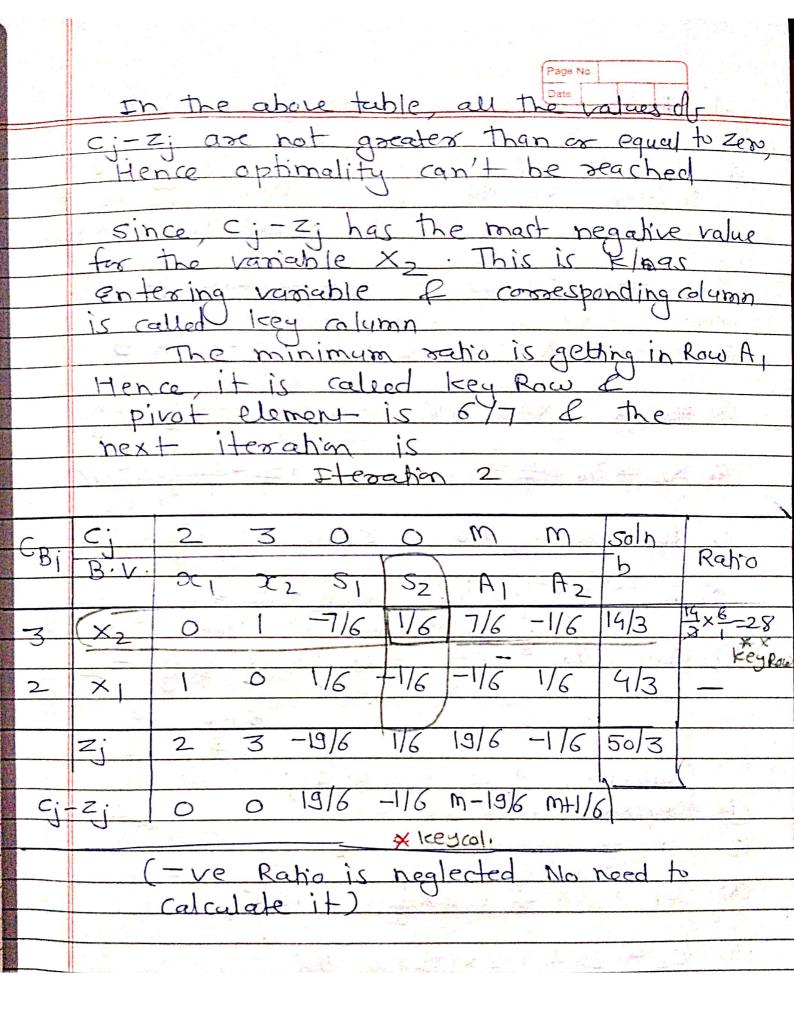


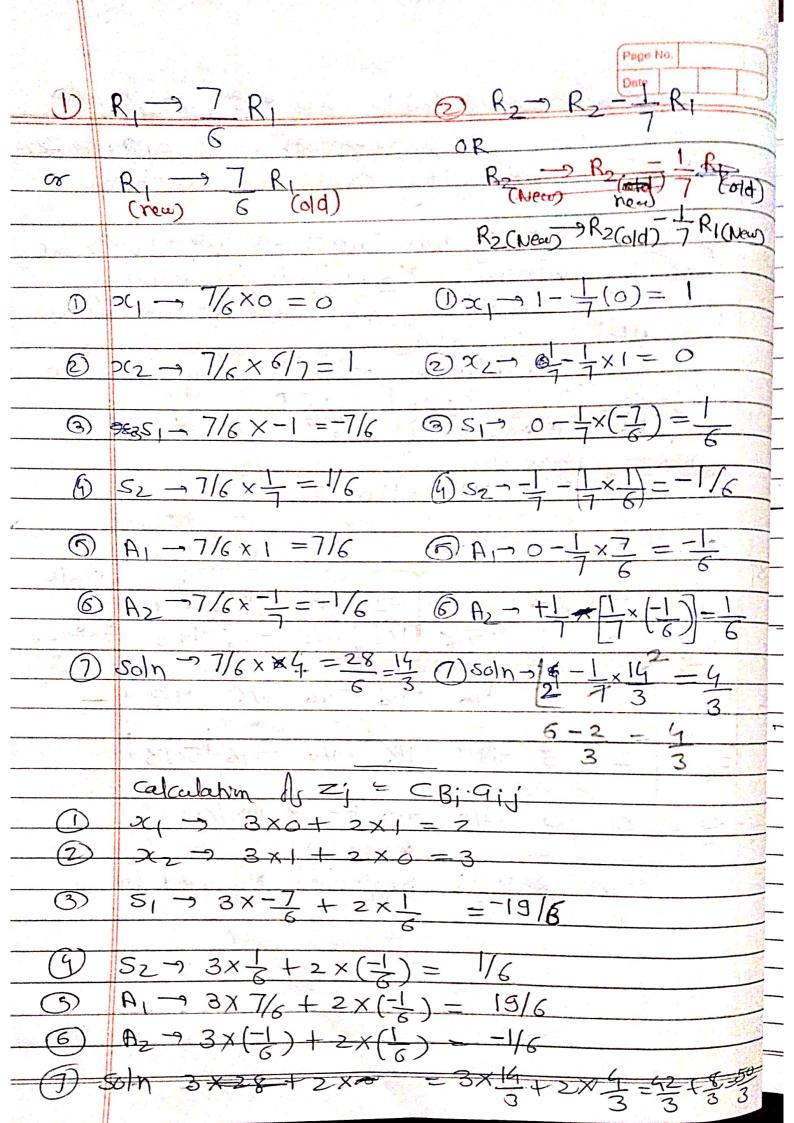
The standard form of the given problem is minimize Z = 2x1+3x2+0.51+0.52+MA1+MA2  $x_1 + x_2 - s_1 + A_1 = 6$  $7x_1 + x_2 - s_2 + A_2 = 14$ X1, X2, 51, 52 A, & A, 20 where 51 and 52 are called symplus variable which are introduced to balance the Here A, & Az gre artificial variables optimality condition:for minimization problem, if all Ci-zi goe greater than or equal to zero, then aptimality reached otherwise select the entering variable with the most negative value. Now prepare initial basic feasible table

For maximize select most trepale win mm 3 Rahie 50 whim 52 A1 A2 D(1) X2 G 51 b 6/1=1 m 0 0 14/7=2 19 W 0 1797 Pre 0 -key ra 8m 2m -m M 20 M M -M Cj-Z; 2-8m 3-2m m M 0 0 1 \* mast-re calculation of Zi = ECBi. Gij  $x = | \cdot w + \lambda \cdot w = \delta w$ 20 =1.W +1.W = 2 M 51 x = m x (-1) + m x 0 = -m  $x = S_2 = m \times o + m \times (-1) = -m$ AI - MXI + MXO = M  $A_2 = m \times 0 + m \times 1 = m$ 50/n = MX6+14×M = 20M In the above table optimality condition for minimization problem for Ci-Z are not greater than or equal to Zero Hence optimality cannot reach Therefore the solution can be improved turther

