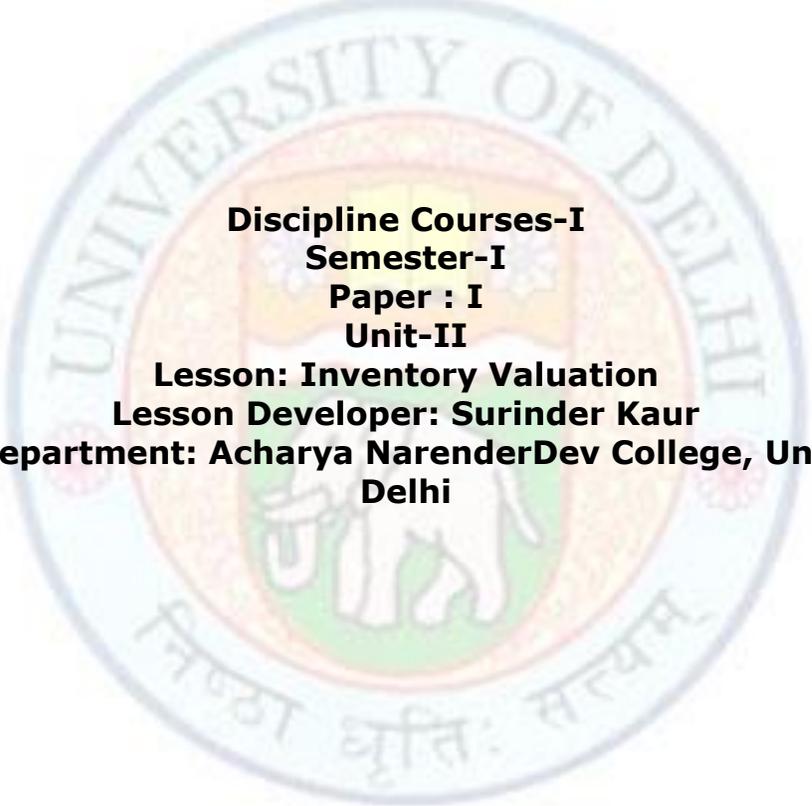


Inventory Valuation



**Discipline Courses-I
Semester-I
Paper : I
Unit-II
Lesson: Inventory Valuation
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Delhi**

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1. Learning Outcomes:

After you have read this lesson, you should be able to:

- understand the concept of inventory and inventory valuation,
- appreciate the need and significance of inventory valuation,
- identify different methods of valuing inventory,
- assess the value of different types of Inventories,
- comprehend AS-2.

2. Introduction:

Imagine what it would be if you run out of refills for the pen that you used for writing your assignment that needs to be submitted the next morning, or if guests arrive at your place at mid-night and ask for a refreshing tea when you had just outrun the milk supply or the tea leaves. Such situations create embarrassment and anxiety. As a preventive measure, one maintains enough stock of the required things or supplies.

Perpetuity of any business is maintained with the help of inventory or stock. One cannot imagine the plight of the manufacturer if he is told that the inventory is not available. The production process would come to a standstill, even if a small component part used in the manufacturing of a product were out of stock. Consider, for example, if the stock of the hands for the production of watches are either damaged or finished. The watches would not be produced until they are procured afresh. The production process gets hampered if stock is not maintained. At the same time, the funds are blocked if too much is invested in inventory. Businesses hold inventory for a number of other reasons besides creating a buffer for ensuring smooth flow of production. For example, inventory may be held in anticipation of a price rise, or in suspicion of scarcity of supplies, for taking advantage of increase in demand during festivals or in case of seasonal production, etc. This lesson describes what inventory is and how it is valued for recording purposes. Inventory is an important aspect of an accountant's concern, as it affects the income and the financial position of the enterprise.

3. Concept of Inventory

Inventory, is commonly understood as the stock of raw material, but it is partly true. Inventory is not merely the stock of raw material but anything that is used for sale in normal course of business. Accounting Standard-2 elaborates the meaning and its treatment required in its accounting. It is an important component of current assets that determines the liquidity, profitability, current ratio, net working capital etc. It also

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affects the calculation of the gross profit for the enterprise, which needs to be understood thoroughly. The following discussion takes care of such issues.

The terms 'merchandise' or 'stock-in-trade' refers to a complete list of goods available for sale at a given time. But inventory has a wider meaning. It does not represent merely that is available for sale but also those items or goods that can be transformed for sale. That means inventory includes raw material and the finished goods. They are the assets and need to be valued and accounted for properly. The inventory comprises of all the goods including those in various stages of production, that is, work-in-process or work-in-progress also.

Figure 1: Inventory



According to Accounting Standard (AS)-2 (Revised), issued by ICAI, "Inventories are assets:

- held for sale in the ordinary course of business;
- in the process of production for such sale; or
- in the form of materials or supplies to be consumed in the production process or in the rendering of services."

Thus, according to the AS-2 the inventories would encompass: all the goods that are either purchased and held for resale, or produced for sale or are to be used in the production process; for example: goods held by a retailer or computer software or land and other property all held for resale; finished goods produced for sale; work-in-progress i.e. goods at different stages of production; materials, maintenance supplies; consumable stores and loose tools that will be used in the production process.



Question:

Does the wrapping paper, cartons and stationary form part of inventory?

Answer:

Yes, a trading concern which is engaged in selling those goods or articles that needs to be wrapped in paper or put in the cartons would constitute inventory. The stationary is also part of inventory since these are used to manage sales.

Whether a particular item constitutes the part of inventory or not depends on the nature of the business. A trading concern will have goods purchased for resale as its inventory together with the supplies that contribute towards selling such as wrapping paper, bottles, cartons and stationary etc. The manufacturing firm will have the items like raw materials, parts and spares to be used in production process; factory supplies; the product in various stages of production i.e. work-in-process and the finished products as their inventory.

The machinery spare parts are understood to be the assets-Fixed Assets! Is it always so?

They are Assets but can assume the form of inventory too. The machinery spare parts also are the inventory if they are not specifically related to a particular fixed asset but are generally used for various items of fixed assets. And they should be charged to Profit & loss Account (AS-2 Revised). But these spare parts would not be considered as

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inventory if these are used only in connection with a specific item of fixed assets and whose use is expected to be irregular. Such machinery spares are accounted for in accordance with Accounting Standard (AS)-10: Accounting for Fixed Assets.

Similarly, if tools are held by a carpenter, these are the fixed assets only but if they are in the hands of a tool manufacturer or an owner of a hardware store they are considered as the inventory only. In the same manner, the marketable securities are treated as inventories in the hands of a stockbroker or a dealer.

The fundamental principle is that the items that are purchased and sold regularly in a trading concern are part of inventory; and the items that are put into the production process, transformed items i.e. finished goods that are regularly produced and sold are part of inventory in a manufacturing concern. But the question arises as to why this inventory is needed at all? Why the things cannot be managed without keeping inventory. It involves lot of investment of money and effort.

Reasons for Keeping Stock

The basic reason for keeping and maintaining inventory is the time lag between ordering and putting it to use. There are other reasons too, which prompt the business man in keeping and maintaining inventory:

1. Time Lag- First of all, lot of time is consumed in fixing the quantity that can be ordered to optimize the resources, locating the most appropriate suppliers, and then finally placing the order to the suitable most suppliers. Then the suppliers take their own time to collect the goods and deliver them to the ordering organisation. The purchaser company then takes in these goods into their system by checking, numbering or coding, storing and finally recording them in the ledger accounts etc. Now the goods can be made available to the different departments or divisions as the case may be, for using them into the production process. Because of the presence of such time lags at every stage in the supply chain, some amount of inventory needs to be maintained.
2. Uncertainty - The purchaser also bears the inherent risk of changed market conditions. In order to meet the uncertainties the buffers need to be maintained.
3. Ensuring constant supply- It is the duty of the owner to ensure the efficient service and the constant supply of the inventory to the users. This calls for the efficient and regular system of maintaining uninterrupted supply of inventory, which demands keeping inventory.
4. Economies of scale - In order to reap the benefits of scale one needs to store inventory and save money and effort by purchasing, moving and storing the goods in bulk. The ideal condition of 'One unit at a time at a place where user needs it, when he needs it' or 'Just-in-time' principle tends to increase lots of costs in terms of logistics.

