[Frequently Asked Questions]

Transportation Problem (Part - 1)

Subject:	Business Economics
Course:	B.A., 4th Semester, Undergraduate
Paper No. & Title:	Paper – 403 Quantitative Techniques for Management
Unit No. & Title:	Unit - 2 Transportation & Assignment
Lecture No. & Title:	Lecture – 1 Transportation Problem (Part - 1)

Frequently Asked Questions

Q1. What is Transportation problem?

A1. Transportation problem refers to a planning model that allocates resources, machines, materials, capital etc. in a best possible way so that the costs are minimized or profits are maximized.

Q2. Give general transportation cost matrix.

A2. The general transportation cost matrix can be shown as follows:

	D1	**D2**	⋯	**Dn**	Supply
O1	c_{11}	c_{12}		c_{1n}	$\boldsymbol{a_1}$
O2	c_{21}	c_{22}		c_{2n}	$\boldsymbol{a_2}$
⋮					
Om	c_{m1}	c_{m2}		c_{mn}	$\boldsymbol{a_m}$
Demand	$\boldsymbol{b_1}$	$\boldsymbol{b_2}$		$\boldsymbol{b_n}$	$\sum a_i = \sum b_j$

Q3. What is unbalanced transportation problem?

A3. If the total supply is not equal to the total demand then it is called an **unbalanced transportation problem**.

Q4. How can unbalanced transportation problem be solved?

A4. Unbalanced transportation problem is converted into a balanced transportation problem by adding a dummy row or a dummy column with zero transportation cost.

Q5. Which are the methods used to obtain initial basic feasible solution?

A5. There are three method mainly used to obtain initial basic feasible solution: North West Corner, Matrix Minima and Vogel's method.

Q6. How the first allocation is made in North West Corner method?

A6. The first allocation is made to the variable x_{11} (i.e. the cell in the top left corner of the transportation table).

Q7. How the first allocation is made in Matrix minima method?

A7. The first allocation is made to the smallest unit cost in the entire table. If there is a tie then choose arbitrarily.

Q8. How the first allocation is made in Vogel's method?

A8. Allocate as much as possible to the lowest-cost cell in the row or column with the highest difference. If two or more differences are equal, allocate as much as possible to the lowest-cost cell in these rows or columns.

Q9. Of the three method of obtaining initial basic feasible solution, which method generally provides better solution?

A9. Vogel's method

Q10. How many allocated cells should be there in m*n transportation problem?

A10. m+n-1