

Material Cost and Control

Material

The term material refers to all commodities supplied to an undertaking. Materials may be direct or indirect.

Direct Material

Direct materials are those materials which can be conveniently identified with and can be directly allocated to a particular product, job or process.

Examples of Basic Raw Material:

Timber in furniture, Cloth in garments, Milk and cream in ice cream, paper in Books, Gold/Silver in jewellery, Bricks and Cements in Building.

Examples of Primary Packing Material:

Can for tinned food and drink, Bottles for water, wine and whisky, Plastic packing for Milk/Ghee/Oil, Bag for Cement

Indirect Material

Indirect materials are those materials which cannot be conveniently identified with and cannot directly allocate to a particular product, job or process.

Examples of Indirect materials are:

Stores used for maintaining machines, stores used by service departments, material of small value which cannot be conveniently identified with a particular product.

Difference Between Direct and Indirect Material

Basis	Direct Material	Indirect Material
1. Identification	It can be readily identified with a specific job, contract or work order	It can not readily be identified with a specific job, contract or work order
2. Treatment of Cost	Direct material cost is directly charged to a specific job, contract or work order and forms part of prime cost	It cannot directly be charged to the specific job, contract or work order and is treated as part of overheads which are absorbed on some suitable basis
3. Variability	It varies directly with the volume of volume of output	It may or may not vary directly with the volume of output

Multiple Choice Questions

1. Direct Material
 - (a) Can be conveniently identified
 - (b) Cannot be conveniently identified
 - (c) Can be indirectly used for production
 - (d) None of these
2. Direct material is
 - (a) Fixed in nature
 - (b) Variable in nature
 - (c) Semi variable in nature
 - (d) None of these
3. Indirect material
 - (a) Varies with production
 - (b) Remains constant with production
 - (c) May or may not varies with production
 - (d) None of these
4. Plastic packing of milk is
 - (a) Direct material
 - (b) Indirect material
 - (c) Not material
 - (d) None of these
5. Stores used by service department is
 - (a) Direct material
 - (b) Indirect material
 - (c) Expense
 - (d) None of these
6. Material may be
 - (a) Direct
 - (b) Indirect
 - (c) Both
 - (d) None of these
7. Indirect material
 - (a) Can be readily identified
 - (b) Cannot be readily identified
 - (c) May or may not be readily identified
 - (d) None of these
8. Indirect material is
 - (a) Charged to cost
 - (b) Treated as overhead
 - (c) Treated as direct expense
 - (d) None of these
9. Timber for furniture is
 - (a) Direct material
 - (b) Indirect material
 - (c) Expense
 - (d) Income
10. Which of the following is indirect material
 - (a) Gold in jeweler
 - (b) Milk in ice cream
 - (c) Cloth in garments
 - (d) Stores used by service departments
11. Primary packing is
 - (a) Direct material
 - (b) Indirect material
 - (c) Not material
 - (d) Is an expense
12. Secondary packing is
 - (a) Direct material
 - (b) Indirect material
 - (c) Both of these
 - (d) None of these
13. Direct material is part of
 - (a) Prime cost
 - (b) Work Cost
 - (c) Direct Expense
 - (d) Indirect Expense
14. Which of the following is true
 - (a) Both direct and indirect material is part of prime cost
 - (b) Both direct and indirect material is part of Overhead
 - (c) Direct material is part of prime cost while indirect material is an overhead
 - (d) All of the above is true
15. Direct cost and variable cost are same
 - (a) True
 - (b) False
 - (c) Partly true
 - (d) None of these

Answer Key:

- 1.(a) 2.(b) 3.(c) 4.(a) 5.(b) 6.(c) 7.(b) 8.(b) 9.(a) 10.(d)
 11.(a) 12.(b) 13.(a) 14.(c) 15.(b)

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Inventory Control

Inventory control is the systematic control and regulation of purchase, storage and usage of material in such a way as to maintain an even flow of production and at the same time avoiding excessive investment in the material.

Material Control involves the planning, organizing and controlling the procurement, storage and usage of materials so as to achieve the objectives of efficiency and economy.

Objectives of inventory Control

1. To provide continuous flow of required materials, parts and components for efficient and uninterrupted flow of production.
2. To minimize investment in inventories keeping in view operating requirements.
3. To provide for efficient store of materials so that inventories are protected from loss by fire and theft and handling cost are kept at a minimum.
4. To keep surplus and obsolete items to minimum.

