

## QUICK REVIEW

**1. Inventory Control Levels:**

- ◆ **Re-order Level (ROL):** It is the level at which fresh order needs to be placed.

$$\text{ROL} = \text{Max. Consumption} \times \text{Max. Re-order Period}$$

Or

$$\text{Min. Stock Level} + (\text{Avg. Consumption} \times \text{Average Re-order period})$$

Or

$$\text{Safety Stock} + \text{Avg. lead time consumption}$$

Re-order period is also known as Lead Time.

- ◆ **Re-order Quantity/Economic Order Quantity (ROQ/EOQ):** It is the size of the order for which total ordering and total carrying costs are minimum.

$$\text{EOQ} = \sqrt{\frac{2 \times \text{Annual Requirement (A)} \times \text{Cost per order (O)}}{\text{Carrying cost per unit p.a. (C)}}$$

- ◆ **Minimum Stock Level:** It is the minimum quantity which must be retained in stock.

$$= \text{ROL} - (\text{Avg. Consumption} \times \text{Average Re-order Period})$$

- ◆ **Maximum Stock Level:** It is the maximum limit up to which stock can be stored at any time.

$$= \text{ROL} + \text{ROQ} - (\text{Min. Consumption} \times \text{Min. Re-order Period})$$

- ◆ **Average Inventory Level:** It is the quantity of material that is normally held in stock over a period.

$$= \text{Minimum Stock Level} + 1/2 \text{ Re-order Quantity}$$

OR

$$= \frac{\text{Maximum Stock Level} + \text{Minimum Stock Level}}{2}$$

- ◆ **Danger Level:** The level where normal issue of materials is stopped and only emergency materials are issued.

= Avg. Consumption\* × Lead time for emergency purchase

\*Some time minimum consumption is also used.

## 2. Classification of items in ABC Analysis:

**A Category:** Quantity less than 10% but value more than 70%

**B Category:** Quantity less than 20% but value about 20%

**C Category:** Quantity about 70% but value less than 10%

## 3. Inventory Turnover Ratio: It is used for measuring inventory performance.

High inventory turnover - Indicates that material is a fast moving one.

Low turnover ratio - Indicates over-investment and locking up of working capital in inventories.

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Materials Consumed}}{\text{Cost of Average Stock}}$$

Average Stock =  $1/2$  (opening stock + closing stock)

$$\text{Average No. of days of Inventory holding} = \frac{365 \text{ Days or 12 Months}}{\text{Inventory turnover Ratio}}$$

## THEORY QUESTIONS

### Q1. State the objectives of system of material control. [ICAI Module]

**Ans: (i) Minimising interruption in production process:** Material Control system ensures that no activity, particularly production, suffers from interruption for want of materials and stores. This requires constant availability of every item needed in the production process.

**(ii) Optimisation of Material Cost:** The overall material costs includes price, ordering costs and holding costs. Since all the materials and stores are acquired at the lowest possible price considering the required quality and other relevant factors like reliability in respect of delivery, etc., holding cost too needs to be minimized.

**(iii) Reduction in Wastages:** It aims at avoidance of unnecessary losses and wastages that may arise from deterioration in quality due to defective or long storage or from obsolescence.

**(iv) Adequate Information:** The system of material control maintains proper records to ensure that reliable information is available for all items of materials and stores. This not only helps in detecting losses and pilferages but also facilitates proper production planning.

**(v) Completion of order in time:** Proper material management is very necessary for fulfilling orders of the firm. This adds to the goodwill of the firm.

**Q2. What is Bill of Material? Describe the uses of Bill of Material in following departments:**

- (i) Purchases Department
- (ii) Production Department
- (iii) Stores Department
- (iv) Cost/Accounting Department *[CA Inter Dec. 2021, 5 Marks]*

**Ans:** It is a detailed list specifying the standard quantities and qualities of materials and components required for producing a product or carrying out of any job.

### Uses of Bill of Material

Marketing (Purchase) Deptt.	Production Deptt.	Stores Deptt.	Cost/Accounting Deptt.
Materials are procured (purchased) on the basis of specifications mentioned in it.	Production is planned according to the nature, volume of the materials required to be used. Accordingly, material requisition lists are prepared.	It is used as a reference document while issuing materials to the requisitioning department.	It is used to estimate cost and profit. Any purchase, issue and usage are compared/verified against this document.

