

Chapter 2 Material Cost

Material

Meaning of Material: The term 'materials' refers to all commodities or components which are consumed in the process of manufacturing. The materials may be classified into direct materials and indirect materials.

Importance of material

- Ascertain the standard quantity of the material used to manufacture one unit.
- Add the standard amount of scrap associated with manufacturing one unit.
- Determine the standard amount of scrap associated with setting up the production run, and apportion it to the individual unit.
- If any scrap is then sold, apportion the revenue back to the individual unit.

Types of material

3M 1. Direct Material: Direct Material is that material which can be conveniently identified with a particular cost unit. It is a part of the finished product. For example cotton used in textile mills, Steel used in manufacturing machines, familiar used in manufacturing furniture, leather used in marking shoes etc.

Features of Direct Material

- Direct material is an integrated part of manufacturing unit.
- Value of direct material is comparative by higher than that of other materials.
- Direct material can be related to unit produced. It increases in same ratio as the increase in production. So, these are also known as variable material costs.
- If material is brought for a specific job or process, then that material is direct material.
- If the nature of product is such that it cannot be sold without primary packing, then the cost of primary packing will also be treated as cost of direct material.
- If any material is used in a specific cost centre then that material will be direct material for that specific cost centre although it is indirect from the point of view of total cost of production.

2. Indirect Material: Indirect Material is that material which cannot be conveniently identified with a particular cost unit. Indirect Material also becomes a part of the finished product but is used in small quantities. Example: Nails used in the manufacturing of furniture, Thread used in the manufacturing of shoes etc.

Features of Indirect Material

- Indirect material cost does not change in proportion to the production.
- It does not become part of production cost.
- Even if it becomes part of production cost, the cost of indirect material is low than that of direct material.

Material Procurement

Meaning: Material procurement refers to techniques, structured methods and means used to streamline an organization's procurement process and achieve desired results while saving cost,

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reducing time, and building win-win supplier relationships. Procurement can be direct, indirect, reactive or proactive in nature.

Procedure for procurement of materials

The procedure of purchasing materials varies from one business to another, depending upon its size, conditions and ideas. Assuming a Central Purchasing Department, the purchase procedure starts with the receipt of purchase requisition from the indenting departments and ends with the payments and if necessary with the replacement of rejected materials. The important steps in purchase procedure are as follows

1. Purchase Requisition: Purchasing starts when someone in the organisation decides that a particular material is needed. A form known as Purchase Requisition is commonly used as a formal request to the purchasing department for the purchase of a material. Purchase requisition may be received from

- Storekeeper, for all items in regular use when these reach re-order level.
- A departmental head, who may require materials in the course of the running of the department.
- Plant Engineer, for special maintenance material and capital expenditure.

Purchase requisition should be received only from the certain authorised persons in the organisation. Everybody cannot be allowed to requisition purchase.

Purchase requisition serves the following purposes:

- It sets the purchase procedure in motion by notifying the purchasing department of the need of materials.
- It provides a written record of details of materials data when required.

2. Selection of Supplier: The purchase department analyses each of the purchase requisitions received before making arrangements for the purchase. It usually maintains a suitable record of the different sources of supply and of various quotations. Various sources are examined for the purpose of securing the best quality materials at the lowest possible price. Due consideration is also given to factors like terms of payment, dates of delivery and reliability of various suppliers in the past. Tenders may also be invited for this purpose.

3. Purchase Order: The purchasing department should place orders with those suppliers who will provide the necessary goods at competitive rates. Purchase order is a written authorisation to the supplier to supply the specified materials at a price and terms mentioned therein. As a purchase order forms the basis of a legal contract between the parties concerned, the authority to sign purchase orders should be restricted to selected responsible officers.

Large concerns may prepare 5 copies of purchase order. These copies may be routed as follows: (1) To the supplier, (2) To the Receiving Department, (3) To the Accounts Department, (4) To the department which initiated the Purchase Requisition, (5) Retained in the Purchasing Department for reference purpose.

4. Receipt of Materials: In large concerns, there is generally a separate Receiving Department. All incoming materials are received by the Receiving Department. This department unpacks the goods and verifies their quantity and condition. The quantity is checked against the copy of the purchase order and the supplier's advice note, which is normally received along with the goods. Thereafter a Goods Received Note is prepared.