Advantages of Material Control

1. Continuous supply: It ensures continuous supply of required materials so that activities of production and service departments may not be held up.
2. Optimum investment: It maintains optimum investment in inventory considering the operating requirements and financial resources so as to reduce carrying costs
3. Procurement at minimum costs: It ensures the procurement of material and store of required quantity at minimum cost from a reliable source.
4. Minimum total cost: It minimizes the total cost (Order cost and Carrying cost).
5. Avoid wastage and losses: It avoids the wastages and losses during storage and usage
6. Proper records: It ensures maintenance of proper and up to date records of inventory
7. Provide information: It provides the required information to the management so as to help the management in taking various inventory decisions.

Techniques of inventory control

1. ABC Analysis
2. Economic Order Quantity
3. Stock Levels (Minimum, Maximum, Average, Danger Stock Levels)
4. Inventory Turnover ratios
5. Proper Purchase Procedure
6. Proper Storage Procedure
7. Proper Issue Procedure
8. Tow Bin System
9. Use of Perpetual Inventory System
10. Establishment of a System of Budget

Multiple Choice Questions

1. Inventory control regulates
 - (a) Purchase
 - (b) Storage
 - (c) Usage
 - (d) All of these
2. Which of the following is not the objective of inventory control
 - (a) Minimize surplus and obsolescence
 - (b) Supports Overstocking
 - (c) Minimize investment in inventories
 - (d) Efficient store of material
3. Which of the following is not an advantage of inventory control
 - (a) Continuous supply
 - (b) Avoid wastage and losses
 - (c) Huge investment
 - (d) Proper records
4. Inventory control helps in minimizing losses and increases investment
 - (a) True, False
 - (b) False, True
 - (c) True, True
 - (d) False, False
5. Inventory control
 - (a) Minimizes investment
 - (b) Continuous supplies
 - (c) Avoid wastage
 - (d) All of these
6. Which of the following is not a technique of inventory control
 - (a) ABC Analysis
 - (b) EOQ
 - (c) Stock Levels
 - (d) Utilization of fixed assets

Answer Key:

1.(d) 2.(b) 3.(c) 4.(a) 5.(d) 6.(d)

ABC Analysis: ABC analysis is the technique of exercising selective control over inventory items. The technique is based on assumption that a firm should not exercise the same degree of control on all items of inventory. It should rather keep greater control over those items which are most costly as compared to those items which are less costly. According to this approach, the inventory items are divided into three categories: A, B and C.

Category A may include more costly items, while category B may consist of less costly items and category C of the least costly items. Thus ABC analysis concentrates on important items and, therefore, is also known as control by importance and exceptions (CIE). This approach is known as proportional value analysis (PVA), since the items are classified in importance of their relative value.

Inventory surveys in general have shown the following trends regarding the components of inventories manufacturing organizations:

Category	% of total value	% of total quantity
A	70	10
B	25	35
C	5	55

Advantages of ABC Analysis

1. It ensures effective control on costly items(i.e. A category item) which require large investment.
2. It saves time and cost by exercising economic systems of control over low value items (i.e. for C category items)
3. It ensures optimum investment in inventory considering the operational requirements and financial resources with the use of economic order quantities.
4. It ensures minimum total cost (i.e. ordering cost and carrying costs)
5. It helps in the maintenance of high inventory turnover rate.

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Multiple Choice Questions

1. ABC Analysis is
 - (a) technique of asset management
 - (b) technique of inventory control
 - (c) method of managerial decision
 - (d) All of these
2. ABC analysis
 - (a) Ensures effective control
 - (b) More emphasis given on low value items
 - (c) Less concentration on higher value items
 - (d) None of these
3. Which of the following is a category of ABC analysis
 - (a) X
 - (b) Y
 - (c) Z
 - (d) C
4. Gold comes under
 - (a) A category
 - (b) B category
 - (c) C Category
 - (d) D category
5. A category includes
 - (a) Higher value items
 - (b) Moderate value items
 - (c) Lower value items
 - (d) None of these
6. Higher in quantity and lower in value items comes under
 - (a) A category
 - (b) B Category
 - (c) C Category
 - (d) Any of these
7. Which of the following is incorrect
 - (a) Cement is "B" Category item
 - (b) Electric equipment is "A" category items
 - (c) Rock stones is "C" Category items
 - (d) Hardware are "C" category items
8. ABC analysis ensures more concentration on lower value items and high concentration on higher value items
 - (a) True
 - (b) False
 - (c) May be true
 - (d) None of these
9. ABC analysis
 - (a) Control by importance and exceptions ((CIE)
 - (b) Proportional Value Analysis (PVA)
 - (c) Categorize A, B and C Category
 - (d) All of these
10. ABC Analysis ensures
 - (a) Minimum total cost
 - (b) Higher investment
 - (c) Less concentration on higher value items
 - (d) None of these

