y - 2z &= -3 \end{aligned}$.

11. Find the inverse of the following matrix using elementary operations $A = \begin{pmatrix} 1 & 2 & -2 \\ -1 & 3 & 0 \\ 0 & -2 & 1 \end{pmatrix}$ [6]

"The essence of Mathematics, lies in its freedom" – CANTOR

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