Goods Received Note is generally prepared in triplicate and sent as follows:

- First copy to Purchasing Department.
- Second copy accompanying the goods to the department or stores to which goods are sent.
- Third copy retained in Receiving Department.

5. Inspection of Materials: Large manufacturing companies may also have separate Inspection and Testing Departments to test the quality of materials purchased. Samples may be subjected to laboratory tests before the goods are finally approved. The results of the tests are intimated to the authorities by means of Testing Reports. Necessary columns are also provided in the Goods Received Note about the goods passed and rejected on the basis of tests conducted.

6. Returns to Supplier: Where goods received are not of the type ordered or are damaged or are not satisfactory, these may be returned to the supplier immediately. It is usual to forward a Debit Note to the supplier. If the supplier accepts the claim, he signifies his acceptance by the issue of a Credit Note.

7. Approval of Invoices and Payment: The supplier's invoice should be checked before payment is made. When the invoice is being vouched, the various documents like copies of purchase requisition, purchase order, goods received note, and inspection report should be checked against each other to ensure that the quantity, price, carriage, packing and discounts have been charged correctly. All calculations on the invoice should also be checked for mathematical accuracy. If everything on the invoice is found to be correct, a voucher authorising payment is prepared and payment made accordingly.

Material storage and records

Meaning of Stock keeping: Store Keeping is that aspect of material control which is concerned, with the physical storage of goods.

Objectives of Stock keeping

1. Efficient and economical receiving, handling and issuing of materials at store.
2. Efficient use of space in the store room.
3. Perpetual stocktaking.
4. Protecting the materials from all possible calamities.
5. Minimising the cost of storage.
6. Proper handling system to be adopted.
7. Clearing all the requisitions placed by several departments in time.

Duties of Store keeper

1. To issue materials from stores only against authorised requisitions.
2. To keep the store room clean and hygienic.
3. To train the workers to handle the materials smoothly.
4. Protect the materials from theft, pilferage etc.
5. To conduct stock taking at periodic intervals.
6. Maintain all the stores records systematically.
7. To allow materials into stores only after proper inspection.
8. Not to allow strangers into the storeroom.
9. Keep the materials handling charges to the minimum.
10. Store the goods in the proper and appropriate place.

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Stores records: Stores records are of two types

1. Perpetual inventory records: These records show the movements of stores, that is the receipt of materials, issue of materials to production departments and also the current balance in stock. The two basic perpetual inventory records are bin card and stores ledger.

- a. **Bin card or stock card:** A bin is a container in which material is kept. Separate bins are maintained by the store keeper for each time of material in store. The bin cards show the details of receipts and issues of materials and the balance in stock at any time. This record is of immense help to the store keeper in controlling the stock position. A bin is a quantitative record of receipts, issues and closing balances of material items in store but it does not contain information about the prices of materials.

Two bin system: In this system two bins are maintained for each item of store. One bin constitutes the main or the regular bin from which the materials are issued and the other bin contains the minimum stock from which issues are made when stock in the regular bin is exhausted. The idea of two bin system is to provide automatic information about reaching minimum stock level so that issue materials for regular production are stopped. At this stage, materials are issued only for urgent orders till fresh supplies of materials are received.

- b. **Stores ledger:** A stores ledger is a record of materials showing receipts, issues and balances of materials in quantities and value. It is maintained by the costing department and is outside the control of store keeper. The ledger is maintained in order to ensure correct storage and records of accounting.

2. Documents: The documents are used to authorise movement of materials into and out of stores. These documents include

- a. **Goods Received Note:** In a large concern, there may be a separate receiving and inspection department. This department performs the functions of receiving the materials and of checking quantities and conditions. After the materials have been checked and tested the receiving clerk will prepare a document known as "Goods Received Note".
- b. **Stores Requisition Note or Materials Requisition Note:** It is a document which is used to authorise and record the issue of materials from store. The storekeeper should issue materials on the presentation of duly authorised stores requisition note. It should be appreciated that this is a key document in virtually all costing systems and serves the dual purpose of: (a) authorising the storekeeper to issue material, and (b) providing a written record of usage of materials.