**Q3. Distinguish between Bill of Material and Material Requisition note.**

*[CA Inter May 2012, 4 Marks]*

**Ans: Differences between Bill of Material and Material Requisition Note**

Bill of Material	Material Requisition Note
It is the document prepared by the engineering or planning department.	It is prepared by the production or other consuming department.
It is a complete schedule of component parts and raw materials required for a particular job or work order.	It is a document asking Store-keeper to issue materials to the consuming department.
It often serves the purpose of a material requisition as it shows the complete schedule of materials required for a particular job <i>i.e.</i> it can replace material requisition.	It cannot replace a bill of materials.
It can be used for the purpose of quotations.	It is useful in arriving historical cost only.
It helps in keeping a quantitative control on materials drawn through material requisition.	It shows the material actually drawn from stores.

**Q4. Write the treatment of items associated with purchase of material:**

- (i) Cash discount
- (ii) Subsidy/Grant/Incentives
- (iii) GST
- (iv) Commission brokerage paid *[CA Inter May 2016, 4 Marks]*

**Ans: (i) Cash discount:** Cash discount is not deducted from the purchase price. It is treated as interest and finance charges. It is to be ignored.

**(ii) Subsidy/Grant/Incentive:** Any subsidy/grant/incentive received from the Government or from other sources deducted from the cost of purchase.

**(iii) GST:** It is excluded from the cost of purchase if credit for the same is available. Unless mentioned specifically it should not form part of cost of purchase.

**(iv) Commission or brokerage paid:** Commission or brokerage paid is added with the cost of purchase.

**Q5. State how the following items are treated in arriving at the value of cost of material purchased:**

- (i) Detention Charges/Fines
- (ii) Demurrage
- (iii) Cost of Returnable containers
- (iv) Central Goods and Services Tax (CGST)
- (v) Shortage due to abnormal reasons. *[CA Inter Jan. 2021, 5 Marks]*

**Ans:** Treatment of items in arriving at the value of cost of material Purchased

S. No.	Items	Treatment
1.	<b>Detention charges/Fine</b>	Detention charges/fines imposed for non-compliance of rule or law by any statutory authority. It is an abnormal cost and <b>not included</b> with cost of Purchase.
2.	<b>Demurrage</b>	Demurrage is a penalty imposed by the transporter for delay in uploading or offloading of materials. It is an abnormal cost and <b>not included</b> with cost of purchase.
3.	<b>Cost of returnable containers</b>	If the containers are returned and their costs are refunded, then cost of containers should not be considered in the cost of purchase.  If the amount of refund on returning the container is less than the amount paid, then, only the short fall is added with the cost of purchase.

S. No.	Items	Treatment
4.	<b>Central Goods and Services Tax (CGST)</b>	Central Goods and Services Tax (CGST) is paid on manufacture and supply of goods and collected from the buyer. It <b>is excluded</b> from the cost of purchase if the input credit is available for the same. Unless mentioned specifically CGST is not added with the cost of purchase.
5.	<b>Shortage due to abnormal reasons</b>	Shortage arises due to abnormal reasons such as material mishandling, pilferage, or due to any avoidable reasons are not absorbed by the good units. Losses due to abnormal reasons are debited to costing profit and loss account.

**Q6. State how the following items are treated in arriving at the value of cost of material purchased:**

- (i) Trade discount
- (ii) Insurance charges
- (iii) Freight inwards
- (iv) Cost of non-returnable containers
- (v) Shortage due to normal reasons

*[ICAI Module]*

**Ans:**

S. No.	Items	Treatment
(i)	Trade discount	Trade discount is deducted from the purchase price if it is not shown as deduction in the invoice.
(ii)	Insurance charges	Insurance charges are paid for protecting goods during transit. It is added with the cost of purchase.
(iii)	Freight inwards	It is added with the cost of purchase as it is directly attributable to procurement of material.
(iv)	Cost of non-returnable containers	The cost of non-returnable containers is added with the cost of purchase of materials.
(v)	Shortage due to normal reasons	Good units absorb the cost of shortage due to normal reasons. Losses due to breaking of bulk, evaporation, or due to any unavoidable conditions etc. are the reasons of normal loss.

**Q7. Distinguish clearly between Bin Cards and Stores Ledgers.**

*[CA Inter Nov. 2017, Nov. 2004, May 2003, May 2002, May 2000, 4 Marks]*

**Ans:**

<b>Bin Cards</b>	<b>Stores Ledger</b>
Bin Cards is maintained by the store keeper in the store.	Store ledger is maintained in cost accounting department.
It contains only quantitative details of material received, issued and returned to stores.	It contains information both in quantity and value.
Entries are made when transaction takes place.	It is always posted after the transaction.
Each transaction is individually posted.	Transactions may be summarized and then posted.
Inter-department transfers do not appear in Bin Card.	Material transfers from one job to another job are recorded for costing purposes.

