Terms of Linear Programming.

The term programming means planning and refers to a process of determining a particular program.

(1) **Objective function:**The linear function which is to be optimized (maximized or minimized) is called objective function of the L.P.P.

(2) **Constraints or Restrictions:** The conditions of the problem expressed as simultaneous equations or inequalities are called constraints or restrictions.

(3) **Non-negative Constraints:**Variables applied in the objective function of a linear programming problem are always non-negative. The ineqaulities which represent such constraints are called non-negative constraints.

(4) **Basic variables:** The m variables associated with columns of the m × n non-singular matrix which may be different from zero, are called basic variables.

(5) **Basic solution:** A solution in which the vectors associated to m variables are linear and the remaining $(n-m)$ variables are zero, is called a basic solution. A basic solution is called a degenerate basic solution, if at least one of the basic variables is zero and basic solution is called non-degenerate, if none of the basic variables is zero.

(6) **Feasible solution:** The set of values of the variables which satisfies the set of constraints of linear programming problem (L.P.P) is called a feasible solution of the L.P.P.

(7) **Optimal solution:** A feasible solution for which the objective function is minimum or maximum is called optimal solution.

(8) **Iso-profit line :** The line drawn in geometrical area of feasible region of L.P.P. for which the objective function remains constant at all the points lying on the line, is called iso-profit line.
If the objective function is to be minimized then these lines are called iso-cost lines.

(9) **Convex set:**In linear programming problems feasible solution is generally a polygon in first quadrant . This polygon is convex. It means if two points of polygon are connecting by a line, then the line must be inside to polygon. For example,

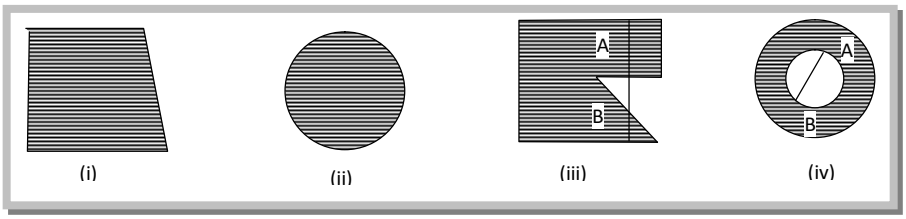

Figure (i) and (ii) are convex set while (iii) and (iv) are not convex set