INVENTORY MANAGEMENT

INVENTORY

➢ **MEANING**

- held for SALE

- Consumed in the PRODUCTION of goods/services

➢ **Forms** of Inventory for Manufacturing Comp.

Raw materials, Work in process, Finished goods and stores & spares

Inventory Management- objectives

- minimize investments in inventory

- meet the demand for products by efficiently organizing the production & sales operations

COSTS OF HOLDING INVENTORIES

- Ordering costs

- Inventory Carrying costs

- Opportunity costs of funds blocked

- Shortage

RISK OF HOLDING INVENTORY

- Price decline

- Product Deterioration

- Product Obsolescence

TOOLS & TECHNIQUES OF INVENTORY MANAGEMENT/ CONTROL

- ABC Analysis
- Economic Ordering Quantity (EOQ)
- Order Point Problem
- Two Bin Technique
- VED Classification
- HML Classification
- SDE Classification
- FSN Classification
- Order Cycling System
- Just In Time (JIT)

ABC Analysis

CATEGORY	NO. OF ITEMS(%)	ITEM VALUE(%)	MANAGEMENT CONTROL
A	15	70 (HIGHEST)	MAXIMUM
B	30	20(MODERATE)	MODERATE
C	55	10(LEAST)	MINIMUM
TOTAL	**100**	**100**	

Economic Ordering Quantity (EOQ)

- Level of Inventory at which

- **Total Cost*** of Inventory is **MINIMUM**

  *(Ordering and Carrying Cost)

