## Modale: III

> Transportation Problem: (TP)

The objective of transportation problem is the transport of various amount of a songle compodity that as stored at several objects to a number of destination.

The transportation is obserted in such way that destinations demand as satisfied within the capacity of oxyon. and that total poor transportation cost is minimum

factory showsoon	Koeli	chennai	Delhi	Suppo
		13	17	250
by drabad	259	18	K	300
Mumbai	10		250	100
demand	200	225	250	
dema		1000		

Belanced Transportation Roblem (BTP)	
If total supply = total demand.	
then the given (TP) is balanced. Then to	be
above supp example	
Total supply = 550/-	
Total demand = 6751-	
· latal suppy of total demand: So	thei
transportation is unbalanced.	
larbay/show kochi chennai selli kolha	ita /
Hydrobad 11 18 17 17	2
Humbar 10 18 14 10	30
6 7 8 9	40
demand. 200. 225 275 \$50	
Market III	1000
Total apply = 950	
" demand : 960	
A supply = demand	

st 1: check cobether Given Tp is balanced or cinbalance st 2: if the problem is unbalanced make st balance, by adding a dummy row (dummy column coith cost xero sind initial feasible solution using nexth-west corner method or lest cost method or vogel's Approamination Method.

st 3: check whether the transportation exgenerate or non-gralegenerate.

6t4: Find optial solution using MODI method

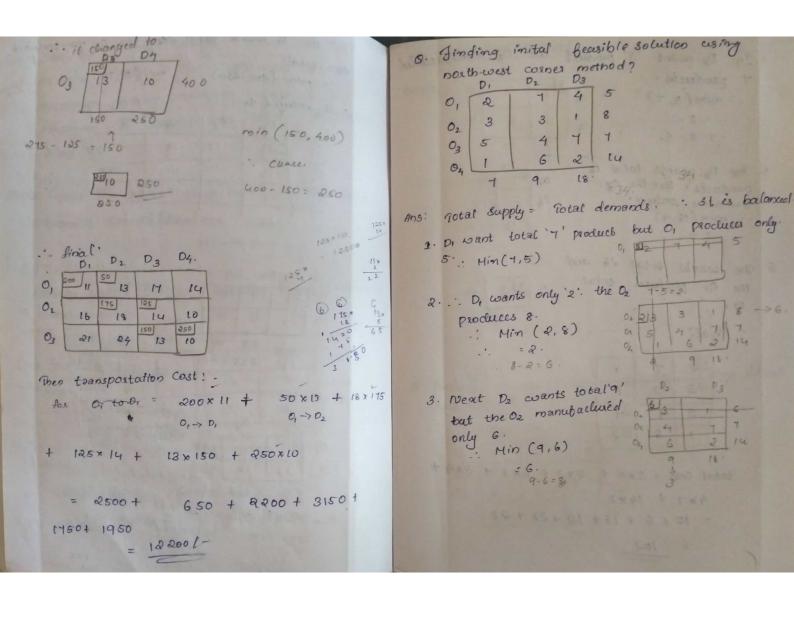
This method is to find initial feasible solution or a transportation problem

