

## ASSIGNMENT

### QUESTIONS

1. If  $A = \begin{pmatrix} 1 & 2 & 3 \\ 3 & -2 & 1 \\ 4 & 2 & 1 \end{pmatrix}$ , then show that  $A^3 - 23A - 40I = O$ .

2. Obtain the inverse of the matrix  $A = \begin{pmatrix} 0 & 1 & 2 \\ 1 & 2 & 3 \\ 3 & 1 & 1 \end{pmatrix}$  using elementary row operations method.

3. Solve the following system of equations using matrix method.

$$3x - 2y + 3z = 8$$

$$2x + y - z = 1$$

$$4x - 3y + 2z = 4$$

4. Prove that  $\begin{vmatrix} b+c & a & a \\ b & c+a & b \\ c & c & a+b \end{vmatrix} = 4abc$

5. Find the eigenvalues and eigenvectors of the matrix  $A = \begin{pmatrix} 1 & 0 & -1 \\ 1 & 0 & 0 \\ -2 & 2 & 1 \end{pmatrix}$ .