4. Concept of Inventory Valuation

Inventory is classified as a current asset. Therefore, it has to be valued systematically. Its value affects the financial position and the gross profit. If it is over-valued, it will increase the profits and thus would increase the balance of the Balance sheet. It will increase the capital as well as the current assets. On the other hand, if it is undervalued, it will not only affect the gross profit adversely, it will also show lower balances in the balance sheet. As a matter of fact, the accounting ratios based on the current assets would also give misleading picture. The working capital, which is computed by deducting current liabilities from current assets, would be higher if the inventory is overvalued, and less if inventory is undervalued. Working capital shows the availability of capital for meeting the day-to-day requirements. It is a reflection of the enterprise's liquidity, and as such shows the ability of the business with regard to the availability of cash for meeting liabilities as and when they fall due in the business. However, if the inventory were not valued properly or correctly, it would mislead the management and the investors with regard to its liquidity, soundness and availability of capital.

Value Addition 1: Image

Ending Inventory

Click on the link below to view an image that describes the concept of ending or closing inventory as that part of goods available for sale that could not be sold by the end of the accounting period.

Inventory Valuation

From the total goods available for sale, which comprises opening inventory and additions made to inventory on account of net purchases made during the year, cost of goods sold is determined for that part of inventory that has been sold by the end of the accounting period.

Source: <http://www.principlesofaccounting.com/chapter8/inventory.png>

To understand the inventory valuation and its impact properly it is very important to understand the relationship of inventory valuation, gross profit and cost of goods sold.

Relationship of Inventory Valuation with Gross profit and Cost of Goods sold

There is a direct relationship between inventory valuation and Gross Profit, whereas, the cost of goods sold is inversely related to the inventory valuation.

As such, if:

Closing Inventory , Gross profit and
 Closing Inventory , Gross profit
 Similarly, Closing Inventory , the cost of Goods sold , and
 With the in closing inventory, the cost of Goods sold .

Since we know:

$$\text{Cost of Goods Sold} = \text{Opening Stock} + \text{Purchases} - \text{Closing Stock} + \text{Direct Expenses.}$$

Cost of goods sold ultimately affects the gross profit. Since:

$$\text{Gross Profit} = \text{Net Sales} - \text{Cost of Goods Sold}$$

The impact of this relationship is exhibited in the table given below which also show the value of the current asset as it would appear in the balance sheet.

Table 1: Impact of Inventory Valuation at the beginning and ending period of the same year

Over/under Valued	Opening stock (Inventory)	Closing stock (Inventory)	Gross profit	Cost of Goods Sold	Current asset
Over-valued	Opening inventory	---	Decreases		--
Under-valued	Opening inventory	---	Increases		--
Over-valued	---	Closing inventory			
Under-valued	---	Closing inventory			

It is evidently clear that higher amount of closing inventories will lead to lower cost of goods sold but higher Gross Profit and the higher value of current asset whereas the lower amount of closing stock will lead to higher cost of goods sold and lower Gross Profit and lower value of current asset.

But this impact does not restrict itself to the current year it is carried further to the next accounting year too. We know as per the accounting practice, the closing inventory of the current year is the opening inventory of the next year, so the slightest error in the valuation of closing inventory would result in the identical error in the opening inventory of the next year. And the income statement of the next year is also affected to the extent of error made in the current year.

Thus, if the closing inventory is overstated, the opening inventory will be overstated. And if the closing inventory is understated the opening inventory of the next year would be understated.

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Can you guess the impact of the resultant under or overstatement of the opening inventory on the net income? Check yourself by comparing your observation with the help of the second column and the last column of the table given below.

Table 2: Impact of Inventory Valuation at the end of the current period and beginning of the next year

Closing stock/ Inventory Of current year	Opening stock/ Inventory Of next year	Gross Profit of current year	Gross profit of next year	Cost of Goods Sold of current year	Cost of Goods Sold of next year	Net income of current year	Net Income of next year
Over valued	Over valued	Over stated ↑	Under stated ↓	↓	↑	↑	↓
Under valued	Under valued	Under stated ↓	Over stated ↑	↑	↓	↓	↑

Have you observed that there is a counter balancing effect of the error in the valuation of inventory?

If the net income of the current year was overstated because of the overvaluation of closing inventory, it will automatically result in understatement of net income in the next year and vice versa. This counter balancing effect of an error in inventory valuation will result in a correct total net income for the two-year period. But it will definitely fail to record correct income for the individual accounting periods respectively.

Relationship of closing inventory of current year with the opening inventory and the net income of the next year

The effect of any over or under statement of inventory carried over to next year may be summarized for you as follows:

- When the closing inventory of one year is **overstated**, the net income for the same accounting period will be overstated and the opening inventory of next accounting year will also be overstated, resulting in net income for that accounting period to be **understated**.
- When closing inventory is **understated**, the net income for the accounting period will be understated and the opening inventory of next accounting year will also be understated, resulting in net income for that accounting period to be **overstated**.

Value Addition 2: Point to Ponder

Effect of Inventory Valuation

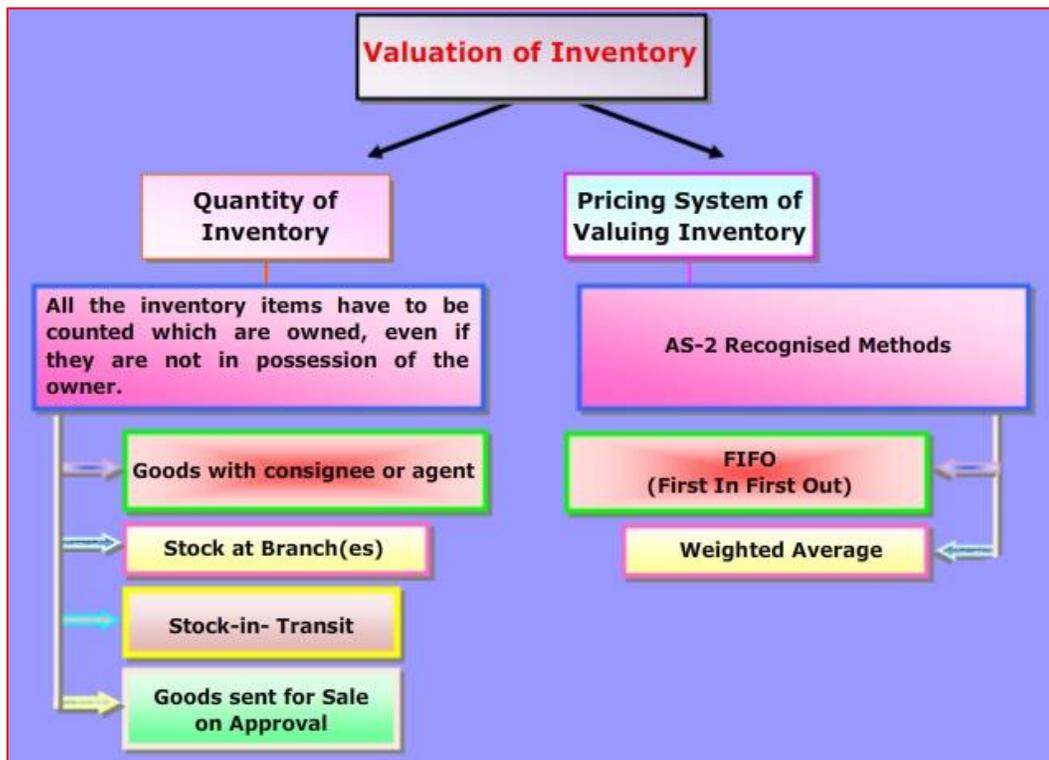
The effect of misstatement of inventory value on the net income is always through cost of goods sold and the gross profit. That is why the study of the relationship among inventory valuation, cost of goods sold, gross profit and the net income are of utmost importance.

