



### SECTION-B

2. Solve the equation  $2x^3 - 9x^2 + 12x - 4 = 0$ , given that two of its roots are equal.
3. Solve the equation  $x^4 + 8x^3 + 9x^2 - 8x - 10 = 0$  by Descartes's method.
4. Prove that every square matrix is uniquely expressible as the sum of the symmetric and a skew-symmetric matrix.
5. Solve  $x - y + 2z = 4$ ,  $3x + y + 4z = 6$ ,  $x + y + z = 1$ .
6. Find the Eigen values and Eigen vectors of  $\begin{bmatrix} 8 & -6 & 2 \\ -6 & 7 & -4 \\ 2 & -4 & 3 \end{bmatrix}$ .
7. Find the Characterstic equation of  $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$  and verify that it is satisfied by A  
and hence find the inverse of A.