

- (1) Discuss the basic concept of game theory? What are its limitations
- (2) Write down the different steps in the formulation of a linear programming problem
- (3) Write a brief essay on input - output analysis
- (4) What do you mean by determinant. What are different ~~characterist~~ properties of determinant

Ref. No. ....

Date .....

4 (a) 
$$\begin{vmatrix} 1 & 1 & 1 \\ a^2 & b^2 & c^2 \\ a^3 & b^3 & c^3 \end{vmatrix} = (a-b)(b-c)(c-a)(ab+bc+ca)$$

4 (b) Show that 
$$\begin{vmatrix} 13 & 16 & 19 \\ 14 & 17 & 20 \\ 15 & 18 & 21 \end{vmatrix} = 0$$

5 Define Convex Set

6 A utility function is given by  $u = 2q_1^2 q_2 + 3q_1 q_2^2$ . Show that the rate of change of marginal utility of commodity  $q_1$  w.r.t  $q_2$  is equal to marginal utility of commodity  $q_2$  w.r.t  $q_1$ .