

## ASSIGNMENT

1. Suppose  $A = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 5 & 6 & 7 & 8 \\ 9 & 10 & 11 & 12 \\ 13 & 14 & 15 & 16 \end{bmatrix}$ . Find determinant of  $A$ .

2. Solve the system of equations  $Ax = b$ . Where

$$A = \begin{bmatrix} 2 & -1 & 3 \\ 6 & 1 & -1 \\ 2 & 1 & 1 \end{bmatrix}, x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}, b = \begin{bmatrix} 5 \\ 3 \\ -1 \end{bmatrix}.$$

3. Find the rank of  $A = \begin{bmatrix} 4 & 6 \\ 2 & 3 \\ 8 & 9 \end{bmatrix}$

4. Find the Market Equilibrium Point  $\bar{P} = (\bar{P}_1, \bar{P}_2, \bar{P}_3)$  where there is no excess demand. The demand and supply of three commodities as functions of the prices of these commodities are given by:

$$Q_{d1} = 10 + 2P_1 + 2P_2 + 2P_3$$

$$Q_{d2} = 10 + 2P_1 + 2P_2 + 2P_3$$

$$Q_{d3} = 10 + 3P_1 + 2P_2 + P_3$$

$$Q_{s1} = 16 + P_1 + P_2 + P_3$$

$$Q_{s2} = 12 + P_1 + 3P_2 + P_3$$

$$Q_{s3} = 10 + 2P_1 + P_2 + 2P_3$$