Answer Key:

1.(b) 2.(a) 3.(d) 4.(a) 5.(a) 6.(c) 7.(d) 8.(b) 9.(d) 10.(a)

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Economic Order Quantity

Reorder Quantity is the quantity for which order is placed when the stock reaches re-order level. It is known as economic Order quantity when it is quantity which is most economic to order. Economic order quantity is the quantity to be ordered where ordering costs and carrying cost would be minimum.

Factors to be considered for EOQ

a. Ordering Costs:

The term ordering costs refer to the costs incurred for acquiring inputs. These costs include:

1. Cost of placing an order
2. Cost of transportation
3. Cost of receiving goods
4. Cost of inspecting goods

There is a inverse relationship between order size and ordering cost.

b. Carrying Costs

The term carrying costs refer to the costs incurred in maintaining a given level of inventory. These include

1. Cost of storage space
2. Cost of handling material
3. Cost of insurance
4. Cost of store staff

There is a positive relationship between order size and carrying cost.

Limitations of Economic Order Quantity

1. Expected annual usage may not be same as the actual due to unusual and unexpected demand for inventory
2. Rate of usage may not be constant due to unusual and unexpected demand for inventory.
3. Ordering and carrying costs may not be constant due to fluctuations in the costs of various components comprising costs.
4. Lead time may not be constant due to reason beyond supplier's account.

Practice Questions

Q.1 Compute EOQ from the following details:

Annual Demand 5000 Units, Price Rs.20, Order Cost Rs.16 and Storage Rate 2%, Interest rate 12% and Obsolescence rate 6%.

Q.2 Compute EOQ from the following:

Purchase price of a component is Rs.200, cost of placing an order is Rs.100, annual cost of carrying inventory is 10% of purchase price and annual requirement of material is 4000 units

Q.3 Compute EOQ from the following details:

Annual Demand 10,000 Kg, Unit Price Rs.2, Order Cost Rs.50 and Carrying Cost 8%

Q.4. A firm is able to obtain quantity discounts on its orders of material as follows:

Price Per Tonn (Rs.)	Tonnes
6.00	Less than 250
5.90	250 and less than 800
5.80	800 and less than 2000
5.70	2000 and less than 4000
5.60	4000 and over

The annual demand for the material is 4000 tonnes. Stock holding costs are 20% of material cost per annum. The delivery cost per order is Rs.6. You are required to calculate the best quantity to order.