The over or under statement of the important parameters like cost of goods sold, gross profit, net income etc. in the financial statements in consequence to the under or overstatement of inventory valuation call for correct valuation of Inventory.

Valuation can be done on two counts, a) value in terms of quantity available and b) the value in terms of amount based on correct pricing.

Figure 2: Twin Aspects of Inventory Valuation

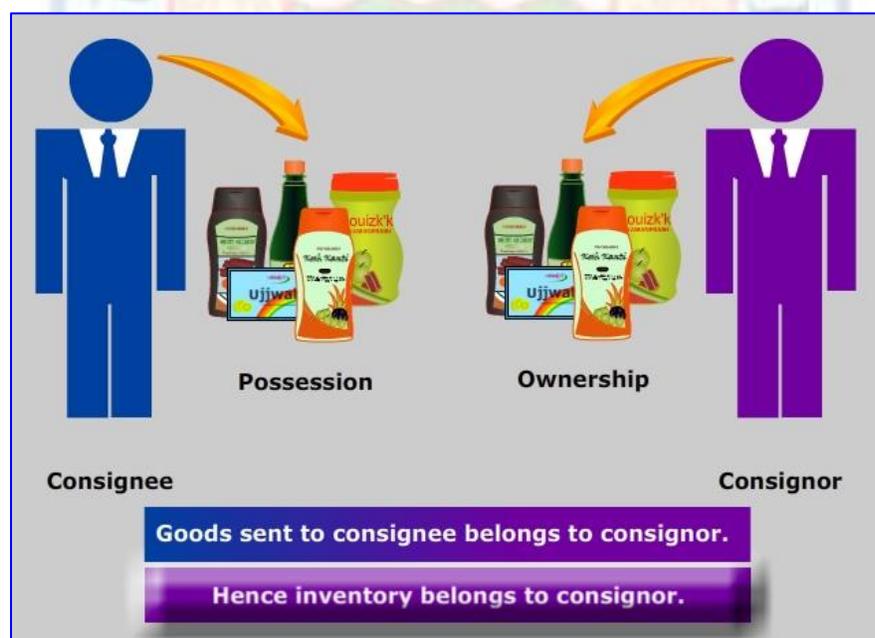
Inventory Valuation



Value Addition 3: Image

Inventory Ownership in Consignor-Consignee Relationship

AS-2 suggests that the stock or inventory, whether of raw material, or finished goods should show a total value and therefore should include those items also which are not in the possession of the owner. For example, the goods in the possession of the consignee or an agent in fact belong to the consignor. Hence the inventory of the consignor should appear in totality comprising the inventory with him and the inventory with such consignees.



Similarly, the stock in transit, or goods sent for sale on approval do belong to the owner till they are sold to the consumer, and thus should form the part of inventory of the owner. In the same manner, the goods at the branch would be included in the inventory of the head office.

5. Objectives and Significance of Inventory Valuation

It is not over emphasizing the fact that inventory valuation is very significant aspect in accounting. It becomes significant for the objectives it fulfills and the consequences that would be faced by the business person, if this is not done in correct spirit. This is also significant for its legal obligations. The inventory valuation is so important that it needs full disclosure and the change of method of pricing is also not allowed in ordinary course of business. It has a significant bearing on authenticity of Financial Statements.

Inventory Valuation

Objectives of Inventory Valuation

Figure 3: Objectives of Valuation of Inventory



The valuation of inventory serves many purposes of keeping accounting records. It facilitates the inventory control besides the fulfilling the following specific objectives of inventory valuation:

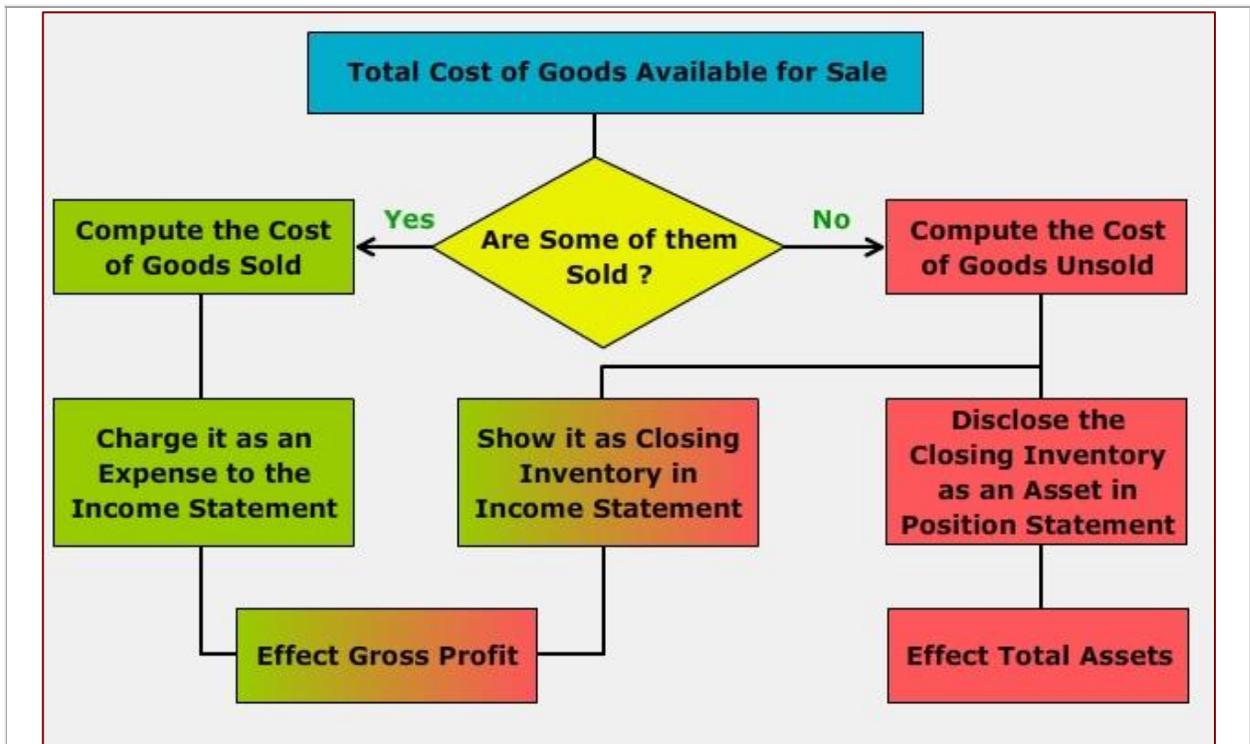
(i) Determination of liquidity: Short term creditors are interested in the liquidity position of the business enterprise and the general test for liquidity is the aggregation of the amount of current assets in relation to current liabilities. The proper valuation of inventories that constitutes a major proportion of current assets is essential so that this item of current asset is not overstated or understated so as to misstate the liquid position of the business.

(ii) Determination of income: Needless to say, correct income determination is affected by many factors and appropriate valuation of current and fixed assets is one of such factors. Inventories usually comprises of large variety of items with large amounts but fluctuating value, hence needs enough of care and diligence in its valuation. The impact of inventory valuation on the gross income or gross profit has been clearly pointed out and exhibited in Table 1 and Table 2 in the above text. A small error in valuing inventory or selecting an appropriate method of valuation at the end of the accounting period affects the major elements of the income statement i.e. cost of goods sold, gross profit and finally the net income. The value of inventory also differs because of the method of valuation which does make an impact on the asset value, gross profit, net income and cost of goods sold etc. Besides the inventory valuation, the schedule of allocation of costs of fixed assets i.e. depreciation accounting also affect the net income.