A separate requisition may be prepared for each item of material or a single requisition may be prepared to cover the issuance of a number of items. The stores requisition note may be prepared in duplicate or triplicate. The original copy is passed to the stores department while duplicate is retained by the department requisitioning materials. The stores requisition note is used for making entries in bin card, stores ledger, materials abstract, etc.

- c. **Bill of Materials:** It is a master requisition which lists all the materials required for the completion of a job. So, a bill of materials is a special form of stores requisition note which is generally used by departments having standard material requirements or a comparatively fixed

list of materials. For instance, in assembly type of production, like in television sets, fixed quantity of each component part is required. In such a case, much of the time would be saved if names of materials are pre-printed on bill of materials and only quantities of different materials are to be written.

Advantages of using bill of materials are:

- It eliminates the need for preparing separate material requisition notes for various types of materials required for a particular job. This saves time and promotes efficiency.
- The storekeeper can be given advance warning of requirements of materials usually not available in store. It thus avoids delay in production.
- When pre-printed forms of bill of materials are used in standard type of output, it saves a lot of clerical labour and risk of errors is also reduced.
- Costing of jobs becomes easier and speedier.

d. **Material Return Note:** When materials issued are in excess of requirements, the unused materials are returned to stores together with a Material Return Note. This note is similar to Material Requisition Note, but is normally printed in a different colour for easy identification. When materials are received back in the stores, these should be placed in appropriate bins and entries made in the bin card.

e. **Material Transfer Note:** Materials may have to be sometimes transferred from one job to another. This may be either because excess materials were issued to a job or surplus materials are directly transferred to another job or because materials issued to a less urgent job are transferred to a more urgent job.

When such transfers are not permitted, the surplus materials are returned to the stores and then re-issued to another job. This results in extra transport costs. Thus, when materials are bulky, such transport costs may be heavy which can be avoided if direct transfers are permitted.

f. **Material Abstract Note:** Materials abstract is defined by CIMA, UK as "a document which is classified record of material issues, returns and transfers". In other words, all Material Requisitions, Material Return Notes and Material Transfer Notes are analysed periodically by the cost accounting department to ascertain the material cost of each job. This is done on a document known as Materials Abstract.

Difference between Bin Card and Stores Ledger

| Bin Card | Stores Ledger |
|--|--|
| Bin Card records only quantity of material received and issued. It does not record the money value of materials. | Stores ledger records both quantity and as well as money value of materials. |
| It is maintained by the storekeeper. | It is maintained by the cost accounting department. |
| Posting in Bin Card is normally done before or at the time of transactions. | Posting in Stores Ledger is done after the transaction has taken place. |
| It is used for physical control of materials and to check the physical balance of quantities. | It is mainly used to check the quantity and values of materials received, issued and balance |

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in stock.

Material Losses: Losses of materials may arise during handling, storage or during process of manufacture. Such losses or wastages are classified into two categories i.e., normal loss and abnormal loss.

1. Normal Loss: This is that loss which has necessarily to be incurred and thus is unavoidable. Normal losses of materials cannot be completely eliminated but may be controlled to a limited extent. Examples are:

- Loss by evaporation in case of liquid materials
- Loss due to breaking the bulk, say, when materials are purchased in large quantity and issued to production in small lots
- Loss due to loading and unloading of materials

2. Abnormal Loss: This is that loss which arises due to inefficiency in operations, bad luck, mischief, etc. Examples are:

- Theft or pilferage
- Breakage
- Fire accident, flood, etc
- Use of inaccurate weighing instruments
- Improper storage of materials, etc

Control of Material Losses: The following steps may be taken to control losses of materials

- Proper storage conditions should be provided, particularly in case of perishable materials.
- The store rooms should be well guarded and protected to avoid the risks of theft, fire, etc.
- In order to reduce losses due to obsolescence, materials should be issued on first-in-first-out basis.
- Accuracy of weighing instruments should be periodically checked.
- A systematic procedure should be developed regarding movement of materials from one place to another and no unauthorised movements of materials should be permitted.
- Specialised material handling equipment should be employed so as to minimise losses in material handling.