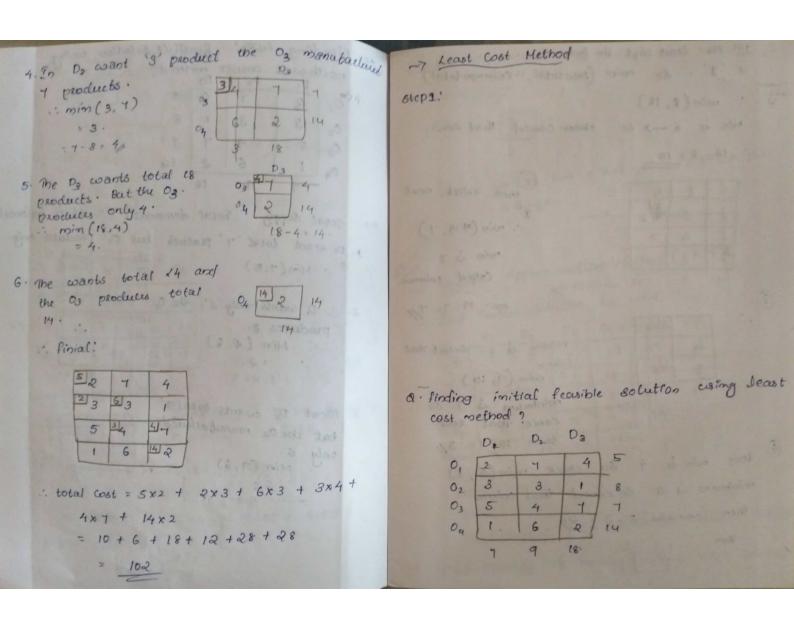
Shep 1: Alweate the cell (!!) (North-west cell) maximum m possible amount cobich is the minimum ob soco total and column total so either a sow or a whem total get exhosted.

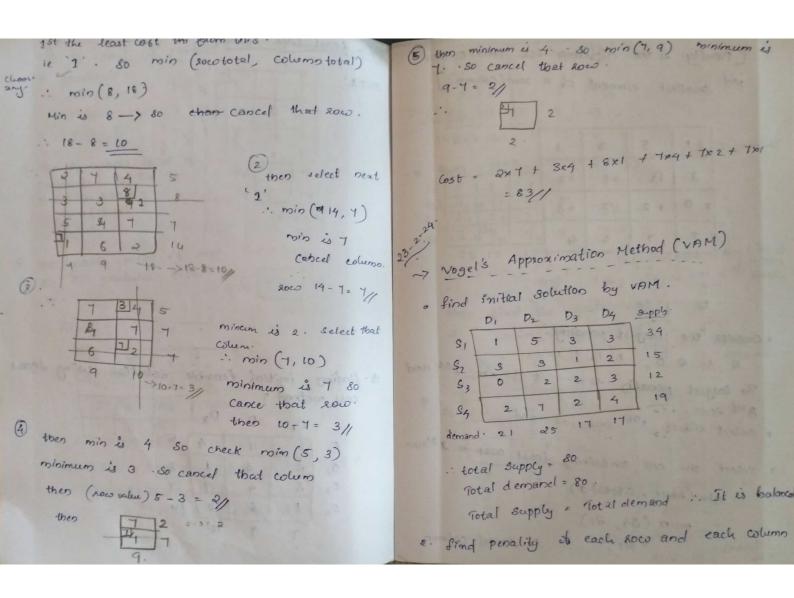
So cor cases off that sow or column

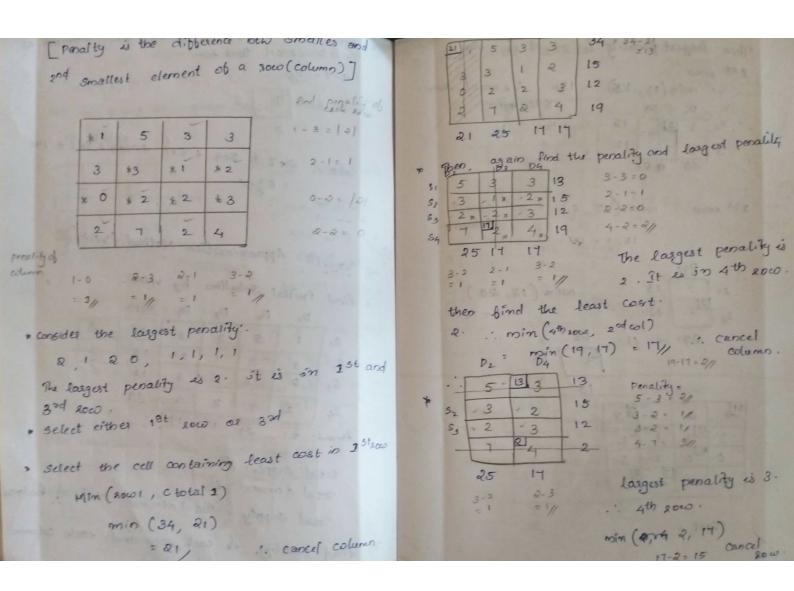
Steps: Consider the new redused matrix in that matrix allocate to the Northwest corner cell maximum possible amount colvele is the minimum ob present sow total & colomo total hadren many last those price Steps. Repeat the above step until all avialable quancit au exhosted. egin Mary grees collabor helige finding initial beasible solution cising corner noethool 9 D1 D2 D3 D4. 250 19 DOP HOS 13 010 300 14 18 16 400 10 13 03/21 24 200 275 Total Supply = Total demand it balanced.