Value Addition 4: Accounting Treatment

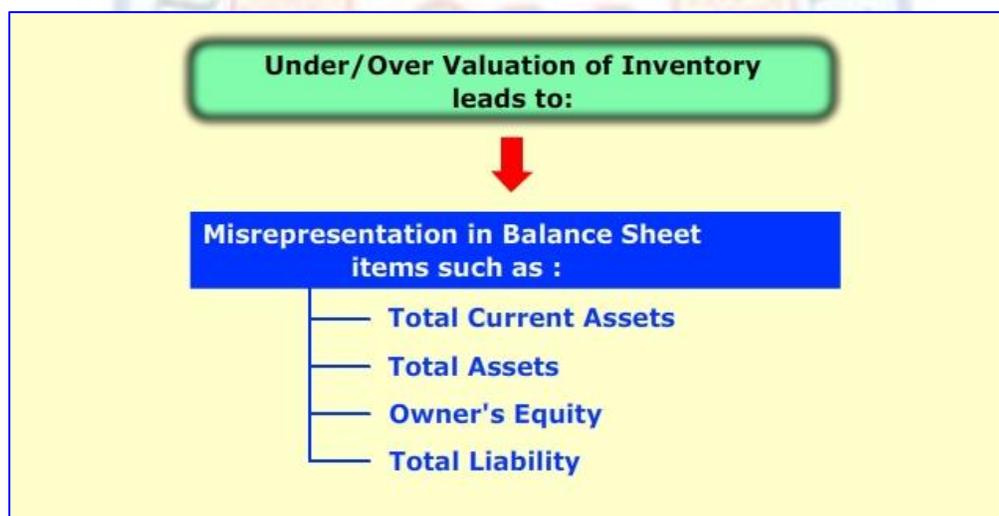
Allocation of Cost of Goods Available for Sale

Inventory Valuation



(iii) Determination of financial position: Inventory constitutes the largest part of the current assets of any business enterprise. Hence, the slightest error in valuation may result in misrepresentation of the financial position of the business. The Balance Sheet would not reveal the true and fair view of the affairs of business, for which the statues are made. Any under or over statement of the value of inventory or stock would lead to the errors in the balance sheet with regard to total current assets; total assets; owner(s)' equity and, the total of liabilities and owner(s)' equity.

Figure 4: Inventory Vs. Financial Position of Business



(iv) Decision making by Management: Inventory information is also needed by management for decision making, ratio analysis etc. Any under or over statement of inventories would result in over and understatement of current ratio or net working capital ratio and the like. For example, in restaurants and other retail businesses, inventories valuation is done very frequently to keep the inventories records updated and to ensure the prompt availability of the goods. Thus, proper valuation of inventories is important for management as well as owners.

(v) Fulfillment of legal requirement: Schedule VI of Indian Companies Act, 1956 requires that the details of quantities of each class of goods along with mode of valuation of raw material, work-in-progress, and finished goods should be disclosed in financial statements. According to AS-2 (Revised), further requires that the disclosure should be made in the final financial statements with regard to the following:

- (a) accounting policies followed for measuring inventories together with the cost formulas used and,
- (b) the total carrying amount of inventories and its classification suitable for the enterprise.

Significance of Inventory Valuation

Inventory valuation is significant for various reasons.

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- It comprises a significant portion of the assets of many enterprises. It is a second largest item in the Balance sheet after the fixed assets specifically of a manufacturing concern. Quite a sizable amount of the working capital is locked in various activities for its maintenance like purchasing, recording, protection costs, warehousing etc.
- Inventory is an asset and its value affects the Balance Sheet. At the same time it is the cost incurred for bringing the goods in the saleable form. So it is the cost of goods sold so charged to sales in the income statement. It can be a mixed blessing.
- It can be used for showing the apparent asset value at the inflated cost or by holding larger inventories. Thus the perceived profitability can be enhanced.
- It is for this reason that inventory control and valuation has assumed great significance in recent years. Public are generally under the impression that accounts produce the most accurate figures and that the financial statements based on them, therefore, must be very accurate. No doubt accounts record accurate figures with respect to such items as expenses, revenues and book debts. But regarding items such as depreciation and inventory value, precision is lacking and measurements are subjective, depending on the policies followed by the accountant.
- Inventory valuation affects both the results of the operations of the enterprises as well as the balance sheet, which presents the financial position of the enterprise. However different bases of valuing inventories are used by different businesses and even by different undertaking within the same trade or industry.
- It is widely recognized that the major asset that affects efficiency of operations is inventory. Both, excess of inventory and its shortage affects the productive activity and the profitability of the enterprise whether it is manufacturing, trading or service business.
- Unwise investment in inventories in the first instance and its proper valuation later on also affects the liquidity of the firm and hampers the cash flow management.

6. Inventory Record Systems/Valuation Systems

There are two basic systems to determine the physical quantities and monetary value of inventories sold and inventories in hand. These are the periodic inventory system and the other as the perpetual inventory system. The periodic system is less expensive to use than the perpetual method. But the perpetual system provides much more useful information on continuous basis. These methods are distinguished on the basis of the actual records kept to ascertain the cost of goods sold and ending inventory valuations.

A. Periodic Inventory System

As the name suggests, this system requires a physical count of the entire inventory items on hand at the end of given period. The calculation of ending inventory in hand is done by taking an actual physical count (or measure or weight) at the end of an accounting period and then quantity on hand is multiplied by the cost per unit. For this purpose, following stock sheet is prepared periodically to record physical count of inventories.

Serial no.	Inventory	No. of units	Rate per unit	Value

Stock Sheet

It is because of actual physical count that the system is also called physical inventory system. The cost of goods sold is determined as :

$$\text{Cost of Goods Sold} = \text{Beginning inventory} + \text{Purchases} - \text{Ending Inventory}$$

(Known)
(Known)
(Counted)

The accounting procedure followed for periodic inventory is the simplest. This system requires:

- (i) recording of all purchases of inventories as debits to purchase account,
- (ii) no entry at the time of sale for the cost of the goods sold, and
- (iii) recording of cost of goods sold only periodically by means of adjusting entries.

Inventory Valuation

Thus under periodic inventory system, the balance in Inventory Account remains same throughout the accounting period. This balance shows the beginning inventory determined by the physical count done at the end of the last accounting period. Purchases and sales of inventory during the accounting period are not recorded through the Inventory Account. At the end of the accounting period when a new physical count is made, this account is adjusted. Periodic system does not necessarily mean physical count at the end of 12-month accounting period only. It means physical count of the stock to be held at the given point of time when information about inventory is required.

Advantages:

The advantages of periodic inventory system are—

- a) Where the physical counting is done on the accounting date, it ensures the accuracy of the inventory figure shown in the accounts.
- b) It is less expensive than a continuous inventory system.
- c) The system is easy to operate.

Disadvantages:

The following are the main drawbacks of this method:

- a) Periodic inventory method assumes that all goods not accounted or traceable by physical inventory count have been either sold or used. In this manner the losses due to theft, ease, evaporation etc. are included improperly in the cost of the goods sold.
- b) The business units, using this method, often suspend their sales and employ practically the entire staff on the physical count and measurement of the items in hand. Thus physical counting at the end of accounting period would adversely affect normal business operations for a number of days..
- c) In case income statements are required more frequently than once a year, it would be very expensive if the inventory figures are obtained only by physical count.

B. Perpetual Inventory System

The Perpetual Inventory System reflects the physical movements of goods and their current balances at any point of time. The system helps in keeping control perpetually on balances of inventory at every level. CIMA, London (The Institute of Cost and Management Accountants, London), defines perpetual inventory as a system of records maintained by the cost accounting department or any other specified department for controlling the physical movement of stocks and their current balance. This system is adopted right from the identification of requirement of materials to the issue of inventory to different requisitioning departments or people.