Forms of material losses

1. Waste: Waste has been defined as "that portion of a basic raw material which is lost in processing, having no recovery value." Thus waste is a material loss arising in production which has little or no value. Waste may be visible or invisible. Visible waste is that which is physically present, e.g. ash, saw dust, etc. An invisible waste, on the other hand, is the disappearance of basic raw material in the form of evaporation, smoke, etc. Waste in certain industries creates problems of disposal. Usually this is disposed of in the easiest and cheapest manner, e.g. liquid wastes may be poured into adjacent rivers.

2. Scrap: This is defined as "the incidental residue from certain types of manufacture usually of small amount and low value, recoverable without further processing". Scrap has the following features:

- Scrap is incidentally produced from the manufacturing process.
- Scrap is usually of small value.
- No further processing is required to realise its saleable value.

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- Scrap cannot be used as a material for its original purpose.

Unlike waste, scrap is always physically available. Examples of scrap are trimmings in timber industries, cuttings, pieces, etc., in leather and readymade garments factory, off-cuts of sheet metal, etc.

Methods of pricing the issues

1. First In First Out (FIFO): This method is based on the assumption that materials which are purchased first are issued first. It uses the price of the first batch of materials purchased for all the issues until all the units from this batch have been issued. After the first batch is fully issued, the price of the next batch received becomes the issue price and so on.

Merits of FIFO Method

- a. It is an easier and a simple method.
- b. This method agrees with the recent purchase price prevailing in the market.
- c. It is logical method.
- d. When there is a fall in price in the market this method gives better results.
- e. It is suitable where materials are slow moving bulky and when the cost is high.
- f. Material cost represents actual cost which should be charged to product or process.
- g. When materials are purchased at less price, when there is price hike in the market. Profit is inflated and it is beneficial to the company.

Demerits of FIFO Method

- a. When materials are purchased frequently complicated calculations will invite clerical errors.
- b. When prices fluctuate, calculations become tedious.
- c. It overstates profit at the time of rising prices.
- d. If prices change frequently, comparison of one job with the other will not serve the purpose.
- e. The old materials which are returned to stores from production centres will be sent to other production units as fresh issues.

2. Last In First Out (LIFO): This method is based on the assumption that materials which are purchased last are issued first. It uses the price of the last batch of materials purchased for all the issues until all the units from this batch have been issued. After the last batch is fully issued, the price of the previous batch received becomes the issue price and so on.

Merits of LIFO Method

- a. Under this method issues are charged at current price which is more appropriate.
- b. Profit is realistic.
- c. Since issues are charged at actual cost, no adjustment for profit or loss is necessary.
- d. It ensures complete recovery of material cost from production.
- e. It is more useful during the period of rising prices.

Demerits of LIFO Method

- a. If purchases are made frequently calculations becomes tedious.
- b. Unfair comparison of job cost when price changes too frequently.
- c. Stock value does not represent current market price.
- d. Stock taking on LIFO basis is not acceptable for income tax purposes.
- e. It does not show the true position of stock.

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Difference between FIFO and LIFO

| Basis | FIFO | LIFO |
|------------------------------------|--|---|
| Assumption | It assumes that materials which are received first are issued first. | It assumes that materials which are received last are issued first. |
| Cost of materials | Cost of materials issued is at the older price. | Cost of materials issued is at the latest prices paid. |
| Value of closing stock | Closing stock is valued at the latest prices paid. | Closing stock is valued at the prices of oldest materials in stock. |
| When the prices are rising | When prices show a rising trend, FIFO reports higher profits and resultantly higher tax liability. | When prices show a rising trend, LIFO shows lower profits because higher costs are matched against current revenues. Tax liability is thus reduced. |
| When the prices are falling | When the prices of materials are declining, FIFO shows lower profits and thus lower tax liability. | When the prices of materials are declining, LIFO shows higher profits and thus higher tax liability. |

3. Simple Average Price Method: Simple average price is the average of the prices without any regard to quantities. The calculation of simple average price involves adding of different prices and dividing by the number of different prices. Under this method issues are valued at simple price of the number of prices available at the time of issue irrespective of the quantities purchased. The lot which is exhausted based on first out principle is excluded in computing the average.