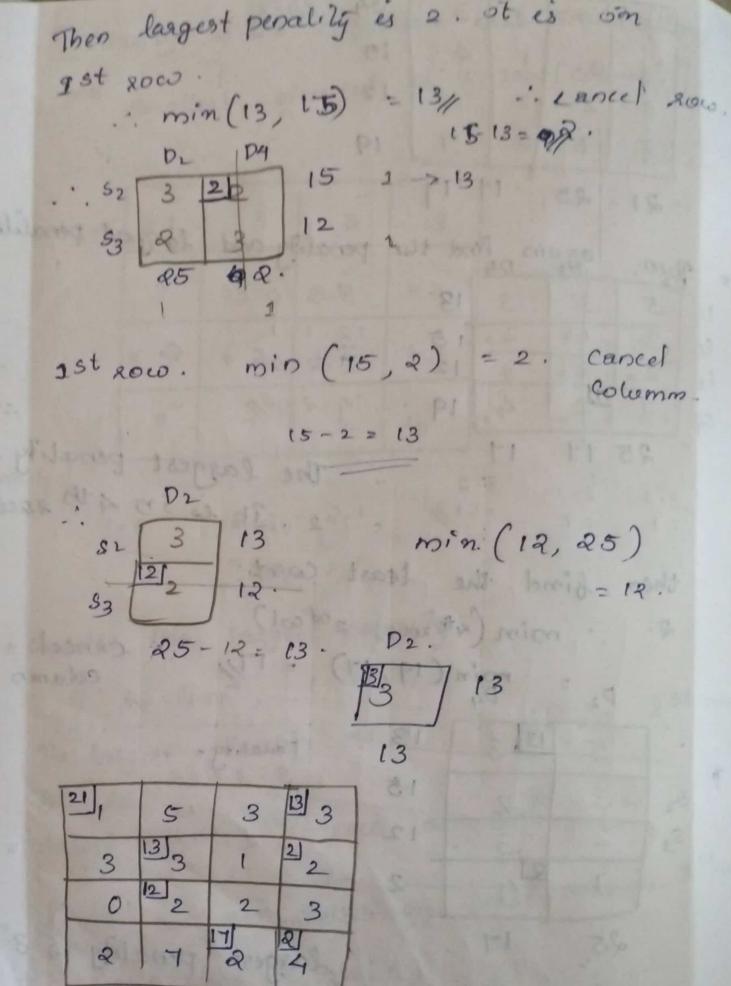
for the 0, wants total 200. The 0, manufactured 250 total. min (0, D.). .. min (200, 250) . it reduced to. DZ 50 50 13 14 10 18 0, 10 24 225 . . 205-50 = 115 P2 D3 D4 02 1918 114/10 300 10 then cheek balancolor not . 525 : 525 belanced (2000) (245, 925)