Thus the perpetual inventory system requires continuous updating of stocks with each purchase or issue or sale transaction. A separate account for each type of inventory is maintained in a card or sheet to record the purchase and sale of each inventory item throughout the year. The system is integrated in accounting records by maintaining usual ledger accounts for each inventory item. And thus the maintenance of bin card, stores ledger accounts is called for effective adoption of the system and requires that all the balances, namely balance in bin card, balance in stores ledger account or card and the physical balance must match. The non-matching points to some mischief.

Stock Ledger Sheet

Date	Receipts			Issues			Balance		
	Units	Rate (Rs.)	Amount (Rs.)	Units	Rate (Rs.)	Amount (Rs.)	Units	Rate (Rs.)	Amount (Rs.)

The stock ledger sheet shows the detailed inventory records for each item under the following headings:

- (a) Receipts (Purchases),
- (b) Issues (Sales), and
- (c) Balance in hand, in both quantities and rupee amounts.

When goods are purchased or sold, the inventories must be adjusted immediately. The increases in inventory items are recorded as debits (or receipts) to the appropriate accounts and decreases (sales) are recorded as credits; the balances of the inventory items accounts are called the book inventories in hand. Thus, this method assumes that the stock not issued is lying in the stores.

However, the businesses need to ensure that the quantities of goods in hand as shown by the records must be in agreement with the actual quantity in hand. In fact, the use of perpetual inventory method does not eliminate the need of a physical count and

Inventory Valuation

valuation. It becomes all the more necessary to test the accuracy of the records maintained under perpetual method by taking a physical inventory of each type of stock at the periodic intervals. The records (Book Balance) are then compared with actual quantities (Ground Balance) in hand and any difference represents loss of stocks which must be corrected and investigated, if necessary.

Advantages:

The benefits of a perpetual inventory system are:

1. The normal business operations are not interrupted.
2. The system provides inventory data on continuous basis; hence it facilitates preparation of financial statements at shorter intervals.
3. Controlling losses is easier under a perpetual system because inventory records continuously indicate the goods that must be in hand. All it needs is to measure inventories physically and match the two. In case there are irregularities or changes, one can check these through enquiry and investigation into the same.
4. There is no sudden 'out of stock' situation leading to customer dissatisfaction or need to shut down production lines. It ensures regular supply and maintenance of inventories.

Disadvantages:

The main drawbacks of perpetual inventory system are:

1. Perpetual inventory system is costly to maintain especially for those business firms that deal with numerous items of small value.
2. The system is very elaborate, expensive and requires a lot of accounting.

The system may be very costly and time consuming but its benefits are not less significant. According to Niswonger and Fess: "The periodic inventory system...is ordinarily used by retail enterprises that sell a great variety of low nit cost merchandise, such as groceries, hardware and drugs. The expenses of maintaining perpetual inventory records are likely to be prohibitive in such cases. Firms, selling a relatively small number of high unit cost items, such as office equipment, automobiles...are more likely to employ the perpetual system". In brief, a firm generally employs periodic inventory method for low unit selling price and perpetual inventory method for high unit selling price.

It is generally pointed out: To lose a pack of gum through poor internal control is much different from losing an automobile.

Difference between Periodic and Perpetual Inventory Systems

- (i) Periodic inventory system requires a physical counting or measurement of all the inventory items in hand whereas perpetual inventory system is based on continuous record keeping of various items of inventories.
- (ii) Periodic system of inventory valuation provides a periodic stewardship of the inventory items between actual counts in the beginning and at the end. Perpetual system provides a continuous stewardship of the inventory. Inventory records are continuously updated so that financial statements can be prepared at shorter intervals.
- (iii) Perpetual system provides a basis for inventory control so that physical stock can be compared with book records and discrepancies, if any, investigated. This is not feasible under the periodic system.
- (iv) Periodic system is comparatively simple and less expensive while perpetual system requires detailed records and high cost of maintaining it.
- (v) Under periodic system, inventory is directly determined and cost of sales is taken as residual figure. In perpetual system, cost of sales is directly determined and inventory is taken as residual figure.
- (vi) Under periodic system, cost of sales includes lost goods. In perpetual system, inventory includes lost goods.

Value Addition 5: Image

Scope of Inventory Management

The figure below depicts the various benefits of inventory management.

Inventory Valuation



7. Valuation Of Inventories

The accounting Standards lay down the rules which should be followed by the business houses for maintaining overall uniformity in preparing and disclosing the financial statements to the general public. This facilitates the comparability and the authenticity to the accounting records, generating the confidence among public.

The valuation of inventory, according to the rules of the Accounting Standard-2 should be assessed at the cost or the net-realizable value whichever is low. It implies that historical cost is the basis of valuation of the goods or inventory in good and saleable condition. And the break up cost of inventory is the cost of purchase, including the expenses incurred for placing an order etc.; cost of conversion and the other costs incurred for bringing the inventory in the present shape and place. "The cost of inventories comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition" [Paragraph 6 of AS-2 (Revised)].

Figure 5: Components of Cost of Inventory/Value of inventory – Interactive Diagram

Cost of Purchase	Cost of Conversion	Other Costs
Purchase Price	Direct Labour	Costs of Designing Products (for Specific Customers)
+ Duties and Taxes	+ Direct Material	+ Abnormal Amounts of Wasted Materials
+ Freight Inwards	+ Fixed Production Overheads	+ Indirect Labour
+ Packaging	+ Variable Production Overheads	+ Other Production Costs
+ Insurance		+ Storage Costs
+ Transportation		
+ Inspection		
+ Storage		
– Trade discounts		
– Rebates		
– Duty Drawbacks etc.		

Inventory Valuation

(i) **Costs of purchase** : connected with purchase such as costs of packaging, insurance, transportation, inspection, storage and so on. The trade discounts, rebates, duty drawbacks and other similar items are deducted while determining the costs of purchase. However cash discounts are allowed for prompt payments and should be regarded as source of revenue rather than as a reduction in cost; hence cash discount has no role in inventory valuation.

According to Hendrickson, cost of purchase refers to the value of resources required to obtain the inventory in its present condition and location. If some expenditure cannot be directly related to the purchase of goods for resale, such as general administrative and selling and distribution costs, they are entirely excluded for the calculation of inventory cost and are, therefore, treated as operating expenses for the accounting period.

(ii) **Cost of conversion**: The cost of conversion of inventories refers to the costs that can be directly identified with the production such as direct labour. The fixed and variable production overheads that are incurred in transformation of materials into the finished product are also systematically allocated. For example the fixed overheads such as depreciation, maintenance etc are allocated on the basis of the normal capacity of the production facilities and variable overheads are allocated on the basis of the actual use of the production facilities.

(iii) **Other costs** include those expenses that are incurred for bringing the inventory to their current state and location, for example the cost of designing the specific furniture is allocated to costs for a specific customer.

However, the abnormal amounts of wasted materials, labour or other production costs, storage costs unless these are necessary for the production process and the administrative overheads do not contribute to bringing the inventories to their present location and condition and thus are excluded. Similarly interests and other borrowing costs are not considered for the purpose of inventory valuation.

