[Summary]

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)

Summary

- 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.
- The general form of transportation problem is:

	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	$\boldsymbol{b_1}$	$\boldsymbol{b_2}$		$\boldsymbol{b_n}$	$\sum a_i = \sum b_j$

- If the total supply is not equal to the total demand then it is called an **unbalanced transportation problem**.
- Three methods commonly used to obtain initial basic feasible solution of the transportation problem are.

1. North West Corner method
2. Least Cost method (or Matrix minima method)
3. Vogel's method

- In North West Corner method the first step is to allocate maximum amount allowable by the supply and demand constraints to the cell in the top left corner of the transportation table.
- In Least Cost method the first step is to allocate maximum amount allowable by the supply and demand constraints to the minimum value of the matrix.
- In Vogel's method the first step is to allocate maximum amount allowable by the supply and demand constraints to the minimum cost of the highest difference row or column.