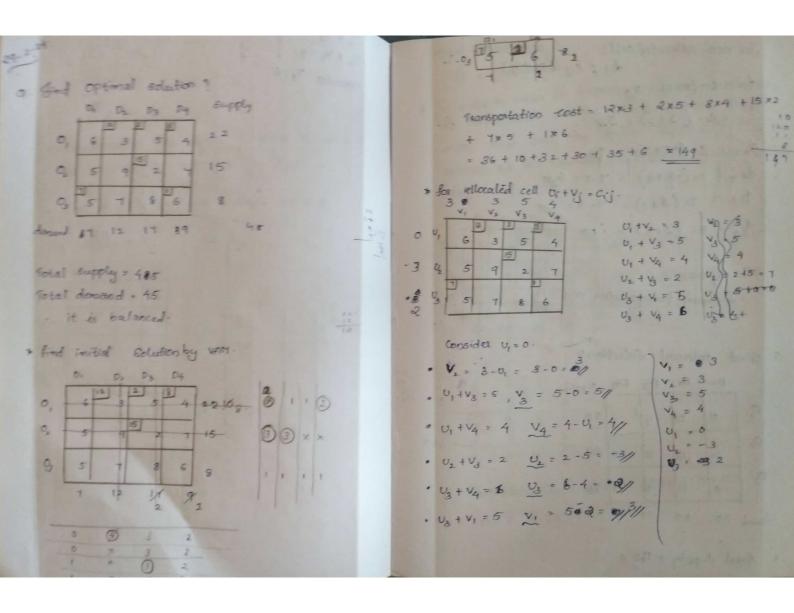


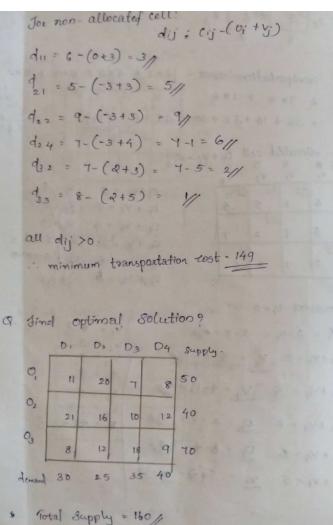






Cost =





To ender to make st balance a dummy destination

\* To ender to make st balance a dummy destination

B subsocluced 3m the transportation table

with zero cost. The eacess supply (30) es

entered as the column total ob the dummy destination.