Merits of Simple Average Price Method

- It is simple and easy to operate.
- If prices do not fluctuate accurate results can be obtained.

Demerits of Simple Average Price Method

- When there is a fluctuation in prices this method gives incorrect results.
- Verification of closing stock becomes difficult.
- Value of closing stock may indicate vague results, in case of drastic price change.
- There may be clerical errors in calculations.

4. Weighted Average Price Method: This method gives due importance on quantities received. Issue prices are calculated at the average cost price of materials. Weighted average rate is calculated each time a fresh lot is received. Average price remains the same till the next issue is received. Thus issue prices are derived at the time of receipt not at the time of issues.

Weighted Average price is calculated by dividing the total cost of materials in stock by the total quantity of materials in stock. This method averages prices after weighting by their quantities. The average price at any time is simply the balance value figure divided by the balance units figures.

Merits of Weighted Average Price Method

- Under this method calculations are simple and easy.
- When prices fluctuate considerably, it smooths out the fluctuations.
- Closing stock value is acceptable.
- It is suitable in case of materials subject to wide price fluctuations.
- Another merit of this method is for every new issue, new rate is not calculated.

Demerits of Weighted Average Price Method

- a. Fresh calculations will have to be made every time fresh purchases are made.
- b. Errors are more possible in this method.
- c. Under fluctuating prices and purchase of different quantities at each time, this method gives incorrect results.
- d. Verification of closing stock becomes difficult.
- e. Issuing and closing stock are not at current cost.

Meanings of Material Control or Inventory Control

Material control is a systematic control over purchasing, storing and consumption of materials, so as to maintain a regular and timely supply of materials, at the same time, avoiding overstocking."

"Material control refers to the management function concerned with acquisition, storage, handling and use of materials so as to minimise wastage and losses, derive maximum economy and establish responsibility for various operations through physical checks, record keeping, accounting and other devices. "

Material Control is a system which ensures that right quality of material is available in the right quantity at the right time and right place with the right amount of investment.

Definition: Material control is defined as "safeguarding of company's property in the form of materials by a proper system of recording and also to maintain them at the optimum level considering operating requirements and financial resources of the business."

Features

- The quality and specification of materials should be exact with the requirements of the product.
- The price given to suppliers should be reasonable and the goods should be delivered in time.
- There should not be too much of investments in materials so as to block the capital. Storage of materials should be appropriate.
- Wastage, pilferage and losses should be avoided at every stage of production.
- Materials should be classified and properly codified to enable the smooth flow of production.

Objectives of material control

1. To enable uninterrupted production: The main object of material control is to ensure smooth and unrestricted production. Production stoppages and production delays cause substantial loss to a concern.

2. To fix responsibility: A proper system of materials control also aims at fixing responsibility of operating units and individuals connected with the purchase, storage and handling of materials.

3. No understocking: Understocking leads to materials running out of stock at some time or the other. Shortages of materials may arise at the time when they are urgently needed and production then be delayed. Delay or stoppage in production due to non-availability of materials is very costly as it may result in loss of profits. Material control system ensures that there is no shortage of materials.

4. No overstocking: Investment in materials must be kept as low as possible, considering the production requirements and the financial resources of the business. Overstocking of materials unnecessarily locks up capital and causes high storage costs, thus, adversely affecting the profits.

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5. Minimum wastage: Proper storage conditions must be provided to different types of materials. Losses of materials may occur due to deterioration, obsolescence, theft, evaporation, etc. All efforts should be made to keep these losses at the minimum.

6. Economy in purchasing: The purchasing of material is a highly specialised function. By purchasing materials at the most favourable prices, the efficient purchaser is able to make a valuable contribution to the success of a business.

7. Proper quality of materials: While purchasing materials, due consideration should also be given to the quality. It is no use purchasing materials of inferior quality or of very superior quality. For each type of product there is a particular quality of materials which is needed and that quality alone should be purchased.

8. Information about materials: Not only that materials should be available as and when required, but also there should be a system to give complete and up-to-date accounting information about the stock of materials. Sometimes inadequate information about the availability of materials may cause new purchases be made of materials already in stock.

