

Chapter 12

LINEAR PROGRAMMING

QUESTION & ANSWERS:

1) Define Objective function?

Ans: The Linear function which is to be maximised or minimised under given constraints.

2) Define Constraints?

Ans: The restrictions (or) Linear inequalities (or) equations in the variables of an L.P.P, which describe the conditions under which the optimisation is to be accomplished.

3) Define Non- negativity constraints?

Ans: The assumption that negative values of variables are not possible in the solution. They are described as $x \geq 0, y \geq 0$.

4) Define Feasible solution?

Ans: The set of points, whose co-ordinates satisfy the constraints and non-negativity of a linear programming problem, is said to be the feasible solution.

5) Define Infeasible solution?

Ans: A solution of L.P.P is an infeasible solution, if it does not satisfy the non-negativity restrictions.

6) Define Optimal feasible solution?

Ans: A feasible solution of L.P.P which maximizes (or) minimizes the objective function is called its Optimal solution.

7) Define Optimal value of objective function?

Ans: The Optimal value (maximum or minimum of) the objective function is obtained at a vertex of the feasible region(if it is bounded). If there is more than

one point (vertex) where the objective function is optimum (maximum or minimum), then every point on the line segment joining any two such vertices optimizes the objective function.

8) Define Feasible region?

Ans: The common region determined by all the constraints including non-negative constraints of a L.P.P is called the feasible region (or) solution region. Feasible region is always a convex set. Feasible region may be bounded (or) unbounded.

9) Define Infeasible region?

Ans: The region other than the feasible region is called Infeasible region of the L.P.P.

10) What is Corner point of a feasible region?

Ans: A point in the feasible region which is the intersection of two boundary lines is called Corner point.

11) What are the Infinite number of Optimal solutions?

Ans: The L.P.P may have more than one solution because of the nature of the objective function. Each of such optimal solutions is referred to alternative optimal solution. Hence, there can be infinite number of Optimal solutions.

12) What are Diet problems?

Ans: In diet problems, amount of different kinds of nutrients/constituents which are to be included in a diet are determined so as to minimize the cost of the desired diet such that it contains a certain minimum amount of nutrient or constituent.

13) What are Manufacturing problems?

Ans: In these problems, we determine the number of units of different production which should be produced and sold by a firm when each product requires a fixed man power, machine hours, labour hour per unit of product, warehouse space per unit of the output etc. In order to make maximum profit.

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