MCA-II Sem: TP | Online Class
22-04-2020

Transportation Problem:-

→ It deals with sources where a supply of some commodity is available and destination where the commodity is demanded.

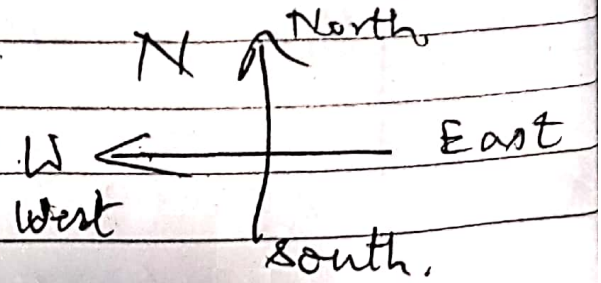
→ It intended to find a least cost route from sources to destinations.

Methods/Techniques to find least cost route:-

Initial Basic Feasible Solution:

→ North-West corner Method.
→ Least cost Method.
→ Vogal's Method.

North-West Corner Method:-
(NWC = North-West-corner)



Method with Example:-

Example problem.

Cost Matrix and Demand/Supply table.

From \ To →	D1	D2	D3	D4	Supply/availability
S1	19	7	3	21	100
S2	15	21	18	6	300
S3	11	14	15	22	200
	150	100	200	150	600

Demand Row

Σ of Demand = 600

Σ of Supply = 600

It is a Balanced Problem

→ Start with the NWC of cost Matrix table and consider the cell in the first row and column.

→ Allocate minimum of [Demand & Supply] for this cell.

→ Remove the row or column corresponding to this allocation from further consideration.

→ Repeat in zig zag manner until the last source and Destination is covered.

	D1	D2	D3	D4	
S1	100				100 ←
S2					300
S3					200
	150	100	200	150	

↑

① N-W cell is S1 D1
and Minimum of (100, 150) = 100

Allocate in cell [1,1] = 100
and Remove/shade the row

Now the remaining table is:

	D1	D2	D3	D4	
S2	50				300
S3	50	100	200	150	200

↑ 150 − 100 = 50 = Remaining Demand.

Now New N-W corner cell is S2 D1
and minimum of New Demand/Supply
= min(50, 300) = 50

Now remove/cross this column for further consideration.
and update new supply/Demand table.

Repeating in this way we get following allocation in various routes for transportation:

	D1	D2	D3	D4	
S1	19 [100]	7	3	21	100
S2	15 [50]	21 [100]	18 [150]	6	300
S3	11	14	15 [50]	22 [150]	200
	150	100	200	150	

Total Transportation cost =
$19 \times 100 + 15 \times 50 + 21 \times 100 + 18 \times 150 + 15 \times 50 + 22 \times 150$

$= 1900 + 750 + 2100 + 2700 + 750 + 3300 = 11500$

Note: this is a feasible solution/cost Not optimal one.