

INVENTORY

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- Right material
- Right time
- Right quantity
- Right quality
- Right operator
- Right machinery

- **Inventory includes..**

- Raw materials
- Semi finished goods
- Finished goods
- Goods in-transit
- Replacement parts
- Tools and supplies.



Inventory control models

- 1. Probabilistic model

Deterministic model

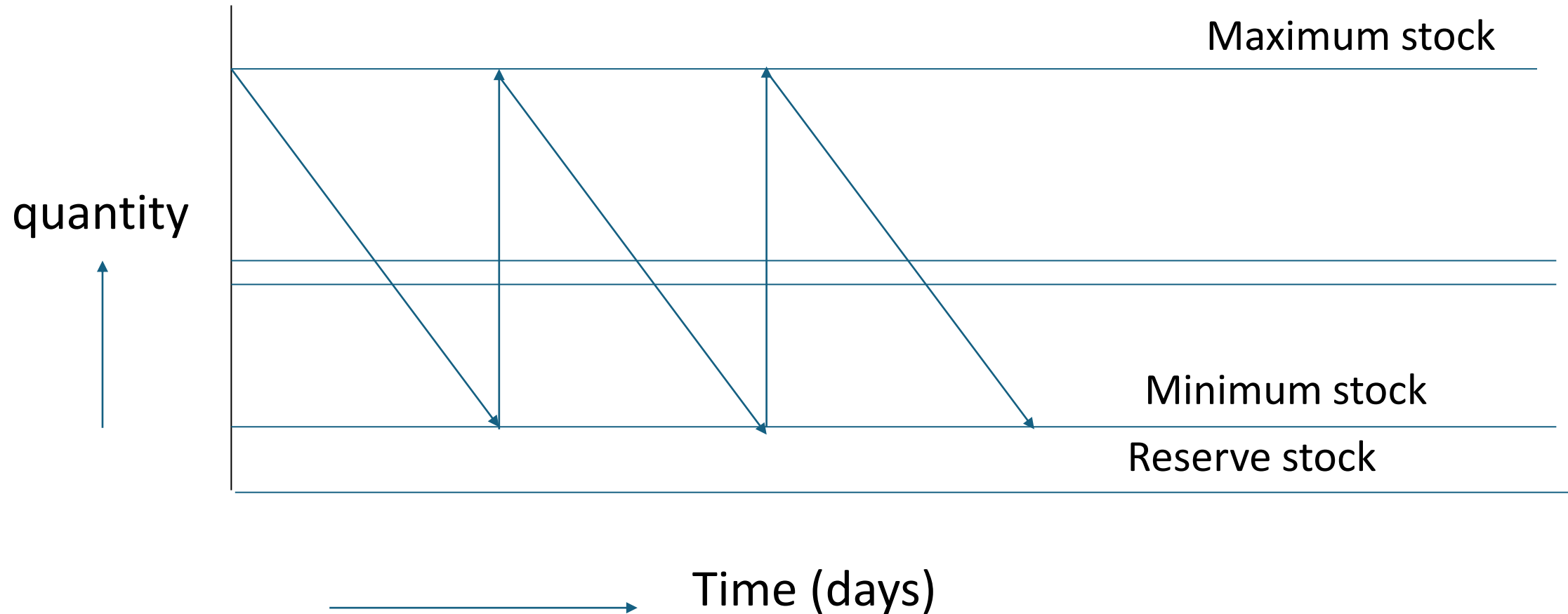
- EOQ

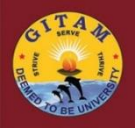
- 2. Deterministic model

- **Probabilistic model**

- ABC
- FSN
- VED

Economic Order Quantity- EOQ





- D- Demand
- Q- order size
- Co- cost/ order or ordering cost
- Cc- annual carrying cost
- Number of orders = D/Q
- Annual ordering cost = $(C_o \times D)/Q$
- Annual carrying cost = $(C_c \times Q)/2$
- Total annual inventory cost =
$$= \{ (C_o \times D)/Q \} + \{ (C_c \times Q)/2 \}$$
- $Q = \sqrt{\frac{2C_o D}{C_c}}$

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Problems

Q1. Calculate **Economic Order Quantity** (EOQ) from the following:

Annual consumption	6,000 units
Cost of ordering	Rs. 60
Carrying costs	Rs. 2

Q2. ABC Ltd. uses EOQ logic to determine the order quantity for its various components and is planning its orders. The Annual consumption is 80,000 units, Cost to place one order is Rs. 1,200, Cost per unit is Rs. 50 and carrying cost is 6% of Unit cost. Find EOQ, No. of order per year, Ordering Cost and Carrying Cost and Total Cost of Inventory.

- Midwest Precision Control Corporation is trying to decide between two alternate Order Plans for its inventory of a certain item. Irrespective of the plan to be followed, demand for the item is expected to be 1,000 units annually. Under Plan 1st, Midwest would use a teletype for ordering; order costs would be Rs. 40 per order. Inventory holding costs (carrying cost) would be Rs. 100 per unit per annum. Under Plan 2nd order costs would be Rs. 30 per order. And holding costs would 20% and unit Cost is Rs. 480. Find out EOQ and Total Inventory Cost than decide which Plan would result in the lowest total inventory cost?

- A supplier is required to deliver 20000 tons of raw materials in one year to a large manufacturing organization. The supplier maintains his go-down to store the material received from various resources. He finds that cost of inventory holding is 30 paisa per ton per month. His cost for ordering the material is Rs. 400. One of the conditions of the supplier contract from the manufacturing organization is that the contract will be terminated in the event of supply not being maintained as a schedule. Determine (1) in what lot size is the supplier should produce the material for minimum total associated cost of inventory? (2) At what time interval should he procure the material? It may be assuming that replacement of inventory is instantaneous.