



# SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore - 641 107



## AN AUTONOMOUS INSTITUTION

Accredited by NAAC - UGC with 'A' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

### UNIT I

### MATRICES & EIGEN VALUES AND EIGEN VECTORS

#### ASSIGNMENT I

1. Find the eigen values and eigen vectors of the matrix  $\begin{bmatrix} 2 & 2 & 1 \\ 1 & 3 & 1 \\ 1 & 2 & 2 \end{bmatrix}$ .
2. Diagonalise the matrix  $A = \begin{pmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{pmatrix}$ .
3. Reduce the quadratic form  $2x_1x_2 + 2x_1x_3 - 2x_2x_3$  to canonical form by orthogonal reduction. Also find its nature.
4. Reduce the quadratic form  $x^2 + 5y^2 + z^2 + 2xy + 2yz + 6zx$  to canonical form and hence find its rank.