## Pransportation Problem (T.P.)

- Minimization Model
- Allocation model

1BFS - check for optimality - improving the solution if needed - SBFs...

### Prob 1

find the Initial Basic Feasible Solution (IBFS) for the . Transportation problem below.

#### Warchouses

		Wi	\N2	W3	W4	Capacity
<del>factories</del>	6	19	30	50	10	7
	f <sub>2</sub>	70	30	40	60	9
	F3	40	8	70	20	18
Requirem	1001	5	8	7	14	

Capacity = Availability = Supply Requirement = Demand

In order to solve TP, it requires to be balanced T.P.

When Epernand = E Supply - Balanced T.P.

5 Demand & Esupply - Unbalanced T.P.

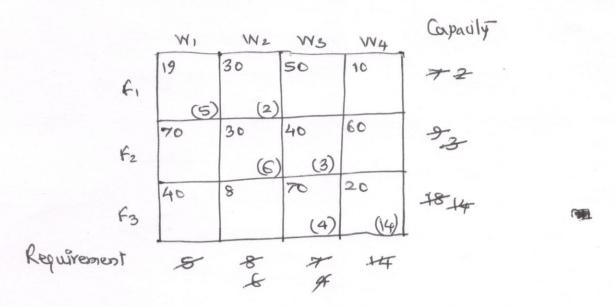
#### Solution

Potal Dunand/requirement = 5+8+7+14 = 34 unils Total Capacity = 7+9+18 = 84 unils

As Fotal requirement = Total Corpacily

Given P.P. is a balanced T.P.

(1) North-West Corner Rule (Stepping stone method)



Potal transportation cost (TTC) = 
$$[69 \times 5] + (30 \times 2) + (30 \times 6) + (40 \times 3)$$
  
+  $(70 \times 4) + (20 \times 14)] =$   
=  $(95 + 60 + 180 + 120 + 280 + 280) = Rs 1,015$ 

## (2) Row minima method

	W	VV2	W3	W4	Capacity
6	19	30	50	10 (7)	7
	70	30	40	60	9+
f <sub>2</sub>		(8)	(i)	1	
	40	8	70	20	18-11
F3	(5)		(6)	(7)	6
Requirement	8	8	To	#	

Total Promspostation Cost (TTC)= [(10x7)+(30x8)+(40x1)+(40x1)+(40x5)+(70x6)+(20x7)]= 70+240+40+200+420+140=Rs 1110/-



TTC = 
$$Rs[(19x5)+(8x8)+(40x7)+(10x2)+(60x2)+(20x10)]$$
  
=  $Rs(95+64+280+20+120+200) = Rs779$ 

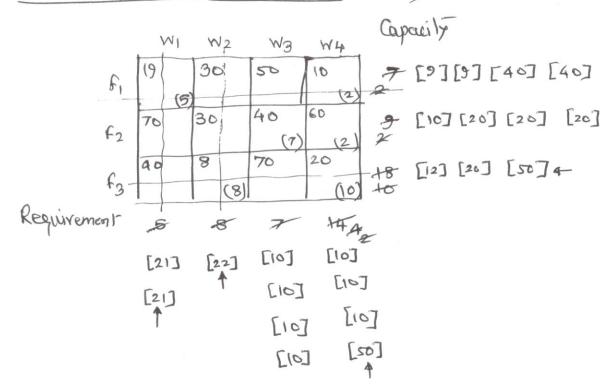
# (4) Matrix minima method (Least cost Entry Method)

	WI	W2	Wg	W4	Capacily
۴,	19	30	50	10 (7)	7
	70	30	40	60	92
f <sub>2</sub>	(2)	8	(7) 70	20	
f <sub>3</sub>	(3)	(8)		(7)	<del>18</del> 3-
Requirement	5	8	7	# 7	
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Max Demand or Min Supply

$$TTC = Rs [(10x7) + (70x2) + (40x7) + (40x3) + (8x8) + (20x7)]$$

$$= Rs (70 + 140 + 280 + 120 + 64 + 40)$$



TTC= 
$$Rs[(19x5) + (10x2) + (40x7) + (60x2) + (8x8) + (20x10)]$$
  
=  $Rs(95 + 20 + 280 + 120 + 64 + 200) = Rs 779$ 

- i) N-W Corner Rule Rs 1015
- 2) Row minimia method Rs 1110
- 3) Coloumn minima method Rs 779 -
- 4) Matrix Minima method Rs 814
- 5) Vogel's Approximation method 779