**Q8. Define Inventory control and given its objectives. List down the basis to be adopted for inventory control. [CA Inter Nov. 2019, 5 Marks]**

**Ans:** The Chartered Institute of Management Accounts (CIMA) defines Inventory Control as “The function of ensuring that sufficient goods are retained in stock to meet all requirements without carrying unnecessarily large stocks”.

The objective of inventory control is to make a balance between sufficient stock and over-stock. The stock maintained should be sufficient to meet the production requirements so that uninterrupted production flow can be maintained. Insufficient stock not only pause the production but also cause a loss of revenue and goodwill.

On the other hand, Inventory requires some funds for purchase, storage, maintenance of material with a risk of obsolescence, pilferage etc. A trade-off between stock-out and over-stocking is required. The management may employ various methods of inventory a balance.

**Management may adopt the following basis for Inventory Control:**

- ◆ By Setting Quantitative Levels
- ◆ On the basis of Relative Classification
- ◆ Using Ratio Analysis
- ◆ Physical control

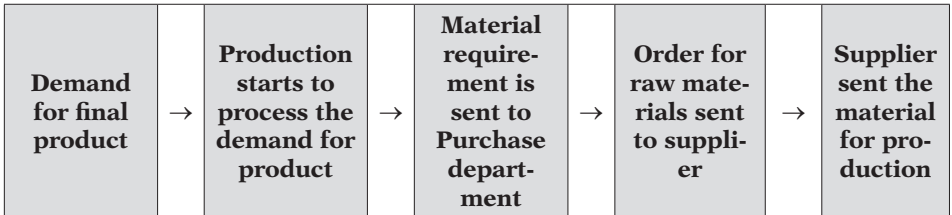
**Q9. Explain ‘Just In Time’ (JIT) approach of inventory management. [CA Inter May 2018, 5 Marks]**

**Ans:** JIT is a system of inventory management with an approach to have a zero inventories in stores. According to this approach material should only be purchased when it is actually required for production.

JIT is based on two principles:

- (i) Produce goods only when it is required; and
- (ii) The products should be delivered to customers at the time only when they want.

It is also known as ‘Demand pull’ or ‘Pull through’ system of production. In this system, production process actually starts after the order for the products are received. Based on the demand, production process starts and the requirement for raw materials is sent to the purchase department for purchase. The steps followed in this system are as follows:



**Q10. Discuss ABC Analysis as a system of Inventory Control.**

*[CA Inter May 2000, Nov. 2004, Nov. 2005, May 2008, Nov. 2011, May 2017, 4 Marks]*

**Ans:** It is an important technique of inventory control on selective basis whereby the measure of control over an item of inventory varies with its usage value. It exercises discriminatory control over different items of stores grouped on the basis of the investment involved. Usually the items of material are grouped into three categories *viz.*; A, B and C according to their use value during a period:

- (i) **‘A’ Category** of items consists of only a small percentage *i.e.*, about 10% of the total items of material handled by the stores but require heavy investment, *i.e.*, about 70% of inventory value, because of their high prices and heavy requirement.
- (ii) **‘B’ Category** of items comprises of about 20% of the total items of material handled by stores. The percentage of investment required is about 20% of the total investment in inventories.
- (iii) **‘C’ Category** of items does not require much investment. It may be about 10% of total inventory value but they are nearly 70% of the total items handled by stores.

**Q11. What are the advantages of ABC analysis.**

*[ICAI Module]*

**Ans:** (i) **Continuity in production:** It ensures that, without there being any danger of interruption of production for want of materials or stores, minimum investment will be made in inventories.

**(ii) Lower cost:** The cost of placing orders, receiving goods and maintaining stocks is minimised specially if the system is coupled with the determination of proper economic order quantities.

**(iii) Less attention required:** Management time is saved since attention need to be paid only to some of the items rather than all the items.

**(iv) Systematic working:** With the introduction of the ABC system, much of the work connected with purchases can be systematized on a routine basis, to be handled by subordinate staff.

**Q12. How is slow moving and non-moving item of stores detected and what steps are necessary to reduce such stocks?**

*[CA Inter Nov. 2001, 4 Marks]*

**Ans:** Slow moving and non-moving items of stores can be detected in the following ways:

1. By preparing & scanning periodic reports showing the status of different items of stores.
2. By calculating the stock holding of various items in terms of numbers of days/months of consumption as a percentage.
3. By computing ratios periodically, relating to the issues of average stock held.
4. By implementing the use of a well designed information system.

