Summary

- The word '**inventory**' refers to any kind of resource that has economic value and is maintained to fulfil the present and future needs of an organization

- **Fred Hansman defined inventory as**: An idle resource of any kind provided such a resource has economic value

- Such resources may be classified into three categories:
    1. Physical resources such as raw materials, semi-finished goods, finished goods, spare parts, lubricants, etc.
    2. human resources such as unused labour (manpower)
    3. Financial resources such as working capital, etc.

- Inventory of resources is held to provide desirable service to customers (users) and to achieve sales turnover target investment in large inventories adversely affect an organizations cash flow and working capital as investment in inventory represents substantial portion of the total capital investment in any business. It is therefore, essential to balance the advantage of having inventory of resources and the cost of maintaining it so as to determine an optimal level of inventory of each resource. This would ensure the total inventory cost is minimum

- **The meaning of inventory control:**
  Inventory control system appears complicated however; there are only a few basic questions that need to be answered for an efficient control of inventory.
    1. What item should be stocked?
    2. When should an order be placed to replenish inventory?
    3. How much should be ordered in each replenishment?

- Since investment in inventory represents a substantial portion of the total capital investment in any business, therefore, questions like, why invest funds in inventory? And what benefits can be derived by involving inventories?

- **Decoupling inventory:**
  If various manufacturing process (stages) operate successively, then in the case of the breakdown of one or due to any disturbance at some stage, the entire system could be affected. This kind of interdependence is not only costly but also disruptive for the entire system. Thus stocking points of inventory are created between adjacent stages Reasons for carrying Inventory:

- Inventory has been viewed as a necessary evil (Non- earning asset) that cannot be eliminated. It is termed as evil because maintaining inventory ties up money that could otherwise have been used for alternative purposes. It also increases carrying cost. However, it is considered a necessary investment to achieve workable system of production, distribution, and marketing of physical goods of production to achieve a certain degree of interdependence among stages of production

- **Factors involved in inventory problem analysis:**
  A number of factors must be considered while analysing inventory problems. Among the most important are the following:
    - Relevant inventory costs
    - Replenishment lead time
    - Constraints on the inventory system

- Demand for inventory items
- Length of planning period

- **Inventory cost components:**
  The cost that are affected (that is increase or decrease) by the firms decision to maintain a particular level of inventory are called **relevant costs.** These costs definitely play an important role in the study of an inventory system

- **Inventory Model building:**
  An inventory control problem can be solved using several methods, starting from trial-and-error method to mathematical and simulation models. Mathematical models help in deriving certain rules that may suggest how to minimize the total (or incremental) inventory cost in case of deterministic demand or how to minimize expected cost in case of probabilistic demand