D. D. D. D. D. D. D. D.

O. 21 16 10 12 30 50 10 10 2 2 2 2 2

O. 30 25 12 12 9 0 10 15

do 25 35 40 30 . 15

3 4 3 1 0

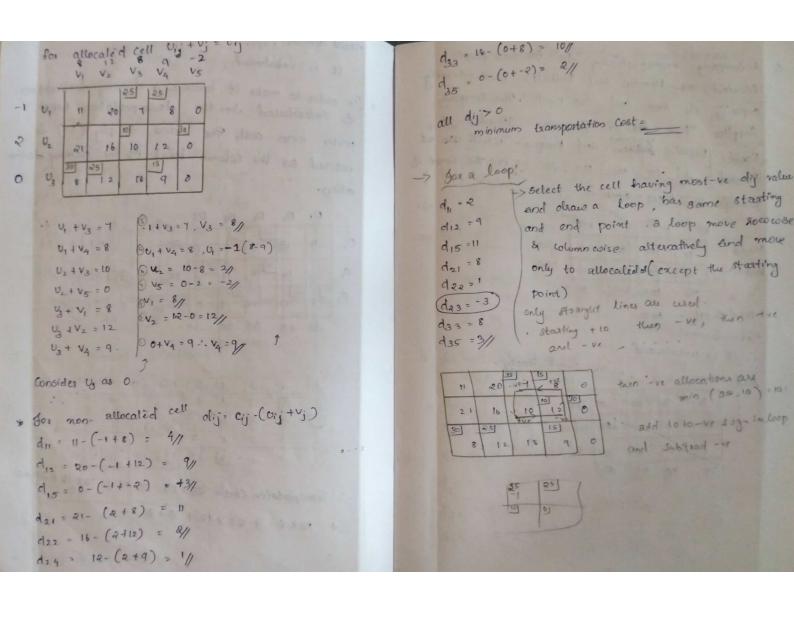
3 9 3 1 ×

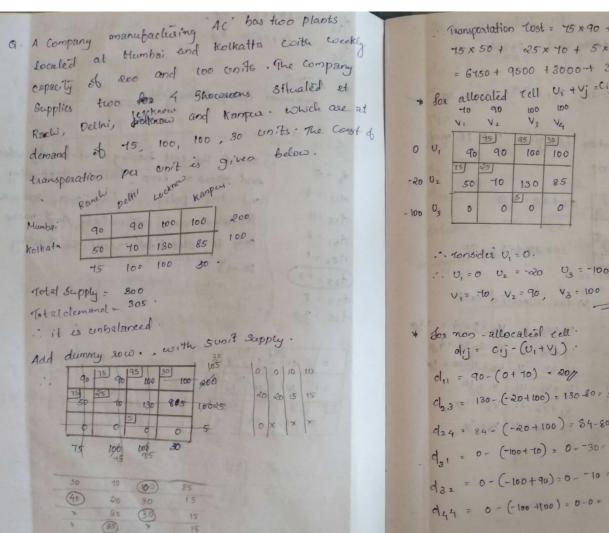
x x 3 1 ×

x x 3 9 ×

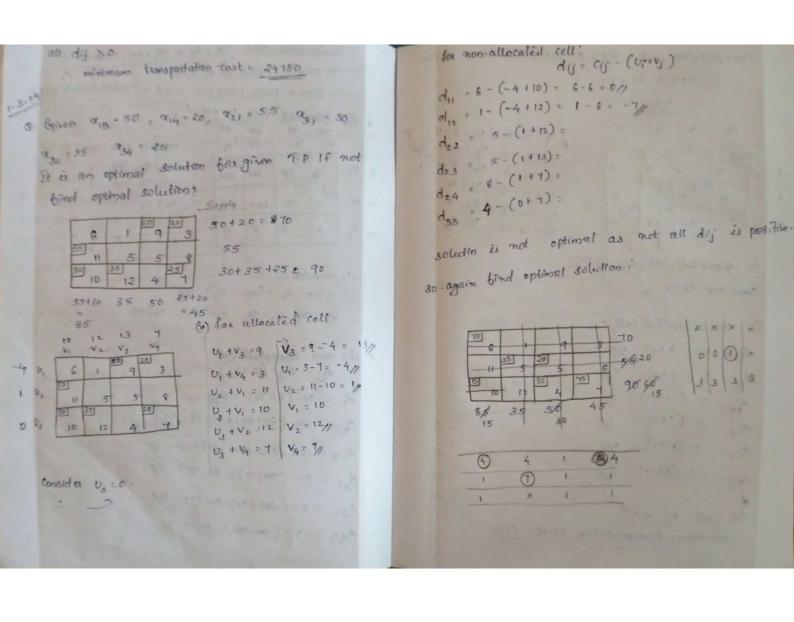
Transportation Cost = 25×1+ 25×6+ 10×10+30×0

