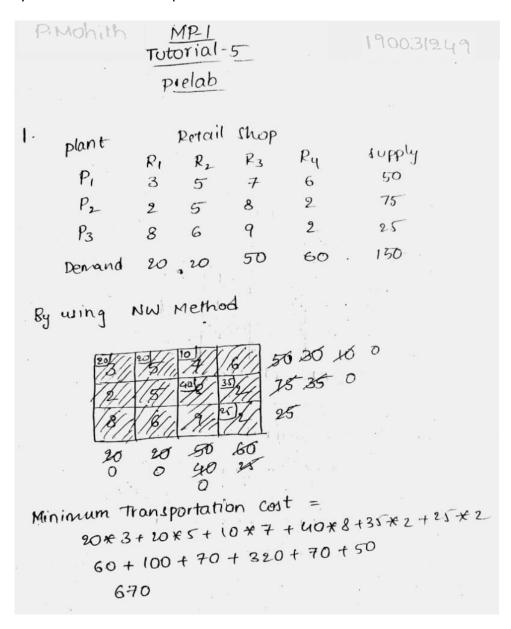
# MP-1 TUTORIAL-5 PRELAB

#### Problem 1:

The Amulya Milk Company has three plants located throughout a state with production capacity 50, 75 and 25 gallons. Each day the firm must furnish its four retail shops  $R_1$ ,  $R_2$ ,  $R_3$ &  $R_4$  with at least 20, 20, 50, and 60 gallons respectively. The transportation costs (in Rs.) are given below.

Plant	Retail Shop				Cummbe
	$R_1$	$R_2$	$R_3$	$R_4$	Supply
$P_1$	3	5	7	6	50
$P_2$	2	5	8	2	75
P <sub>3</sub>	3	6	9	2	25
Demand	20	20	50	60	

The economic problem is to distribute the avaiSESSIONle product to different retail shops in such a way so that the total transportation cost is minimum.



#### **INLAB**

#### Problem 1:

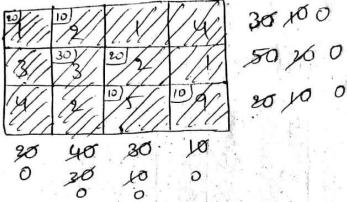
Luminous lamps have three factories -  $F_1$ ,  $F_2$ , and  $F_3$  with production capacity 30, 50, and 20 units per week respectively. These units are to be shipped to four warehouses  $W_1$ ,  $W_2$ ,  $W_3$ , and  $W_4$  with requirement of 20, 40, 30, and 10 units per week respectively. The transportation costs (in Rs.) per unit between factories and warehouses are given below.

Factory	Warehouse				Cumply
	$W_{\scriptscriptstyle 1}$	$\mathbf{W}_{2}$	$W_3$	$W_4$	Supply
F <sub>1</sub>	1	2	1	4	30
F <sub>2</sub>	3	3	2	1	50
F <sub>3</sub>	4	2	5	9	20
Demand	20	40	30	10	

# Inlab

1. Factory	$w_{l}$	ware Wz	house W3	Wy	supply 30
Fı	1	2	$I_{ci}$	4	50
FL	3	3	2	1	20
F3	4	2	5	٦	.4
Demand	20	40	30	10	

using NW method



Minimum Transportation Cost

#### **POSTLAB**

#### **Problem 1:**

GM Textiles units located at Chennai, Coimbatore and Madurai. GM Textiles produces ready-made garments at these locations with capacities 6000, 5000 and 4000 units per week at Chennai, Coimbatore and Madurai respectively. The textile unit distributes its ready-made garments through four of its wholesale distributors situated at four locations Bangalore, Hyderabad, Cochin and Goa. The weekly demand of the distributors is 5000, 4000, 2000 and 4000 units for Bangalore, Hyderabad, Cochin and Goa respectively. The cost of transportation per unit varies between different supply points and destination points. The transportation costs are given in the network diagram.

The management of GM Textiles would like to determine the number of units to be shipped from each textile unit to satisfy the demand of each wholesale distributor. The supply, demand and transportation cost are as follows:

## **Production Capacities**

Supply	Textile Unit	Weekly Production (Units)
1	Chennai	6000
2	Coimbatore	5000
3	Madurai	4000

# **Demand Requirements**

Destination	Wholesale Distributor	Weekly Demand (Units)
1	Bangalore	5000
2	Hyderabad	4000
3	Cochin	2000
4	Goa	4000

## Transportation cost per unit

Supply	Destination			
	B'lore	Hyderabad	Cochin	Goa
Chennai	5	6	9	7
Coimbatore	7	8	2	4
Madurai	6	3	5	3

postlab

	Banglore	Hyd	cochin	broa	
chennai	5	6	9	7	6000
coimbatore	7	8	2	4	M00
Madurai	6	4×3	2	3	4000
1 1 1 2 3	1000	400	2000	400	0

1000	14/14/	6000	1000	0
4 1000	2000	1000	1000	0
1/2/2	<u>  40001</u>	4000	0	
PROD LAND	2800 4800			
0 3300	0 0		4° '4	
0				

5000 × 5 + 1000 × 6 + 2000 × 8 + 2000 × 2 + 4000 × 3 17000 + 6000 + 16000 + 7000 + 12000 54000