

ASSIGNMENT

Hungarian Assignment Method (HAM)

Requirements :-

- ① the problem matrix should be a square matrix i.e. equal no. of rows & columns.
- ② Minimisation type problem (else convert to minimisation)

Steps

- ① Take the balanced square cost matrix.
- ② Deduct from each row the min. cost element of that row
(Reduced Cost Table 1) (Row operation)
- ③ Deduct from each column the min. cost element of that column
(Reduced Cost Table 2) (Column operation)
- ④ Draw smallest no. of lines

Covering all zeros in RCT 2
(i.e. each line should cover max
zeros.)

⑤ If no. of lines = no. of rows/col/n.
the solution is optimal.

⑥ Else find out the min cost
element which is uncovered by a
line. Then :-

(i) Subtract min cost element
from each uncovered element.

(ii) Add min. cost element to
all intersections

⑦ A new table 3 is obtained.
(RCT 3)

⑧ Again draw min. no. of lines
covering all zeros. $\text{Line} = n$
 $\Rightarrow$ optimal solution.

⑨ Now make assignments :-

(i) 1st allocate to the row
or col. having only one zero.

~~Step~~ (ii) Next move to row/col
having multiple zeros striking off
unallocated zeros.

Note Allocation should be made
such that there is only one allo-
cation in each row & column.
 $\therefore$ no. of optimal allocations
 $= n = \sqrt{\text{no. of rows} \times \text{no. of col}}$