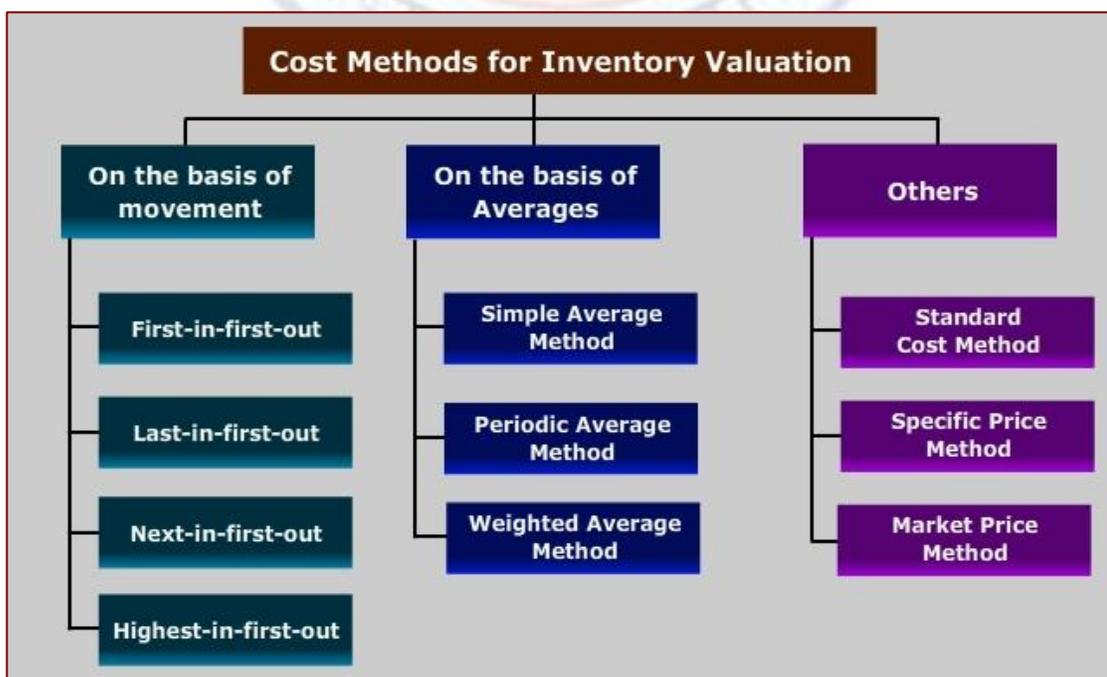
The Methods of Valuing Inventories (Pricing Methods):

The valuation is not merely adding some of the costs incurred but it is also deciding the method that needs to be chosen for pricing the issues or the material used in the production.

One comes across a peculiar problem, in an organization, while measuring inventories. There is no single or uniform cost of inventory acquired but varying costs throughout the accounting period. The organization may have purchased the same goods in January @Rs. 20 p.u., then in March @ Rs. 22 p.u, again in April @ Rs. 21 p.u. and so on. The real life situation is that one has a flow of costs because of market fluctuations.

Thus, at the end of the accounting period, the question arises as to which cost should be taken for valuing inventory if the valuation of inventories is to be done at cost. In order to solve this riddle various cost methods have been developed.

Figure 6: Cost Methods for Valuing Inventories



Each method has its own advantages and disadvantages, which makes it suitable for use in certain circumstances. None of the methods is the best or suitable in every condition. Some are advantageous in rising prices while some have their utility in the conditions of falling prices, and while some are most suitable in the conditions of fluctuations. These methods are recognised in the Indian Companies Act 1956 too. However, only a few are

Inventory Valuation

popular in the business world i.e. FIFO, LIFO and weighted average method. However ICAI, the professional body of accounting in India, controls the accounting and valuations etc. through the accounting standards and auditing practices.

The methods used for inventory valuation are:

First-In-First-Out (FIFO), Last-In-Last-Out (LIFO), Weighted Average Method, and Specific Identification Method.

First In First Out (FIFO)

This method is based on the assumption that cost should be charged to revenue in the chronological order i.e. in which they are incurred. In other words, the units received first should be sold or used first. However, it should be clearly pointed out that here the reference is the cost and not the physical movement of goods in the literal sense.

The actual issue of goods is usually at the earliest prices. The stock in hand therefore, would consist of the latest prices. FIFO assigns the past costs to the withdrawals or use (issues) and the latest cost incurred to the closing inventory. The FIFO formula assumes that the items of the inventories which were purchased or produced first are consumed or sold first and consequently the inventory at the end of the period is the one that is purchased or produced recently.

FIFO assumes a cost-flow which is parallel to the actual physical-flow-of goods, it affords little opportunity for profit manipulations; assignment of cost against revenue is determined by the order in which costs are incurred. This cost flow assumption is in line with the good business practice of disposing of goods in the order of their acquisition especially in case of items that deteriorate or become obsolete like perishable goods. However this assumption of cost flow or goods flow relates only to the method of accounting and not to the actual physical movement of goods. This is one of the recommended methods of inventory valuation as per AS- 2 (Revised).

Advantages: The following are the advantages of FIFO method of inventory valuation:

- (i) The basic assumption that goods acquired first are sold first is in accordance with the good and efficient business practice that results in minimum losses from spoilage and deterioration.
- (ii) Since cost is matched against revenue in the order in which it is incurred regardless of which item is actually sold, it leaves lesser scope for profit manipulations.
- (iii) The value of closing stock tends to be nearer to the current market prices as well as at costs since closing inventories consists of the goods purchased at the most recent prices.
- (iv) FIFO is simple to operate especially when prices don't fluctuate very frequently.
- (v) This method is realistic since it assumes materials are issued in the order of their receipts.
- (vi) This method is systematic and objective.

Disadvantages: This method suffers from following limitations:

- (i) In case of lengthy production cycles, this method may result in unrealistic measurement of profits in times of changing prices.
- (ii) This method does not compare current cost of goods sold with the current revenue. The cost of goods sold is based upon the cost of material bought at some earlier period, while the value of closing inventory is calculated upon the latest cost paid for. This results in inventory being valued at almost the current replacement cost that is higher in times of rising prices. As a result in times of rising prices, the use of FIFO will result in the lowest estimate of cost of goods sold and the highest net income and in times of falling prices profit will be understated.
- (iii) In times of rising prices, the prices of issue of materials may not reflect the current market prices and the cost of goods sold is recorded at unduly low prices.
- (iv) It will be difficult to compare different jobs executed by a concern, as stock issues will be charged at lower prices for prior jobs.
- (v) In case of violent fluctuation in prices of materials, calculation may become cumbersome.
- (vi) In times of rising prices, users of this method will end up paying more taxes, other things being equal.

Value Addition 6: Image

FIFO Method of Inventory Valuation

Click on the link below to view an image that illustrates the FIFO method of inventory valuation through depiction of sequential inventory purchase at different prices in different colours, along with the ending inventory after considering their order of

Inventory Valuation

consumption.

Source: <http://www.principlesofaccounting.com/chapter8/FIFO.png>

Applicability: This method is useful when:

- (i) The size and cost of raw materials is very large.
- (ii) Prices of materials do not fluctuate very often.
- (iii) Materials are subject to deterioration and obsolescence.
- (iv) Time involved in stock purchases and stock issues is not lengthy i.e. stock is turned over very quickly.

Illustration 1: From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic and perpetual systems respectively (**Using FIFO method**):

Date	Transaction	Units	Cost(Rs.)
Jan. 1	Opening Balance	1100	20
Feb. 12	Purchases	600	25
March 15	Purchases	500	22
April 5	Sales	1500	-
April 25	Sales	600	-
May 22	Purchases	500	25
June 30	Sales	400	-

Solution 1:

FIFO (Perpetual System)

Date	Receipts			Issues			Balance		
	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.
Jan.1							1100	20	22000
Feb.10	600	25	15000				1100	20	22000
							600	25	15000
March13	500	22	11000				1100	20	22000
							600	25	15000
							500	22	11000
March20				1100	20	22000	200	25	5000
				400	25	10000	500	22	11000
April 6				200	25	5000	100	22	2200
				400	22	8800			
May 12	500	25	12500				100	22	2200
							500	25	12500
June 30				100	22	2200	200	25	5000
				300	25	7500			
Total	1600		38500	2500		55500	200	25	5000

Answer:

FIFO (Perpetual):

Ending inventory = 200 x Rs.25 = Rs.5000

Cost of goods sold = Rs.55500

FIFO Periodic:

Opening Stock = 1100 units @ Rs.20 = Rs.22000

Receipts/Purchases = 600 units @ Rs.25 + 500 units @ Rs.22 + 500 units @ Rs.25

= Rs.38500 (for 1600 units)

Issues/Sales = 1500 + 600 + 400 = 2500 units

Balance/Closing stock = Opening stock + units purchased - units sold

= 1100 + 1600 - 2500 = 200 units

Value of closing stock = 200 units @ Rs.25 = Rs.5000

Explanation: Under FIFO system, stocks received first is sold first, hence closing stock is from the latest lot.