EOQ MODEL

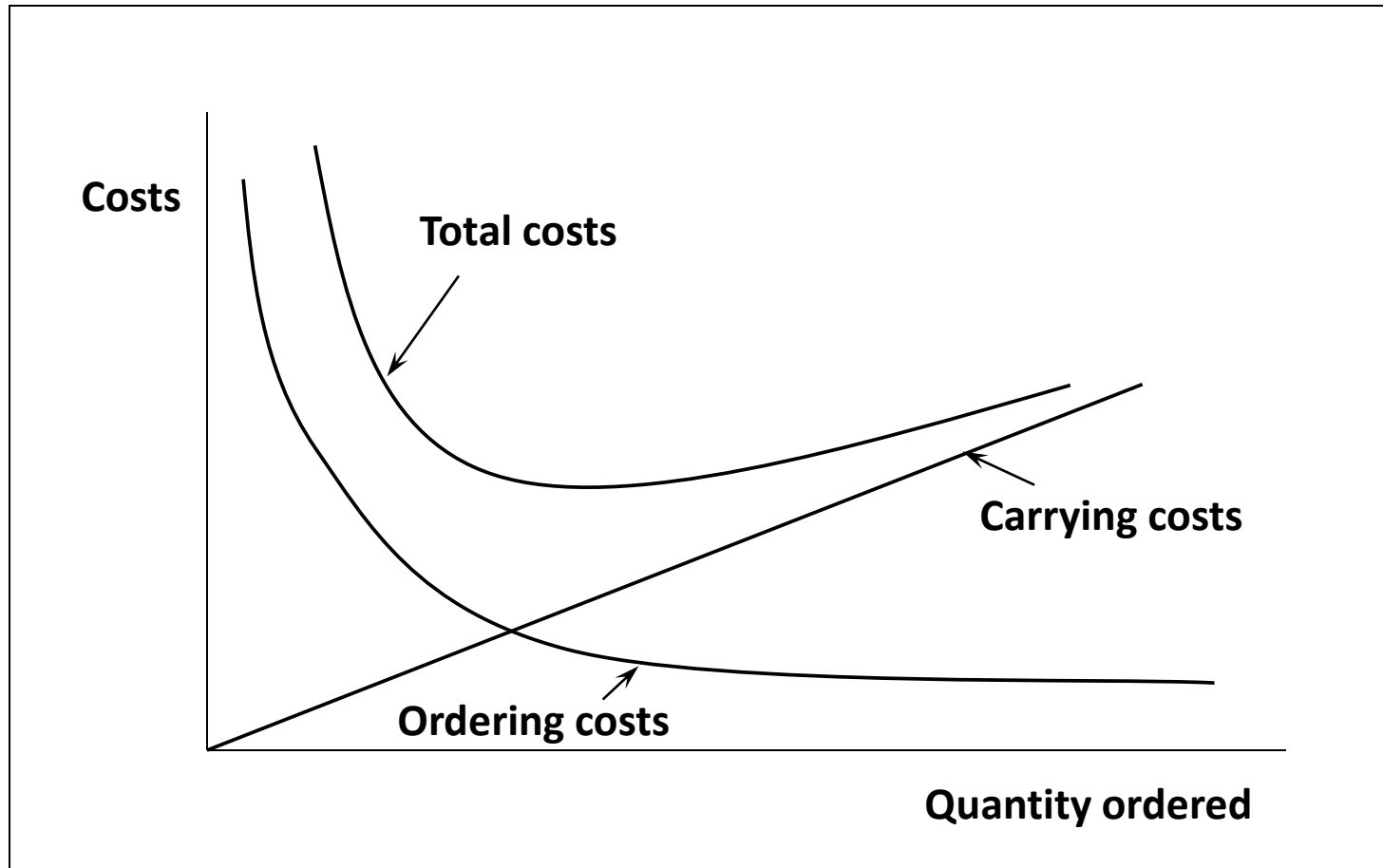$$Q = \sqrt{\frac{2UP}{S}}$$

*Q = E*conomic Order Quantity

U = Annual usage/demand

P = Cost of Placing an order

S = Storage cost per unit per order

* Where Storage cost is given in % , it is always calculated by multiplying the % with the purchase price of raw material per unit, i.e Storage cost = % X Purchase price of raw material

BEHAVIOUR OF INVENTORY RELATED COSTS

EOQ- Example

- **A firm's annual inventory is 1,600 units. The cost of placing an order is Rs 50, purchase price of raw material/unit is Rs.10 and the carrying costs is expected to be 10% per unit p.a. Calculate EOQ?**

  U=1600, P= Rs. 50, S= .10 x Rs.10=Rs.1

  $$EOQ = \sqrt{\frac{2 \times 1600 \times 50}{1}}$$

  = 400 units

Order Point Problem

- The **re-order point i**s that level of inventory when a fresh order should be placed with suppliers. It is that inventory level which is equal to the consumption during the lead time or procurement time.

- **Re-order level** = (Daily usage × Lead time) + Safety stock.

- **Minimum level** = Re-order level – (Normal usage × Average delivery time).

- **Maximum level** = Reorder level – (Minimum usage × Maximum delivery time) + Re-order quantity.

- **Average stock level** = Minimum level + (Re-order quantity)/2.

- **Danger level** = (Average consumption per day × Lead time in days for emergency purchases).

Two Bin Technique

- Control of Category 'C' inventories
- <u>Two Bins/Groups</u>

 First Bin- just enough to last from the date a new order is placed until it is received for inventory.

Second Bin- enough to meet current demand over the period of replenishment.

VED Classification

- Specifically used for Classification of **SPARE PARTS**

- **V**- part is VITAL(high stock level)

- **E**- part is *ESSENTIAL* (moderate stock level)

- **D**- part is DESIRABLE (minimum stock level)

HML Classification

- Material classified on the basis of **UNIT VALUE**

  ➢ **H**- HIGH VALUE

  ➢ **M**- MEDIUM VALUE

  ➢ **L** – LOW VALUE

FSN Classification

- Inventory is classified based on the <u>MOVEMENT OF INVENTORIES</u> from stores

- Inventory technique used to **AVOID OBSOLESCENCE**

➢ **F**- Fast moving

➢ **S**- Slow moving

➢ **N**- Non moving

ORDERING CYCLING SYSTEM

- Periodic reviews are made

- of each item of inventory

- & orders are placed

- to restore stock

- to a prescribed stock level

JUST-IN-TIME (JIT) INVENTORY CONTROL

- The JIT control system implies that the firm should maintain a minimal level of inventory and rely on suppliers to provide parts and components 'just-in-time' to meet its assembly requirements.

- JIT also known as Zero Inventory Production Systems**(ZIPS)**, Zero Inventories**(ZIN)**, Materials as Needed**(MAN)**, or Neck of Time**(N0T)**

JIT Vs. JIC

- This may be contrasted with the traditional inventory management system which calls for maintaining a healthy level of safety stock to provide a reasonable protection against uncertainties of consumption and supply – the traditional system may be referred to as a **"just-in-case"** system.

- The **most commonly used tools** of inventory management in India are: **ABC analysis, FSN analysis and inventory turnover analysis.**