Multiple Choice Questions

1. EOQ considers
 - (a) Order cost
 - (b) Carrying cost
 - (c) Both (a) and (b)
 - (d) Neither (a) nor (b)
2. EOQ arises where
 - (a) Order cost is higher than carrying cost
 - (b) Carrying cost is higher than ordering cost
 - (c) Order cost is equal to carrying cost
 - (d) Carrying cost should be minimum
3. Ordering cost does not include
 - (a) Cost of inspecting goods
 - (b) Cost of receiving goods
 - (c) Cost of insurance
 - (d) Cost of transportation
4. The relationship between order size and order cost is
 - (a) Positive
 - (b) Inverse
 - (c) No relation
 - (d) None of these
5. The relationship between order size and carrying cost is
 - (a) Positive
 - (b) Inverse
 - (c) Not related
 - (d) None of these
6. Which of the following is not a limitation of EOQ
 - (a) Rate of consumption may not be constant
 - (b) Ordering cost may not be constant
 - (c) Carrying cost may not be constant
 - (d) Inverse relationship between order size and carrying cost
7. Which of the following is not carrying cost
 - (a) Cost of storage
 - (b) Cost of insurance
 - (c) Advertisement cost
 - (d) Cost of handling material
8. About 50 items are required every day for a machine. A fixed cost of Rs.50 per order is incurred for placing an order. The inventory carrying cost per item amounts to Rs.0.02 per day. Calculate EOQ.
 - (a) 500
 - (b) 9552
 - (c) 800
 - (d) None of these
9. The average annual consumption of material is 20000 kg at a price of Rs.2 per kg. The storage cost is 16% on average inventory and the cost of placing an order is Rs.50. How much quantity is to be purchased.
 - (a) 500
 - (b) 2500
 - (c) 3000
 - (d) 1000
10. A factory requires 1500 units per month. The cost of each unit is Rs.27. The cost per order is Rs.150 and inventory carrying charge works out to 20% of average inventory. If 2% discount is allowed by supplier at a minimum order of 1200 units.
 - (a) Order should be placed for 1000 Units
 - (b) Order should be placed for 1200 units
 - (c) Any units can be ordered
 - (d) Should not place order
11. Annual requirement is 20,000 units at Price of Rs.10 per unit. Carrying cost is 10% per annum and ordering cost is Rs.40 per order. What would be the additional cost if a single order is placed at 3% discount.
 - (a) 2475
 - (b) 2745
 - (c) 2574
 - (d) 2457
12. From the following figures, calculate the economic order quantity.
Annual consumption of material 3125 kg, Order cost Rs.200, Price per unit Rs.50, carrying cost is 10%.
 - (a) 250
 - (b) 500
 - (c) 79
 - (d) None of these

Answer Key:

1.(c) 2.(c) 3.(c) 4.(b) 5.(a) 6.(d) 7.(c) 8.(a) 9.(b) 10.(b) 11.(a) 12.(b)

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Stock Levels

Stock Levels

Setting of various stock levels is one of the techniques of inventory control. The main purpose of setting various stock levels is to avoid the situation of under stocking and over stocking. These levels are not permanent but need revision according to the changes in the factors which determine these levels.

Reorder Level: It is the point at which if the material reaches, further supplies must be ordered. The re-order level is fixed somewhere between the maximum and the minimum level in such a way that the quantity of materials represented by the difference between the re-ordering level and the minimum level will sufficient to meet the demands of production till such time as the order materializes and supplies are received.

$$\text{Re-order Level} = \text{Maximum Usage} \times \text{maximum Lead time}$$

Minimum Stock Level: The minimum level is the lowest quantitative balance of materials in hand which must be maintained at all times so that the assembly line may not be stopped on account of non availability of materials.

$$\text{Minimum Level} = \text{Re-order level} - (\text{Average Usage} \times \text{Average Lead Time})$$

Maximum Stock Level: The maximum level is the largest quantity of a particular material which should be kept in the store at any one time. The fixation of maximum level is necessary to avoid unnecessary blocking up of capital in inventories, losses on account of deterioration and obsolescence of materials, extra overheads and temptation of thefts.

$$\text{Maximum Level} = \text{Re-order level} + \text{Re-order quantity} - (\text{Minimum Usage} \times \text{Minimum Lead Time})$$

Average Stock Level:

$$\text{Average Stock Level} = \text{Minimum Stock Level} + \frac{\text{Re-order Quantity}}{2}$$

Danger Stock Level: It is the level of stock below which the material should never be allowed to fall in normal circumstances. It is slightly less than the minimum level, and at such a point the purchase manager should make special efforts to acquire required material and stores .

$$\text{Danger Stock Level} = \text{Average Usage} \times \text{Maximum lead time for emergency Purchases}$$

Q.1. From the following information, calculate (a) Reorder level, (b) Minimum Level, (c) Maximum Level, (d) Average Level, (e) Danger Level.

Rate of Consumption: Min. 250 kg per week, Max. 750 kg per week, Normal 500 kg per week.

Re-order period: Min. 3 weeks, Max. 7 weeks, Normal 4 weeks, Emergency 2 weeks.

Re-order Quantity: 2000 Kg.