**Steps to reduce stock of slow moving and non-moving items of stores:**

1. Proper procedures and guidelines should be laid down for the disposal of non-moving items, before they further deteriorates in value.
2. Diversity in production to use up such materials.
3. Use these materials as substitute in place of other materials.

**Q13. Write a short note on VED analysis of Inventory Control.**

*[CA Inter July 2021, 5 Marks]*

**Ans: Vital, Essential and Desirable (VED):** Under this system of inventory analysis, inventories are classified on the basis of its criticality for the production function and final product. This classification is done for spare parts which are used for production.

**Vital:** Items are classified as vital when its unavailability can interrupt the production process and cause a production loss. Items under this category are strictly controlled by setting re-order level.

**Essential:** Items under this category are essential but not vital. The unavailability can cause sub-standardization and loss of efficiency in production process. Items under this category are reviewed periodically and get the second priority.



**Desirable:** Items under this category are optional in nature, unavailability does not cause any production or efficiency loss.

**Q14. Describe perpetual inventory records and continuous stock verification.**

*[CA Inter May 2001, 3 Marks]*

**Ans: Perpetual Inventory Records:**

Perpetual inventory represents a system of records maintained by the stores department. It comprises of: (i) Bin Cards, and (ii) Stores Ledger.

The success of perpetual inventory depends upon the following:

- (a) The Stores Ledger showing quantities and amount of each item.
- (b) Stock Control cards (or Bin Cards).
- (c) Reconciling the quantity balances shown by stores ledger and bin cards.
- (d) Checking the physical balances of a number of items every day systematically and by rotation.
- (e) Explaining promptly the causes of discrepancies, if any, between physical balances and the book figures.
- (f) Making corrective entries wherever required and
- (g) Removing the causes of the discrepancies.

**Continuous Stock Verification:**

The checking of physical inventory is an essential feature of every sound system of material control. The system of continuous stock-taking consists of **physical verification of items of inventory**. The stock verification may be done by internal audit department but are independent of the store and production staff. Stock verification is done at appropriate interval of time without prior notice. The element of surprise is essential for effective control of the system.

**Q15. Discuss the advantages of perpetual inventory records and continuous stock verification.**

*[CA Inter Nov. 2006, 4 Marks]*

**Ans: Advantages of Perpetual Inventory Records:**

1. Physical stocks can be counted and book balances can be adjusted as and when desired without waiting for the entire stock-taking to be done.
2. Quick compilation of Profit and Loss Account for interim period due to prompt availability of stock figures.
3. Discrepancies are easily located and thus corrective action can be promptly taken.
4. It reveals the existence of surplus, dormant, obsolete and slow-moving materials, so that remedial measures may be taken in time.

5. Fixation of the various stock levels and checking of actual balances in hand with these levels assist the store keeper in maintaining stocks within limits and in initiating purchase requisitions for correct quantity at the appropriate time.

**Advantages of Continuous Stock Taking:**

1. Closure of normal functioning is not necessary.
2. Stock discrepancies are likely to be brought to the notice and corrected much earlier than under the annual stock-taking system.
3. The system generally has a sobering influence on the stores staff because of the element of surprise present therein.
4. The movement of stores items can be watched more closely by the stores auditor so that chances of obsolescence buying are reduced.
5. Final Accounts can be ready quickly. Interim accounts are possible quite conveniently.

**Q16. "Perpetual inventory system comprises Bin Card and Stores Ledger, but the efficacy of the system depends on continuous stock taking."**  
**Comment.** *[CA Inter May 2013, 4 Marks]*

**Ans:** Perpetual Inventory system represents a system of records maintained by the stores department. Records comprise of (i) Bin Cards and (ii) Stores Ledger.

Bin Card maintains a quantitative record of receipts, issues and closing balances of each item of stores. Like a bin card, the Stores Ledger is maintained to record all receipt and issue transactions in respect of materials. It is filled up with the help of goods received note and material requisitions. But a perpetual inventory system's efficacy depends on the system of continuous stock taking.

Continuous stock taking means the physical checking of the records *i.e.* Bin cards and store ledger with actual physical stock. Perpetual inventory is essentially necessary for material control. It incidentally helps continuous stock taking.

