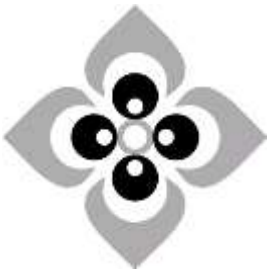

[Frequently Asked Questions]

[Transportation Problem (Part - 2)]

Subject:	Business Economics
Course:	B.A., 4th Semester, Undergraduate
Paper No. & Title:	Paper – 403 (Four Zero Three) International Economics
Unit No. & Title:	Unit – 2(two) Transportation & Assignment
Lecture No. & Title:	2(Two): Transportation Problem (Part - 2)

Frequently Asked Questions

1. **Which are the methods commonly used to obtain optimal solution?**

   There are two method commonly used to obtain optimal solution: Stepping stone method and MODI method.

2. **What are the two conditions for optimality test?**

   Optimality test can be performed if two conditions are satisfied i.e.

   - There are m + n – 1 allocations, where m is number of rows, n is number of columns.
   - These m + n – 1 allocations should be at independent positions. i.e. it should not be possible to increase or decrease any allocation without either changing the position of the allocations or violating the row or column restrictions.

3. **When can we say that the solution obtained is optimal solution?**

   Check the sign of each opportunity cost $c_{ij} - (u_i + v_j)$. If the opportunity costs of all the unoccupied cells are either positive or zero, the given solution is the optimum solution.

4. **How many allocated cells should in the solution?**

   There should be m + n – 1 allocation, where m is number of rows, n is number of columns.

5. **After calculating net change in the transportation cost for each unallocated cells in stepping stone method, how to decide whether it is an optimal solution or not?**

   If net change in the transportation cost for all unallocated cells is non-negative, it is sign that solution is optimal.

6. **How the values of u_i and v_j are obtained?**

   The values of u_i and v_j are obtained using the equation $u_i + v_j = c_{ij}$.

7. **How is opportunity cost calculated in MODI method of obtaining optimal solution?**

   Opportunity cost for all unallocated cells is calculated using $c_{ij} - (u_i + v_j)$.

8. **How to decide that we have reached an optimal solution in stepping stone method?**

   Calculate an improvement index by first adding the unit-cost figures found in each cell containing a plus sign and then by subtracting the unit costs in each cell containing a minus sign. If all indices computed for unallocated cells are greater than or equal to zero, you have reached an optimal solution.

9. **What is the sign of alternative solution in MODI method?**

   If in the optimal table, one of the values of $c_{ij} - (u_i + v_j) = 0$.

10. **In MODI method which type of cells should be the corner cells of the loop (other than the cell from which is the loop is started)?**

    Allocated cells