

A company has three plants A, B, C and three warehouses X, Y, Z. The no. of units available at the plants is 60, 70, 80 resp. The demand at X, Y, Z are 50, 80, 80 resp. The unit costs of transportation are as follows:

	X	Y	Z	
A	8	7	3	60
B	3	8	9	70
C	11	3	5	80
	50	80	80	

Find the allocation so that the total transportation cost is minimum.

Solⁿ:

	X	Y	Z	Supply	C.P	R _i
A	8	7	3	60	4, 4, 4	+6
B	3	8	9	70	5, 1, 1	0
C	11	3	5	80	2, 2, 2	-4
Dem	50	80	80	210		
R _j	5	4, 4, 5	2, 2, 4			
K _{ij}	3	7	9			

Step 1 Supply = Dem
Step 2: I.B.F.S. by VAM.

Step 3: Test of optimality
Req. no. of allocated.
 $= m+n-1$
 $= 3+3-1 = 5$

Actual no. of allocated = 4

Step 4: Optimised by MODI

a) Calcul. R_i & K_j such that
 $K_{ij} = R_i + K_j$ for store square

b) Calcul. I.P for water cells such that
 $C_{ij} = (R_i + K_j)$ for W.C

I.P.

$$AX = 8 - (3 - 6) = 11$$

$$AY = 7 - (7 - 6) = 6$$

$$BY = 8 - (7 - 0) = 1$$

$$CX = 11 - (3 - 4) = 12$$

As I.P value of W.C are +ve above
Solⁿ is optimum

$$T.C = 3 \times 60 + 3 \times 50 + 9 \times 20 + 3 \times 80 + 5 \times 6$$

$$= 750 \text{ as } \epsilon \rightarrow 0.$$