**The main advantages of continuous stock taking are as follows:**

1. Closure of normal functioning is not necessary.
2. Stock discrepancies are likely to be brought to the notice and corrected much earlier than under the annual stock-taking system.
3. The system generally has a sobering influence on the stores staff because of the element of surprise present therein.
4. The movement of stores items can be watched more closely by the stores auditor so that chances of obsolescence buying are reduced.
5. Final Accounts can be ready quickly. Interim accounts are possible quite conveniently.

**Q17. Explain FIFO and LIFO method of stores issue.***[CA Inter May 2018, 2.5 Marks]*

**Ans: First-in First-out (FIFO) method:** It is a method of pricing the issues of materials, in the order in which they are purchased. In other words, the materials are issued in the order in which they arrive in the store or the items longest in stock are issued first. Thus each issue of material only recovers the purchase price which does not reflect the current market price.

It is suitable in times of falling price since the material cost charged to production will be high while the replacement cost of materials will be low. But, in case of rising prices, if this method is adopted, the charge to production will be high while the replacement cost of material will be low.

Consequently, it would be difficult to purchase the same volume of materials (as in the current period) in future without having additional capital resources.

**Last-in-First-out (LIFO) method:** It is a method of pricing the issues of materials on the basis of assumption that the items of the last batch (lot) purchased are the first to be issued. Therefore, under this method, the prices of the last batch (lot) are used for pricing the issues, until it is exhausted. Where the quantity of issue is more than the quantity of the latest lot, then earlier lot and its price will also be taken into consideration.

During inflationary period or period of rising prices, the use of LIFO would help to ensure that the cost of production determined on the above basis is approximately the current one.

**Q18. Explain, why the Last in First out (LIFO) has an edge over First-in-First out (FIFO) or any other method of pricing material issues.***[CA Inter Nov. 2007, 3 Marks]*

**Ans:** LIFO has following advantages:

- (a) The cost of the material issued will be reflecting the current market price.
- (b) The use of the method during the period of rising prices does not reflect undue high profit in the income statement.
- (c) In the case of falling price, profit tend to rise due to lower material cost, yet the finished goods appear to be more competitive and are at market price.
- (d) During the period of inflation, LIFO will tend to show the correct profit.

**Q19. Explain the meaning of waste, spoilage, defectives and scrap and give the accounting treatment for each one.***[CA Inter Nov. 2019, Nov. 2015, May 2009, Nov. 2008, May 2007, May 2005, Nov. 2003, May 2003, May 2000, 8 Marks]*

**Ans: Waste:** It is the portion of raw material which is lost during storage or production and discarded. The waste may or may not have any value.

**Accounting Treatment:**

**Normal Wastage:** Cost of normal waste is absorbed by good production units.

**Abnormal Wastage:** The cost of abnormal loss is transferred to Costing Profit and loss account.

**Spoilage:** Spoilage is the term used for materials which are badly damaged in manufacturing operations, and they cannot be rectified economically and hence taken out of the process to be disposed of without further processing.

**Accounting Treatment:**

**Normal Spoilage:** Normal spoilage (*i.e.*, which is inherent in the operation) costs are included in costs, either by charging it to the production order or to the production overhead so that it is spread over all the products. Any value realised from spoilage is credited to production order or production overhead account, as the case may be.

**Abnormal Spoilage:** Abnormal Spoilage (*i.e.*, arising out of causes not inherent in manufacturing process) costs are charged to Costing Profit and Loss Account. When spoiled work is the result of rigid specification, the cost of spoiled work is absorbed by good production while the cost of disposal is charged to production overhead.

**Defectives:** Defectives are those units or portions of production which do not meet the quality standards due to sub-standard materials, bad-supervision, bad-planning, poor workmanship, inadequate-equipment and careless inspection.

**Accounting Treatment:**

**Normal Defects:** An amount equal to the cost less realisable value on sale of defectives is charged to material cost of good production.

**Abnormal Defects:** Material Cost of abnormal defectives are not included in material cost but treated as loss after giving credit to the realisable value of such defectives and is transferred to costing profit and loss account.

**Scrap:** Scraps are the materials which are discarded and disposed-of without further treatment. Generally, scrap has either no value or insignificant value. Sometimes, it may be reintroduced into the process as raw material.

**Accounting Treatment:**

**Normal Scrap:** The cost of scrap is borne by good units and income arises on account of realisable value is deducted from the cost.

**Abnormal Scrap:** The scrap account should be charged with full cost and the credit is given to the job or process concerned. The profit or loss in the scrap account due to realization will be transferred to the Costing Profit and Loss Account.