Q.2. Two components A and B are used as follows:

Weekly Usage 150 to 450 units per week

Reorder Quantity A – 2400 units B – 3600 units

Reorder Period A – 4 to 6 weeks, B – 2 to 4 weeks

Calculate for each component:

- | | |
|--------------------|--------------------------|
| (a) Re-order level | (b) Minimum Level |
| (c) Maximum level | (d) Average stock level. |

Q.3. A company manufactures 5000 units of a product per month. The cost of placing an order is Rs.100. The purchase price of the raw material is Rs.10 per kg. The re-order period is 4 to 8 weeks. The consumption of raw material varies from 100 kg to 450 kg per week. The average consumption being 275 kg. The carrying cost of inventory is 20% per annum. You are required to calculate:

- | | | | |
|-------------------------|---------------------|---------------------|--------------------|
| (i) Re-order quantity | (ii) Re-order level | (iii) Maximum Level | (iv) Minimum level |
| (v) Average stock level | | | |

Multiple Choice Questions

1. If the minimum stock level and average stock level of raw material A are 4000 and 9000 units respectively, Find out its re-order quantity.
 - (a) 10,000 Units
 - (b) 14000 Units
 - (c) 6000 Units
 - (d) None of these
2. Reorder level is
 - (a) Quantity to be ordered
 - (b) Quantity to be in stock while placing an order
 - (c) Minimum quantity in stock
 - (d) Maximum quantity in stock
3. Maximum stock level
 - (a) Maximum consumption X Maximum lead time
 - (b) Reorder level – (Minimum Consumption X Minimum lead time)
 - (c) Minimum Consumption X Minimum Lead Time
 - (d) Reorder Level + Reorder Quantity – (Minimum Consumption X Minimum lead time)
4. Which of the following is correct
 - (a) Danger stock level is less than Reorder level
 - (b) Danger stock level is higher than reorder level
 - (c) Danger stock level and reorder level is same
 - (d) None of these
5. Which of the following statements is/are true
 - (a) Stock level supports overstocking
 - (b) Stock levels supports under stocking
 - (c) Stock level avoids overstocking
 - (d) Stock level supports huge investment
6. Average stock level
 - (a) Half of reorder level and maximum level
 - (b) Minimum stock level + half of Reorder level
 - (c) Minimum stock level + half of maximum stock level
 - (d) Maximum stock level + half of minimum stock level
7. If Average and Maximum consumption is 275 units and 525 units and Average and Maximum lead time is 4 and 8 days. what would be the minimum stock level
 - (a) 3100 units
 - (b) 4200 units
 - (c) 1100 units
 - (d) 5300 units
8. Which of the following is not true
 - (a) Stock levels avoids overstocking
 - (b) ROL and ROQ is same
 - (c) ROQ and EOQ may be same
 - (d) Stock level maintains stock for continuous production
9. If Reorder level is 4000 units and reorder quantity is 15,000 units and minimum consumption and minimum lead time is 400 units and 3 weeks . The maximum stock level is
 - (a) 1200 units
 - (b) 17,800 units
 - (c) 11,000 units
 - (d) 15,000 units
10. Stock levels is a technique of
 - (a) Inventory control
 - (b) Inventory investment
 - (c) Obsolescence
 - (d) None of these
11. Stock level technique is used to avoid
 - (a) Under stocking
 - (b) Overstocking
 - (c) Both
 - (d) None of these
12. Stock levels are
 - (a) Permanent
 - (b) Constant
 - (c) Variable
 - (d) Changes as per organizations requirements

Answer Key

1.(a) 2.(b) 3.(d) 4.(a) 5.(c) 6.(b) 7.(a) 8.(b) 9.(b) 10.(a) 11.(c) 12.(d)

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Inventory Turnovers Ratios

Inventory Turnover Ratio is one of the techniques of inventory control. It expresses the relationship between the cost of material consumed and the average stock held.

1. It indicates the speed with which the inventory is consumed. In general a high ratio indicates fast moving stock and a low ratio indicates slow moving stock.
2. A too high ratio may be the result of a very low inventory levels which may results in frequent stock-outs and thus the firm may incur high stock-outs.
3. A too low ratio may be the result in excessive inventory levels, slow moving or dormant or obsolete inventory and thus the firm may incur high carrying costs.

Usefulness if Inventory Turnover

On the basis of inventory turnover ratio, the management may take the necessary corrective action such as:

- (a) Decision as to how to prevent the under stocking of fast moving stock items.
- (b) Decisions as to how to prevent the over stocking of slow moving stock items.
- (c) Decisions as to whether to retain or scrap the dormant stock items.
- (d) Decisions as to scrapping or discard of obsolete stock items.

