# CLASS 5

## ECONOMIC ORDER QUANTITY (EOQ)

**Background:**

- Imagine you run a stationary shop.
- You sell 10,000 notebooks per year.
- You buy notebooks from a supplier.
- Now your problem is:
  - Should you order many times in small quantity?
  - Or few times in large quantity?
- Both create problems.
- Suppose you order small quantity many times. Let you order 100 notebooks each time. Then you must place $(10000 \div 100) = 100$ orders per year. Each order costs money:
  - Phone calls
  - Transport
  - Paperwork

  So, Ordering frequently implies to **"high Ordering Cost"**

- Suppose you order large quantity few times. Let you order 5000 notebooks each time. Then you must place $(10000 \div 5000) = 2$ orders per year. So you must store 5000 notebooks. This means:
  - Storage cost
  - Damage risk
  - Capital blocked

  So, Ordering few times implies to **"high Storage Cost"**

- So you need to search a quantity which is:
  - Not too small
  - Not too large
  - But just right
  - This quantity must balances the ordering cost and holding cost in such a way that the total inventory cost is minimized. Therefore, this quantity is an optimal quantity and this optimal quantity is called Economic Order Quantity (EOQ).

- EOQ is the order quantity at which:

  Ordering Cost = Holding Cost and Total cost becomes minimum.

- EOQ avoids:
  - Too frequent ordering
  - Too much storage