



TRINITY COLLEGE FOR WOMEN NAMAKKAL

Department of Mathematics

OPERATIONS RESEARCH

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TOPIC:TRANSPORTATION PROBLEM

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Aim of Transportation Model

To find out optimum transportation schedule keeping in mind cost of transportation to be minimized.

Definition

- The transportation problem is a special type of LPP where the objective is to minimize the cost of distribution a product from a number of sources or origins to a number of destinations.
- Because of its special structure the usual simplex method is not suitable for solving transportation problems. These problems require special method of solution.

The Transportation Problem

- The problem of finding the minimum cost distribution of a given commodity from a group of supply centers (sources)

$i = 1, 2, \dots, m$ to a group of receiving centers (distributions)

$j = 1, 2, \dots, n$.

- Each source has a certain supply (s_i).
- Each destination has a certain demand (d_j).
- The cost of shipping from a source to a destination is directly proportional to the number of units shipped.

Application of Transportation Problem

- Minimum shipping costs.
- Determine low cost location.
- Find minimum cost production schedule.
- Military distribution system.

Types of Transportation Problem

- **Balanced Transportation Problem**
where the total supply equals total demand.
- **Unbalanced Transportation Problem**
where the total supply is not equal to the total demand.

Phases of Solution of Transportation Problem

- Phase- I obtains the initial feasible solution.
 - Phase- II obtains the optimal basic solution.

Phase I

- North- west Corner Method
- Least cost Method and
- Vogel's Approximation Method
(or Penalty Method).

Phase II

- Stepping Stone Method
- Modified Distribution Method (MODI)

transportation Problem

Categorized into two types

- Minimization Problem

In this Transportation cost is given which is to be minimized.

- Maximization Problem

In this Transportation cost is given which is to be maximized.

THANK YOU

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