Inventory Turnover Ratios: Inventory turnover ratio is also calculated to minimize the inventory on the basis of the following formula.

$$\text{Inventory Turnover} = \frac{\text{Cost of goods Consumed/sold during the period}}{\text{Average inventory held during the period}}$$

Q.1. Calculate the material turnover ratio for material A and B and comment upon the results:

	Material A	Material B
	Rs.	Rs.
Opening Stock	10000	35000
Purchase during the year	76000	50000
Closing stock	6000	25000

Q.2. Calculate inventory turnover ratio for material X, Y and Z

	Material X	Material Y	Material Z
	Rs.	Rs.	Rs.
Opening Stock	8000	32000	12000
Purchase during the year	26000	208000	52000
Closing stock	4000	16000	8000

Purchase of Material

Purchasing means procurement of materials, components, supplies etc. required for use in production and other departments of an enterprise.

The Objectives of purchasing is to procure the material

- (a) Of the right quality
- (b) In the right quantity
- (c) At the right time
- (d) At the right place
- (e) Form the right source

Centralized Purchasing Vs. Decentralized Purchasing

In centralized purchasing there is only one purchase department which is authorized to make all the purchases.

In decentralized purchasing, each department is authorized to make its own purchases

Just in Time (JIT) Purchasing

Just in time purchasing means purchase when required only or purchase immediately before use. CIMA, London defines JIT purchasing as "matching receipts of material closely with usage so that raw materials inventory is reduced to near zero level". The main objective of JIT purchasing is to minimize the carrying costs Storage costs, material handling costs, spoilage and obsolescence etc.

Purchase Procedure

- Step 1: Receipt of Purchase Requisition
- Step 2: Selection of Supplier
- Step 3: Preparation, Placement and follow up of Purchase order
- Step 4: Receipt of material
- Step 5: Inspection of material
- Step 6: Return of Rejected material
- Step 7: Checking and passing of purchase invoice for payment
- Step 8: Making payment to supplier.

Purchase Requisition

Purchase requisition is a written document prepared by the department requiring material which is used to make a formal request to the purchase department to purchase the materials specified therein.

Purchase requisition is received from:

- a. The store keeper for all items in regular use.
- b. The production department for specific items not regularly used and stored.
- c. The production planning department for new production development.
- d. The plant engineer for material required for special maintenance and capital expenditure projects.
- e. The departmental heads for any material required his department

Components of Purchase Requisition

- 1. Requisition Number
- 2. Date of Requisition
- 3. Code number of item required
- 4. Description of Items
- 5. Quantity of Items
- 6. Date by which items required
- 7. Signature of the person initiating the requisition
- 8. Signature of one or more executives approving the requisition (if any required)

Format of Purchase Requisition

PQR Ltd. Purchase Requisition				
P. R. No.....		Date.....		
Department.....		Date by which material is required.....		
Place where Material is required.....				
Serial No.	Description	Code No.	Quantity	Remarks
Requested by.....Checked by.....Approved by.....				

1. Proper Storage Procedure

Storage refers to the act of storing materials for their safe custody till these are issued to the production and other departments. It is a service function and involves receiving, storing and issue of material. The place where materials are kept is known as store. The person who is in charge of store department is known as store keeper. He is responsible for the receipts, storage and issue of materials.

2. Issue Procedure

The following two documents are used for issue of materials to production departments:

(a) Material Requisition: It is a document which is used to authorize and record the issue of materials from the stores. It is usually prepared by a foreman but in case of costly material or large quantity of materials, an approval by some higher authority may be required.

Usually three copies of material requisition are prepared for store keeper, for Cost accounting department and for the department indicating it.

Two copies of material requisition are sent to store keeper. Storekeeper makes the entries in the Bin card and then issues materials to the person made requisitions and then send a copy of requisition after signature to the Cost Accounting Department that fills up the rate and the amount column of the requisition and makes in the entries in the store ledger.

(b) Bills of Material: Bill of Material is a list of standard quantities of all materials required for a particular job or work order or a process. It is prepared by engineering or planning department in a standard form on receipt of an order.

Usually four copies of bill of material are prepared. One copy for production department, second for stores department, third for Cost Accounting Department and one copy is retained by engineering or planning Department.

3. Two Bin System

Under two bin system each bin is divided into two parts –one smaller part, to store the quantity equal to the minimum stock or even the reordering level, and the other to store the remaining quantity.

Issues are made out of larger part; but as soon as it becomes necessary to use quantity out of smaller part of the bin, fresh order is placed.