Cost of Goods Sold = Opening stock + purchases - closing stock

= Rs.22000 + Rs.38500 - Rs.5000

= Rs.55500

An alternate way of calculating Cost of Goods sold is to trace the flow of inventories into the organization. As per the assumption of FIFO method, Stocks acquired first shall be sold first, hence for the sale of 2500 units in all, first of all opening stock of 1100 units will be used, then the next lot of 600 units purchased @ Rs. 25 will be used, then next

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lot of 500 units purchased at the rate of Rs. 22 will be used then the last lot will be used to the extent required i.e. for 300 units.

$$\begin{aligned}\text{Cost of Goods Sold} &= 1100 \text{ units} @ \text{Rs}22 + 600 \text{ units} @ \text{Rs}.25 + 500 \text{ units} @ \text{Rs}.22 + 300 \\ &\quad \text{units} @ \text{Rs}.25 \\ &= \text{Rs}.55500\end{aligned}$$

Last In First Out (LIFO)

According to LIFO method, it is assumed that the issue of stocks is to be valued at the prices paid for the latest purchases, since the items received in the last have to be used first. And on the same grounds the closing stock is valued at the prices of the remote past. This method of calculating stock is known as LIFO basis. Under this basis, goods issued are valued at the price paid for the latest lot of goods on hand which means stock of goods in hand is valued at the price paid for the earlier lot of goods i.e. the price paid for the earlier consignments is used for valuing closing stock. However we must remember that LIFO method has been discussed for academic purpose only as AS- 2 (Revised) does not allow the use of this method.

Advantages: The following are the advantages of LIFO method of inventory valuation:

- (i) The cost of goods sold tends to be nearer to the current market prices as stock issues consist of most recently purchased goods so it matches current costs with the current revenues.
- (ii) Under LIFO, the cost of goods sold is valued on the basis of the recent prices, since the material bought at the last is used first, resulting in costs that closely approximate current costs. The inventory, however, is valued on the basis of the past cost since only the material left at the end of the period belongs to the old purchases at the lower costs in times of rising prices. Hence, in times of rising prices, the use of LIFO will result in the highest estimate of cost of goods sold among other approaches, and the lowest net income. Firms often adopt the LIFO approach for the tax benefits during periods of high inflation
- (iii) LIFO is simple to operate especially when prices don't fluctuate very frequently.
- (iv) This method is systematic.

Value Addition 7: Image

LIFO Method of Inventory Valuation

Click on the link below to view an image that illustrates the LIFO method of inventory valuation through depiction of sequential inventory purchase at different prices in different colours, along with the ending inventory after considering their order of consumption.

Source: <http://www.principlesofaccounting.com/chapter8/LIFO.png>

Disadvantages: This method suffers from following limitations:

- (i) This method is unrealistic since it is based on the assumption that the goods would be sold in the reverse order then received.
- (ii) The basic assumption that goods acquired last are sold first is not in accordance with the good and efficient business practice of selling initial lots first to minimize losses from spoilage and deterioration. It is also contradictory to the actual flow of inventories in the business.
- (iii) In case of lengthy production cycles, this method may result in unrealistic measurement of inventories in times of changing prices, as these will be measured at old and out of date unit costs.
- (iv) Though this method takes the owner to match the current cost of goods sold with the current revenue, but the value/ cost of the inventory remains that of the earlier period. This happens because the cost of goods sold is calculated on the basis of the purchases made at the recent most prices. And the closing inventory that remains to be used consists mainly of the category of old timed purchases. This method does not allow the businessman to value both the inventory and the cost of goods sold at the same base.
- (v) During periods of inflation, the use of LIFO will result in the highest estimate of cost of goods sold and the lowest net income and in times of falling prices profit will be overstated.
- (vi) In case of violent fluctuation in prices of materials, calculation may become cumbersome.
- (vii) In times of falling prices, users of this method will end up paying more taxes, other things being equal.

Applicability: This method is most suitable in the following circumstances:

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- (i) During the periods of inflation, i.e. rising prices, the use of LIFO method will help in valuing the most realistic amount of profit as it leads to the highest estimate of cost of goods sold among other approaches. Since the latest purchases are sold first. Thus it records the lowest net income. Thus the undue increase in the profits due to rising prices is not recorded in the books and resources are retained within the business because with the lower incomes being shown in the books, withdrawals of profits/ dividend payout is also lesser.
- (ii) The manufacturing firms that have most of the following characteristics are more likely to adopt LIFO -in times of rising prices: 1) the important cost components are raw materials and labour, 2) the growth of variable inventory is higher, 3) an absence of other tax loss carry forwards, and 4) large sized inventories.

Illustration 2: Solve previous illustration (No. 1) using LIFO method as per perpetual and periodic method.

Solution 2:

LIFO (Perpetual System)

Date	Receipts			Issues			Balance		
	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.
Jan.1							1100	20	22000
Feb.10	600	25	15000				1100 600	20 25	22000 15000
March 13	500	22	11000				1100 600 500	20 25 22	22000 15000 11000
March 20				500 600 400	22 25 20	11000 15000 8000	700	20	14000
April 6				600	20	12000	100	20	2000
May 12	500	25	12500				100 500	20 25	2000 12500
June 30				400	25	10000	100 100	20 25	2000 2500
Total	1600		38500	2500		56000	200		4500

Answer: Ending inventory = **Rs. 4500**
Cost of goods sold = **Rs. 56000.**

LIFO Periodic:

Opening Stock = 1100 units @ Rs.20 = Rs.22000
Purchases = 600 Units @Rs. 25+500 units@ Rs.22 + 500 units @Rs.25
= Rs.38500 (for 1600 units)
Sales = 1500+600+400= 2500units
Closing stock = Opening stock + units purchased - units sold
=1100+1600-2500=200 units
Value of closing stock =200 units @ Rs. 20
=Rs. 4000

Explanation: Under LIFO system, stocks received last is sold first, hence closing stock is from the earliest lot.

Cost of Goods Sold=Opening stock + purchases - closing stock

=Rs.22000 + Rs.38500 - Rs.4000
=Rs. 56500

An alternate way of calculating Cost of Goods sold is to trace the flow of inventories into the organization. As per the assumption of LIFO method, Stocks acquired last shall be sold first, hence for the sale of 2500 units in all, first of latest purchase of 500 units @Rs.25 will be used, then the next lot of 500 units purchased @Rs.22 will be used, then next lot of 600 units purchased at the rate of Rs.25 will be used then the first lot will be used to the extent required i.e. for 900 units.

Thus Cost of Goods Sold=500 units @ Rs. 25 + 500 units @ Rs.22+ 600 units @Rs.25
+900 units @ Rs. 20
=Rs. 56500

Weighted Average Price Method

The weighted average method of inventory valuation is based on assumption that all costs can be aggregated and that the cost assigned to the cost of the goods sold and ending inventory should be the weighted average of the cost of the units held for the

Inventory Valuation

accounting period. It is more logical to compute weighted average price using the quantities purchased in a lot as weights. The inventory and the cost of goods sold both are valued at the weighted average under the weighted average method of valuation. Under weighted average price method, cost of goods available for sale during the period is aggregated and then divided by number of units available for sale during the period to calculate weighted average price per unit. The weighted average assumes no particular flow of goods. However, when the inventory turnover ratio is high, this method of weighted average resembles FIFO method of valuing inventories.

Value Addition 8: Image

Weighted Average Method of Inventory Valuation

Click on the link below to view an image that illustrates the weighted average method of inventory valuation through depiction of sequential inventory purchase at different prices in different colours, along with the ending inventory after considering their order of consumption.