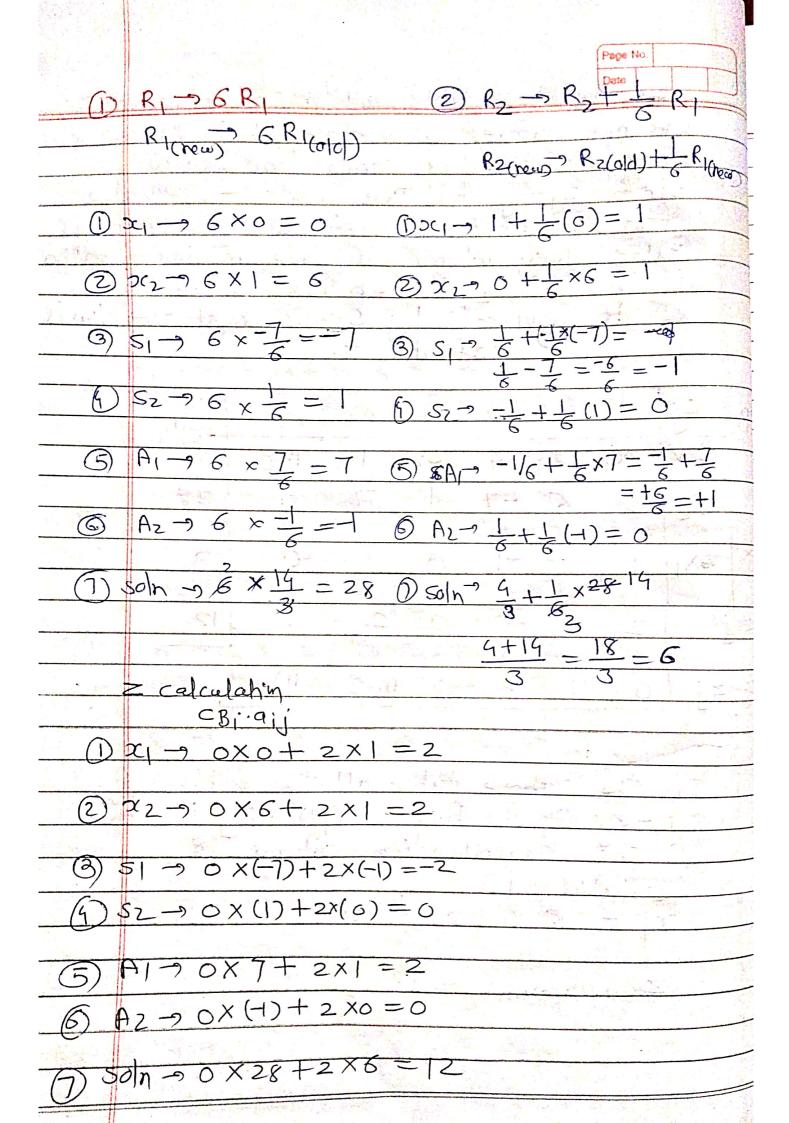
since Sj-z has the maximum negative value for the variable X1 .. X1 is a Entering variable & such column is called as key column IMP If Cj-Zj is a function of M, then ighose the constant numeric terms in it while making companison with another Ci-zi The satio is the minimum for the second row Az Hence it is called as key Row & Az is a leaving variable. The Intersection of key column & key Row is called pivot element i.e. Here is . In next Iteration Az is seplaced by XI Iteration 1 3 0 0 m m soln Ratio (202 SI S2 A) 4/6/7=4xI 1/7/0-1/7 0 2 | X + 2 = 217 = 14 1/7  $0 - \frac{6}{6}m + \frac{19}{19}m - \frac{1}{m} + \frac{2}{5} = 0 + \frac{8}{8}m - \frac{2}{5}$ 3-12-11-3

A1 - A1 - A2 (2) R, - R, - R2 OR. Az(10) Az(0|d)/7 Rz(New) Rz(0|d)/7 RICHEND COLD CEVEN  $2x_1 - 1 - \frac{1}{7} = 7 - \frac{1}{7}$ @ 5, - 0/7 = 0 (9) 52 -> -1/7 =-1/7 (9) Sz -> 0 - (-1)= 1/7 6 A1 - 0/7 =0 (5) A1 - 1 - 0 = 1 (6) Az - 0 - (1/7) = -1/7 6 A2 -> 1/7 = 1/7 1) solvarb - 14/7 = 21 (7) som -36-2=4calculation of Zi = CBi.aij  $2 \times 2 = m \times \frac{6}{7} + 2 \times (\frac{1}{7}) = \frac{6}{7} + \frac{2}{7}$  $S_1 = M \times (-1) + 2 \times 0 = -M$  $s_2 = m \times (+) + 2 \times (-+) = m - 2$  $(5) A_1 = mx_1 + 2x_0 = M$ Az = mx (===) + 2 x === -m + 82 50/n = m × 4 + 2×2 = 4 m + 4





In the above table, all the values of C1-Z1 are not greater than or equal to zero, hence optimality cannot be reached since Gi-zi has the most -ve value for variable Sz & such column is colled key column of the minimum ratio is in Rowxz: In next iteration X2 is seplaced by S2 of next Iteration is Iterahan 3. In the above table all the values of cj-zj > 0 Hence optimality is seached the consesponding column & solution is Z(ophinum) = 12



	Page No.
	Date Date
EXL	Solve the following LPP Date
	using Big M method.
	minimize $Z = 10x_1 + 15x_2 + 20x_3$
	subject to 3
	$2x_1 + 4x_2 + 6x_3 \ge 24$
	$3x_1 + 9x_2 + 6x_3 \ge 30$
	$1 \propto \chi \propto 20$
	1,72,3
oln/-	The standard form of the above problem
	is shown below.
	In this form 51,52 gol called as
	surplus variables which goe introduced
	to balance the constaints.