On receipt of supply the fresh order, quantity already issued out of smaller part of the bin is replaced out of fresh supply.

4. Inventory System

There are two inventory systems

1. Periodic Inventory System

Periodic inventory system is a system of ascertaining the quantity and value of inventory on the basis of an actual physical count or measure or weight of all the inventory items on hand at the end of accounting period. It usually requires closing down of normal functioning for stock taking. The cost of materials issued is calculated as a residual figure (which may include cost of material lost also) as under
$$\text{Cost of material Issued} = \text{Opening Inventory} + \text{Purchases} - \text{Closing Inventory}$$

2. Perpetual Inventory System

Perpetual inventory system is a system of recording stores balances after every receipts and issue, to facilitate regular checking and to obviate closing down for stock taking. It requires:

(a) Use of Perpetual Inventory records – Bin Card and Store Ledgers

(i) Bin Card: Bin card provides a continuous quantitative record of receipts, issues and balances of each item of stores. Separate Bin cards are maintained for each item. It is filled up with the physical movement of goods.

(ii) Store Ledger: Store Ledger provides continuous Quantitative-cum-value records of receipts, issues and balances of each item of stores. It is filled up with the physical movement of goods with the help of Goods Received Note, Material Issue Requisition, and Material Return Note.

(b) Continuous Stock Taking: Continuous Stock taking involves

- (i) Selecting and counting a number of items daily or at frequent intervals in such way that each item of stores gets checked up at least a certain number of times in a year by rotation by an independent staff.
- (ii) Comparing the actual physical balance with the quantity balance shown by Bin Card and Store Ledger.

Distinction Between Periodic Inventory System and Perpetual Inventory System

Basis of Distinction	Periodic Inventory System	Perpetual Inventory System
1. Basis of ascertaining inventory	Inventory is ascertained on the basis of an actual physical count/measure/weight	Inventory is ascertained on the basis of records
2. Calculation of inventory	Inventory is directly calculated by applying the method of valuation of inventories like FIFO, LIFO	Inventory is calculated as a residual figure as under: Closing inventory = Opening inventory + Purchases – Cost of Goods sold
3. Lost goods	Cost of material issued may include cost of Material lost	Inventory may include Cost of material Lost
4. Closing down of work for stock taking	It requires closing down of work for stock taking	It does not require closing down of work for stock taking.
5. Continuous stock checking	It does not facilitate the continuous stock checking	It facilitates the continuous stock checking
6. Simplicity and cost	It is simple and inexpensive	It is elaborate and expensive

Distinction Between Bin Card and Store Ledger

Basis of Distinction	Bin Card	Store Ledger
1. What it records	It records only the quantity of material received, Issued and Balance	It records both Quantity and Value of materials received, Issued and Balance
2. Who maintained	It is maintained by Storekeeper	It is maintained by Cost Department
3. Periodicity of Posting	Posting in Bin Card is done simultaneously with the receipts and Issues of material	Posting in store ledger is usually done after the transaction at periodic intervals
4. Where Kept	It is kept outside the Bin in stores	It is kept outside the store generally in costing department
5. Main Advantage	It facilitates control through surprise checking	It facilitates the ascertainment of cost of materials consumed and cost of material in hand
6. Condition of record	It is likely to be smeared with dirt and grease because of proximity to materials	It is kept in neat and clean way
7. Who writes	It is written by person handling materials	It is written by person solely engaged in clerical work
8. Centralization	It does not enable stock records to be centralized	It enables stock records to be centralized
9. Physical identification	It facilitates an easy physical identification of an item of material because of proximity to materials	It does not facilitates an easy physical identification of an item of material because of no proximity to materials
10. Physical Verification	It facilitates on the spot comparison of physical stock of an item with its book balance as shown by Bin Card because of proximity to materials	It does not facilitates on the spot comparison of physical stock of an item with its book balance as shown by Store Ledger because of no proximity to materials