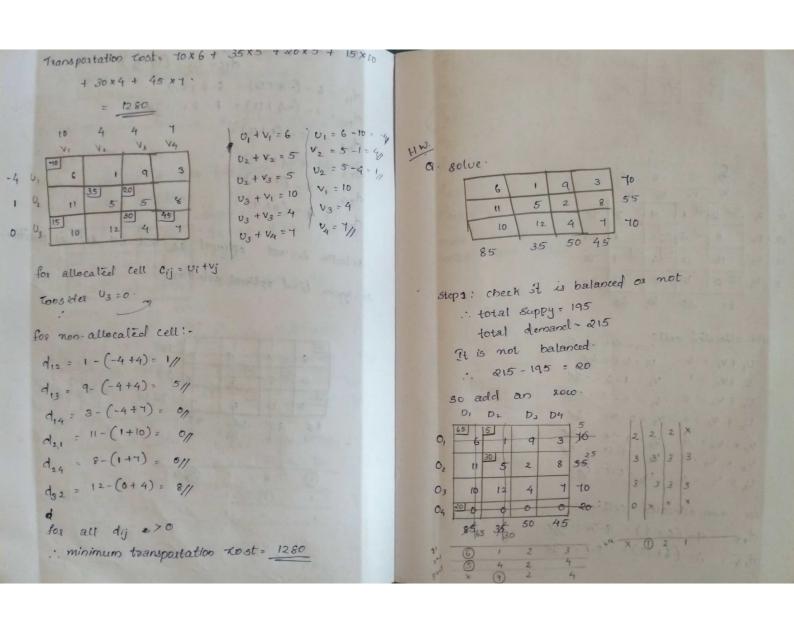
+ 80×8 + 25×12+15×9



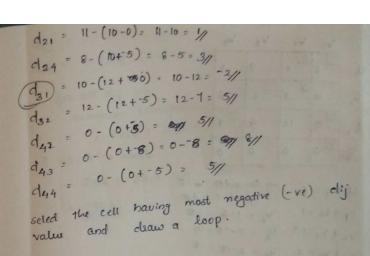


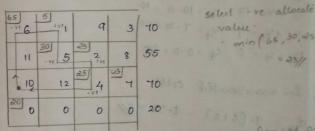
Transportation Tost = 75 x 90 + 95 x 100 + 30 x 100 + 25× 40 + 5×0 = 6750 + 9500 + 3000 - 3750 + 1750 + 0 = 24750 Tell Uity = Cij U, + V2 = 90 / 1/2 U1 + V3 = 100 100 85 = 10 . donsider U, = 0. V4 = 100 V3 = 100 V = 40, V2 = 90, for non-allocated cell. dij = cij - (vi+yj). d1 = 90- (0+10) = 20/ C/23 = 130-(-20+100) = 130-80= 50/ d24 = 84 - (-20+100) = 84-80 - 4/1 ch31 = 0- (-100+10) = 0--30= 30/ d32 = 0-(-100+90)=0--10=10//











add 25 to the sign and subtract 25 from the sign



0 -5 V. V2	V <sub>3</sub> V <sub>4</sub>			45%
6 0, 40 6 30	100			
10 0, 11 5			29) 40	
10 V <sub>3</sub> R5 10 12	4 45 7		(0) -0	rab.
0 04 20 0 0	100			CAB.
u, +v, = 6	-> consider Vi =	11		
$U_1 + V_2 = 1$ $U_2 + V_2 = 5$	$V_2 = 1-6 = -5$ $V_2 = 5-5=10$	2 such		
U2 + V3 = 2	$V_3 = 2^{-10} = ^{-8}$ $V_3 = 10^{-0} = ^{10}$			
$v_3 + v_1 = 10$ $v_3 + v_4 = 7$	V4 = 4 -10 = -3			
U4 + V1 = 0	U4 = 0-0 = 9/1	3 5 5		
	aled cell:			
d13 = 9-(6+	8)	4		
d14 = 3- (6	+-3) = 3-3=	0//		
d21 = 11 - (1	0+0) = 11	= 1/1		
d <sub>24</sub> = 8- (1)				
d <sub>32</sub> = 12 - (	10+-8) = 4-2	= 2/1		
d <sub>33</sub> = 4- (	0+-5) = 0-5	= 5//		
942		1000	ASSET LE	100000

 $d_{43} = 0 - (0-8) = 8/1$   $d_{44} = 0 - (0^{2}-3) = 0 - 3 = 3/1$   $d_{500} = 40 \text{ in the obstacles}$   $= 40 \times 6 + 30 \times 1 + 5 \times 5 + 50 \times 2 + 25 \times 10$   $= 40 \times 6 + 30 \times 1 + 5 \times 5 + 50 \times 2 + 25 \times 10$   $= 40 \times 6 + 30 \times 1 + 50 \times 5 + 50 \times 2 + 25 \times 10$  = 240 + 30 + 25 + 100 + 250 + 315 + 0 = 960