9. Material reports to management: The material control system should be so designed so as to serve the purpose of accurate and up-to-date reports to management about purchase, consumption and stocks of materials.

Essential Requirements or Principles of Material Control

1. There should be proper coordination and cooperation between various departments dealing in materials; viz., Purchasing Department, Stores Department, Receiving and Inspecting Department, Accounting Department, etc.
2. There should be central purchasing department under the control of a competent and expert purchase manager.
3. There should be proper classification and codification of materials.
4. Material requirements should be properly planned.
5. The perpetual inventory system should be operated so that up-to-date information is available about the quantity of material in stock.
6. Adequate records should be introduced to control materials during production and the quantities manufactured for stock.
7. The storage of all materials should be well-planned subject to adequate safeguards and supervision.
8. The various stock levels like minimum, maximum, etc., should be fixed for each item of material.
9. Purchases of materials should be controlled through budgets.
10. An efficient system of internal audit and internal check should be operated so that all transactions involving materials are checked by reliable and independent persons.
11. There should be regular reporting to management regarding purchases, issues and stock of materials. Special reports should be prepared for obsolete items, spoilage, returns to suppliers, abnormal losses, etc.

Benefits

- Materials control eliminates wastage in use of raw materials and supplies in course of purchase, storage, handling and use.

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- It ensures uninterrupted flow of right quality and quantity of materials to the production department.
- It reduces the risk of fraud and theft.
- It facilitates the preparation of various monthly financial statements.
- The valuation of materials is very easy.
- It requires minimum amount of capital to buy materials.
- It fixes the responsibility on the part of the employers who are handling the materials at the maximum.

Techniques

1. Fixation of Stock Levels: For effective material control and to avoid overstocking and under stocking of materials, any important requirement is to decide upon various levels of materials.

2. Economic Ordering Quantity or Reorder Quantity: It is the size of the order which gives maximum economy in purchasing any materials and ultimately contributes towards maintaining the material at the optimum level and the minimum cost.

Formula:

$$EOQ = \sqrt{\frac{2 \cdot A \cdot B}{C \cdot S}}$$

where EOQ = Economic order quantity
A = Annual consumption
B = Buying cost per order
C = Cost per unit of material
S = Storage and carrying cost% of cost

Alternatively, $EOQ = \sqrt{\frac{2 \cdot A \cdot B}{S}}$ where S = Storage cost per unit per annum

3. ABC Analysis: ABC technique is a value based system of material control. In this technique of selective control, materials are analysed according to their value so that costly and more valuable materials are given greater attention and care.

- **'A' Items:** These are high value items which may consist of only a small percentage of the total items handled. On account of their high cost, these materials should be under the tightest control and the responsibility of the most experienced personnel.
- **'B' Items:** These are medium value materials which should be under the normal control procedure.
- **'C' Items:** These are low value materials which may represent a very large number of items. These materials should be under the simple and economic methods of control.

Advantages of ABC Analysis

- Clerical costs are reduced.
- It facilitates economy in buying.
- Proper inventory levels facilitate free circulation of funds.
- Storage cost is reduced.

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- It ensures strict control on costly items in which large amount of capital is tied up.
- This helps in maintaining high stock turnover ratio.

4. FNSD Inventory: According to this analysis the items are classified into Fast - moving (F), Normal - moving (N), Slow - moving (S) and Dead stock (D) on the basis of their rate of consumption.

- 'F' stands for Fast moving items that are consumed in a short span of item.
- 'N' stands for Normal moving items that are consumed over a period of a year or so.
- 'S' stands for Slow moving items which would last for more than one year.
- 'D' stands for materials may be DEAD stock in the sense that no further demand of such materials is foreseen.

5. VED Inventory: VED analysis is an inventory management technique that classifies inventory based on its functional importance. It categorizes stock under three heads based on its importance and necessity for an organization for production or any of its other activities. VED analysis stands for Vital, Essential, and Desirable. This analysis classifies inventory according to the relative importance of certain items to other items, like in spare parts. In VED Analysis, the items are classified into three categories which are:

- **Vital:** inventory that consistently needs to be kept in stock.
- **Essential:** keeping a minimum stock of this inventory is enough.
- **Desirable:** operations can run with or without this, optional.