Multiple Choice Questions

1. Inventory turnover shows relationship between
 - (a) Opening and closing stock
 - (b) Material consumed and average stock
 - (c) Raw material and finished goods
 - (d) None of these
2. Bin card shows the value of material at any moment of time
 - (a) True
 - (b) False
 - (c) Partly True
 - (d) None of these
3. Economic lot size is the order size that the total cost of ordering and storing.
 - (a) Increase
 - (b) Decreases
 - (c) Maximizes
 - (d) Minimizes
4. Inflated price method of valuing material issue is suited when
 - (a) is avoidable wastage of material
 - (b) is unavoidable wastage of material
 - (c) Price rises
 - (d) None of these
5. Reordering level is equal to
 - (a) Maximum consumption X minimum reorder period
 - (b) Maximum consumption X maximum reorder period
 - (c) Minimum consumption X minimum reorder period
 - (d) Normal usage X normal delivery period
6. Material losses due to abnormal reasons should be transferred to
 - (a) Financial Profit and Loss a/c
 - (b) Costing P&L A/c
 - (c) Adjusted with cost of Production
 - (d) None of these
7. When price fluctuate widely, the method that will avoid the effect of fluctuations is
 - (a) FIFO
 - (b) LIFO
 - (c) Simple Average
 - (d) Weighted Average
8. A system that keeps a running and continuous record that tracks inventories and cost of goods sold on day to day basis is called
 - (a) Periodic inventory system
 - (b) Perpetual inventory system
 - (c) Daily Stock method
 - (d) None of these
9. Obsolete stocks are those having
 - (a) Low turnover rate
 - (b) No demand for technological change
 - (c) No present demand, but may be in future
 - (d) None of the above
10. Continuous stock taking is a part of
 - (a) Annual stock taking
 - (b) Perpetual inventory
 - (c) ABC analysis
 - (d) None of these
11. Assuming inflation, if a company wants to maximize net income, it would select FIFO as the method of pricing
 - (a) True
 - (b) False
 - (c) Partly True
 - (d) None of these
12. The process of Physical verification of stores throughout the year is known as
 - (a) Periodic inventory system
 - (b) Continuous stock taking
 - (c) Perpetual inventory system
 - (d) None of these
13. ABC analysis is based on the principle of management by exception
 - (a) True
 - (b) False
 - (c) Partly True
 - (d) Partly False
14. Quantitative records of receipts, issues and balance items of material in stores are entered in.....
 - (a) Store Ledger
 - (b) Bin Cards
 - (c) Costing P&L
 - (d) None of these
15. Abnormal loss on account of idle time should be written off by being directly debited to

- (a) Financial P&L a/c
(b) Costing P&L a/c
(c) Both of these
(d) None of these
16. Two important opposing factors in fixing the economic order quantity are
(a) Material price and quantity
(b) Quantity and order cost
(c) Order cost and carrying cost
(d) Carrying cost and quantity
17. The annual demand is 1000 units. The unit price is Rs.10 per unit. The carrying cost of inventory is 10% and the ordering cost is Rs.5 per order. The economic order lot to be ordered is
(a) 100 Units
(b) 800 Units
(c) 200 Units
(d) 400 Units
18. Direct cost and variable costs are not same
(a) True
(b) False
(c) Partly True
(d) Partly False
19. ABC analysis is used to manage the spares parts etc.
(a) True
(b) False
(c) Partly True
(d) Partly False
20. is the method of valuation of inventory is useful when price are rising.
(a) FIFO
(b) LIFO
(c) Weighted average
(d) Simple Average
21. When price of materials have rising trend, then the suitable method for issuing the material will be
(a) FIFO
(b) LIFO
(c) HIFO
(d) Standard cost method
22. Bin card shows at any moment of time.
(a) Value of material
(b) Quality of material
(c) Quantity of material
(d) All of these
23. If Opening stock of material is Rs.40000 Purchase is Rs.500000, Closing stock is Rs.50000 and profit is 20% on sale. What would be the Sale?
(a) 5,88,000
(b) 6,12,500
(c) 6,12,000
(d) 6,37,500
24. What are the consequences of undervaluation of closing stock?
(a) Under reporting of profits
(b) Creation of hidden reserves
(c) Reduction of tax liability
(d) All of these
25. Various methods of pricing materials issues are derived from cost prices. They include the following except:
(a) Specific Price
(b) FIFO
(c) LIFO
(d) All of the

Answer Key:

- 1.(b) 2.(b) 3.(d) 4.(b) 5.(b) 6.(b) 7.(d) 8.(b) 9.(b) 10.(b)
11.(b) 12.(c) 13.(a) 14.(b) 15.(b) 16.(c) 17.(a) 18.(a) 19.(b) 20.(b)
21.(c) 22.(c) 23.(b) 24.(d) 25.(a)

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