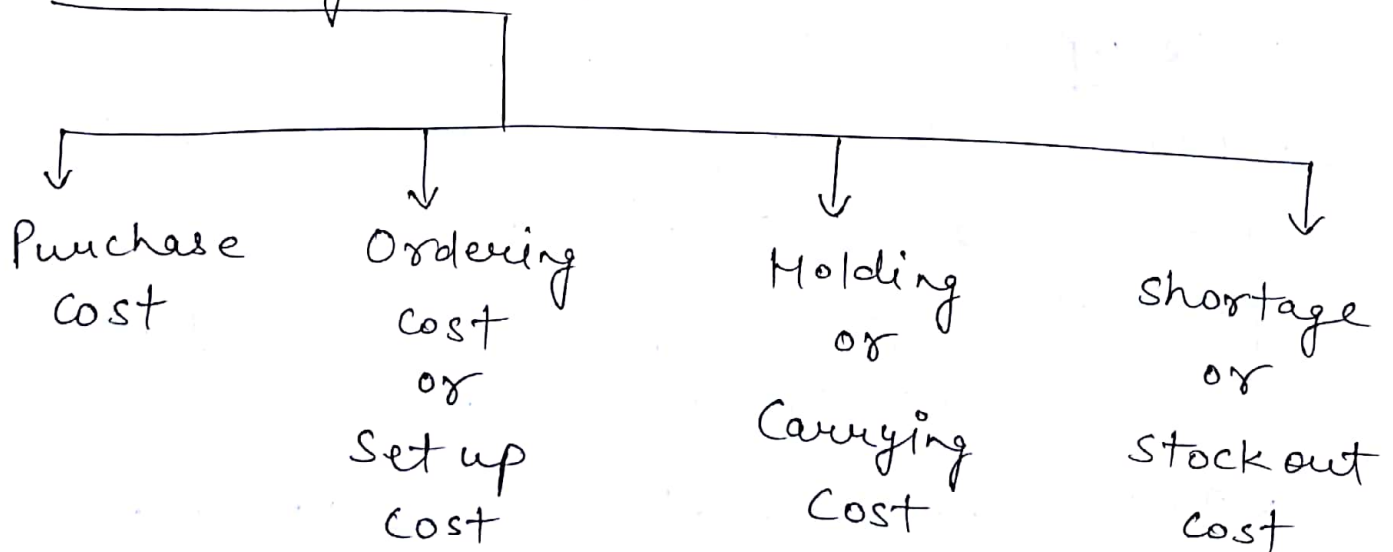


Q.1. What do you understand by inventory? Discuss the various cost involved in it?

Ans → Inventory →

- It can be termed as stock on hand at a given point of time which may be held for the purpose of later use or sale.
- It has an economic value & it may include — raw material, work in process inventory, ~~saving~~ semi-finished inventory or final-product.
- We need to manage inventory in such a manner then day to day working run smoothly without any delay but at the min. of cost.

* Inventory Cost →



1. Purchase - Cost —;

→ It is the cost of purchasing inventory item & it depends upon the quantity or the bulk-purchase.

$$P.C = \text{No. of units} \times \text{Cost/unit}$$

2. Ordering Cost —;

→ It is the cost associated with ~~to make~~ bringing inventory item with in the production system,

→ It includes cost of tender, cost associated with processing & chasing of purchase order, inspection cost, transportation cost etc.

→ Setup cost —;

→ When the inventory items are produced internally the cost associated with bringing shut-down production system again into starting position is known as setup-cost.

→ It include maintainance cost, schedule chart preparation cost, cost associated with arrangement of worker, tool, raw-material etc.

$$O.C = \text{No. of order} \times \text{Cost/order}$$

$$S.C = \text{No. of set-up} \times \text{Cost/setup}$$

3. Holding or Carrying Cost →

→ It is the cost associated with storing, keeping ~~inve~~ & maintaining inventory item within the production system.

→ It includes storage cost, handling cost, damage & depreciation cost, insurance-cost, interest etc.

$$\rightarrow H.C = \text{Avg. Inventory for a period} \times \text{Holding cost/unit/time}$$

4. Shortage or Stockout Cost →

→ Shortage ; simply means -; Absence of inventory & the loss associated with not serving the customer is known as shortage or stockout cost.

→ It includes potential profit loss, Fast transportation cost, discount etc.

→
$$S.C = \text{No. of units short} \times \text{shortage cost/unit}$$

Q. What are the importance & objective of maintenance management?

Ans:- Importance of maintenance Management :-

The importance of plant maintenance varies with the type of plant and its production but it plays a prominent role in production management because plant breakdown creates problems such as:

- Loss of production
- Rescheduling of production
- Material wastage
- Need for overtimes
- Need for work subcontracting
- For maximum manpower utilization of worker may need alternative work due to temporary work stoppage.

Objective of Maintenance Management :-

The main objective of maintenance management are as follows :-

1. Minimizing the loss of productive time because of equipment failure to maximize the availability of plant, equipment and machinery for productive utilization through plant maintenance.
2. To extend the useful life of plant, machinery and other facilities by minimizing their wear and tear.
3. Minimizing the loss due to production stoppage.
4. To ensure operational readiness of all equipments needed for emergency purposes at all times such as fire fighting equipments.
5. Efficient use of maintenance equipments and personnel.

Q2:- Annual usage is 12000 units per year and manufactured 24,000 units per year, setup cost is Rs 400/- holding cost is 15% per unit per month, cost of one unit is Rs 4. Find the optimum lot size?

Ans:-

$$S = 400$$

$$\text{Holding cost } H \text{ per year} = 0.15 \times 12 = 1.8$$

$$X = 24,000$$

$$Y = 12,000$$

$$Q = \sqrt{2DS / (1 - Y/X) H}$$

$$Q = \sqrt{2 \times 12000 \times 400 / 1.8 (1 - 12000/24000)}$$

$$= \underline{3264} \text{ units per year}$$

Q.4 Write a short note on :-

- (a) Preventive maintenance.
- (b) Breakdown maintenance.

Ans:- (a) Preventive maintenance (PM):-

Preventive maintenance is the care and servicing by personnel for the purpose of maintaining equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection and correction of incipient failures either before they occur or before they develop into major defects.

The primary goal of maintenance is to avoid or minimize the consequences of failure of equipment. This may be by preventing the failure before it actually occurs with Planned Maintenance and Condition Based Maintenance. Preventive maintenance activities include partial or complete overhauls at specified periods, oil changes, lubrication and so on.

The main different of subgroups is determination of maintenance time, or determination of moment when maintenance should be performed.

Work on a predictive or anticipatory basis is called as proactive maintenance, if work on it after it has functionally failed, is known as reactive maintenance. Corrective maintenance work can be proactive or reactive, depending on the circumstances.

(b) Breakdown maintenance :-

Breakdown maintenance involves the repair or replacement of equipments and components after they have failed. This kind of management strategy can be contrasted with preventive and predictive maintenance, which are designed to avoid equipment failures.