6. HML Inventory: HML Analysis classifies inventory based on how much a product costs/its unit price. The classification is as follows:

- **High Cost (H):** Item with a high unit value.
- **Medium Cost (M):** Item with a medium unit value.
- **Low Cost (L):** Item with a low unit value.

7. Ratio Analysis (ITO Ratio): Ratio analysis is a quantitative method of gaining insight into a company's liquidity, operational efficiency, and profitability by studying its financial statements such as the balance sheet and income statement.

The inventory turnover ratio is calculated by dividing the cost of goods sold for a period by the average inventory for that period. Average inventory is used instead of ending inventory because many companies' merchandise fluctuates greatly throughout the year.

8. JIT Inventory Management: It is also known as lean manufacturing. It is technique designed to increase the efficiency, reduce costs and decrease waste by receiving goods only as and when they are needed for production and not for stocking. In other words, according to this system, goods are received from suppliers just in time only as they are needed.

It eliminates over production. Its main objective is to reduce inventory holding costs to the minimum and increase inventory turnover. It also has the advantage of not having the risk of stock perishing, becoming obsolete or out of date while lying in store room.

9. Kanban: 'Kan' means 'Visual' and 'Ban' means 'Card'. So Kanban means 'Visual Card'. In Kanban System, visual cards used are to tell workers what to produce, when to produce and how much to produce. Due to use of Kanban boards, less time is wasted in communicating project information to workers, leading to automatic rise in productivity of labour.

Stock Levels

1. Minimum Level: The maximum stock level is the level above which stock should not normally be allowed to rise. It is the maximum quantity of material that may be held in store. The formula for computing is as follows

Maximum level = Reorder level + Reorder Quantity - [Minimum Consumption x Min Reorder period]

2. Minimum Level: The minimum level is that level of stock below which the stock should not normally be allowed to fall. This is essentially a safety stock and will not normally be touched. The formula for computing Minimum Level is as follows:

Minimum level = Reorder level - [Normal Consumption x Normal Reorder Period]

3. Reorder Level: It is that level of material at which new order for material is to be placed. In other words this is the level at which purchase requisition is made out. This level will be fixed somewhere between maximum and minimum level. The formula for computing Reorder level is as follows:

Reorder level = [Maximum Consumption x Maximum Reorder Period]

4. Average Stock Level: This is computed with the help of the following formula:

Average stock = Minimum level + Maximum level / 2

or

Average stock level = Minimum level + ½ (Reorder Quantity)

5. Danger level: It is that level below which stock should not be allowed to follow except under emergency conditions. When stock reaches this level, urgent action for purchases is initiated. The formula for computing Danger level is as follows:

Danger level = Average Consumption x Maximum Reorder Period for emergency purchases

Assignment Questions

Section A

1. What is a material?
2. What is EOQ? How is it calculated?
3. What is meant by VED analysis? (Any type of technique can be asked)
4. State two advantages of LIFO method of pricing issues.
5. What do you mean by material control?
6. What is maximum level of stock? (Any type of stock level can be asked)
7. What is ABC analysis?
8. What is a purchase requisition? To whom it is submitted?
9. Name any four techniques of inventory control?
10. Define the term material control.
11. What is purchase order?
12. What is material requisition?
13. Give the meaning of material.
14. What is Bin Card?
15. What is Stores Ledger?
16. What are indirect materials?
17. What do you mean by store keeping?

Section B

1. Explain the types of material.
2. What is material loss? Explain the types and forms of material losses.
3. Distinguish between FIFO and LIFO.
4. Explain the duties of storekeeper.
5. What is the difference between Bin Card and Stores Ledger?
6. List the documents used in the purchase of materials.
7. What are the objectives of store keeping?

Section C

1. Explain in brief the purchase procedure.
2. Explain the various levels of stock.
3. State the techniques or methods of inventory control.
4. Discuss the different method of pricing material issues.
5. Explain the objectives of material control.
6. Explain the documents used in the purchase of materials.
7. Explain the principles of material control? Or Explain the essential requirements of material control.