Source: <http://www.principlesofaccounting.com/chapter8/Weighted.png>

Procedure under periodic method:

The weighted average unit cost is calculated by dividing the total cost (i.e., Quantity * Cost Per Unit) of similar units of each commodity available for sale during the given period by the related number of units (aggregate quantity) of that commodity. This price is then multiplied with the quantities of closing stock to determine value of closing inventories and with units sold to determine cost of goods sold.

Step 1:

Calculate weighted average price per unit at the end of the year for all the goods purchased during the year along with opening balance of inventories as
Weighted average price per unit

$$= \frac{\text{Total cost of goods available for sale during the period}}{\text{Total number of units available for sale during the period}}$$

Step 2: Closing stock

$$= \text{No. of units in stock} \times \text{weighted average price per unit.}$$

Cost of goods sold = no. of units sold \times weighted average price per unit.

Moving average cost: when a perpetual inventory system is used, the weighted average cannot be applied because weighted average unit cost cannot be calculated until the end of the accounting period. To overcome this difficulty, a moving weighted average unit cost is used because it provides a new unit cost after each purchase. The procedure is: prices for the units in the beginning inventory i.e., opening stock and in each purchases are multiplied (weighted) by the number of units in the beginning inventory in each purchase and are then averaged (divided by total number of units) to find out the weighted average cost per unit. Thus when goods are sold or issued, the moving average cost existing at that time is used. It may be added that a new weighted average unit cost is calculated after each purchase at a different price and this unit cost figure is used to price all issue of goods until the next purchase is made.

Procedure under perpetual inventory system:

In this case a moving weighted average unit cost is used which provides a new unit cost after each purchase. The procedure is that prices for units in the beginning inventory (i.e., opening stock) and in each purchases are multiplied by the number of units in the beginning inventory and in each purchase and are then averaged (divided by total number of units) to find out the weighted average cost per unit. Thus when goods are sold or issued, the moving average unit cost existing at that time is used. Again a new weighted average unit cost is calculated after next purchase at a different price and this unit cost figure is used to price all issue of goods until the next purchase is made.

Advantages:

- (i) This method assigns equal unit cost to each unit of inventory.
- (ii) It does not show wide fluctuations in profits even if inventory costs are fluctuating.
- (iii) This method is objective, consistent and does not permit profit manipulation.
- (iv) This method evens out the effect of widely varying prices of different lots which makes up the inventories.

Disadvantages:

- (i) This method involves a lot of calculations, so it is very difficult to apply.
- (ii) This method is very complex in case of perpetual inventory system.

Applicability:

Inventory Valuation

"In each instance, costs related to units sold are reported as cost of goods sold and costs identified with goods in hand remain to be reported as assigning costs is that the business enterprise must keep track of the cost of each individual item bought and sold. The cost marker on the unit or on its container or the unit can be located to its purchase invoice or cost record", as said by Simon.

This method of valuing inventory and cost of goods sold is feasible in those situations where purchases are not frequent and old items do not easily mix up with the new ones e.g., automobiles, the fine diamonds, furniture goods and so on. Thus this method is appropriate for enterprises that sell relatively few items of high unit cost. This is an appropriate treatment for items that are segregated for a specific project regardless of the fact whatever they have been purchased or produced [AS-2 (Revised) Paragraph 15].

Advantages:

- (i) The specific identification method is rational and highly satisfactory in matching cost with revenue because of its objectivity since actual costs are attached to the cost of goods and ending inventory.
- (ii) This method is highly objective as cost charged is factual and not notional.
- (iii) The method tracks the actual flow of goods available for sale or production.

Drawbacks:

- (i) In most situations, however, it is neither feasible nor practicable to identify each item of inventory and, therefore, the practice of specific identification of cost may be difficult or impossible to apply or may be considered inadequate because of special existing conditions. New items are mixed up with old units in common storage facilities, that is, on shelves or in bins or in other ways. Physical identification is, therefore, impossible or impracticable.
- (ii) When identical units of a particular inventory item have been bought at different prices and at different times. In such a circumstance, specific identification of costs procedures may prove to be slow, burdensome and costly.
- (iii) When units are identical and interchangeable, this method opens the doors to possible profit manipulation through the choice of particular units for delivery.

As stated in AS-2 (Revised), "when there are large numbers of items of inventory which are ordinarily interchangeable, specific identification of costs is inappropriate since, in such circumstances, an enterprise could obtain predetermined effects on the net profit or loss for the period by selecting a particular method of ascertaining the items that remain in inventories."

Applicability: The specific identification method is relatively simple to apply in those situations where it is possible :

- (i) To keep track of the purchase price of each specific unit;
 - (ii) To know which specific units were sold.
 - (iii) Whenever materials are purchased and set aside for a specific job or work order.
- Thus, the method is applicable in case of automobiles, expensive jewelry, antique shops and custom made goods.

Choice of Inventory Valuation Methods

As we know that 'cost' for the valuation of inventories has to be calculated in accordance with one of the above-stated methods based on certain cost-flow assumptions. The various methods represent different views of the historical cost concept. **The best method to be used should be one that will correctly reflect the net income through the process of matching costs against revenues.** Since the cost of production must be subtracted from revenues realized to determine the profit. As such is no single method of valuing cost of goods sold and ending inventory which would reflect the complete accuracy at all time and in all situations. Thus it is of paramount importance that the selected method should be followed consistently from year to year. Lack of consistency would affect year-to-year comparisons of the result disclosed by income statement. If there are generally uniform or stable prices of the goods purchased during the year, the three methods – **FIFO**, **LIFO** and **Weighted Average**-would approximately give the same results. But if prices of the goods purchased fluctuate significantly, the method of valuing the cost of goods sold and the ending inventory will have a direct effect on the income statement. The choice of the method would depend upon following considerations:

- (i) The use of **FIFO** under rising prices results in the highest inventory valuation, gross margin on sales and net income and lowest cost of the goods sold. **LIFO** under such conditions gives opposite results.
- (ii) Under falling prices, **FIFO** gives lowest inventory valuation, gross margin on sales and net income and highest value of the cost of goods sold. The use of **LIFO** in such conditions reverses the results. In summary, **FIFO** produces a more

Inventory Valuation

realistic ending inventory valuation because it is close to current cost. In contrast, **LIFO** matches the most recent costs with revenues and hence produces a better matching of expenses with revenues.

- (iii) In a period of rising prices, **LIFO** reports the lowest income with corresponding saving in tax (where this method is permissible); and because of the cash saving, cash outflow is less than when **FIFO** is to match current costs with revenues rather than earliest costs as in **FIFO**.
- (iv) The advocates of **FIFO** maintain that this method is in line with sequence of the goods sold and its 'cost' curves closely follows the market price trends in so far as purchase prices are concerned. However, during rising prices, **FIFO** mixes up inventory profits with operational profits.
- (v) Finally, the weighted Average Method amounts for ending inventory, cost of goods sold and net income fall between **FIFO** and **LIFO** methods in their effect both on the balance sheet and the income statement. When inventory turns over rapidly, the weighted-average inventory values are almost as close to present prices as **FIFO**. Weighted average reflects all of the prices during the period in proportion to the quantities purchased at those prices as well as beginning inventory costs carried over from previous period.

Value Addition 9: Surf and Learn

Impact of Various Methods on Opening and Closing Inventories

Click on the link below to view a comparative image of inventory valuation methods and their read more on the suitability of using one method over the other based on its features. Consider the impact of use of varying methods of inventory valuation on the closing inventory. It can be seen that the choice of a particular method of inventory valuation effects the cost of goods sold (to be charged to the P&L account) thereby effecting gross profit, and the closing inventory (disclosed in Balance Sheet).

Source: <http://msdn.microsoft.com/en-us/library/hh997373%28v=nav.70%29.aspx>

Illustration 4: TVS company, started on 1st January 2010, purchased raw material during 2010 as stated below:

Date	Quantity Purchased	Rate
January 2	800 kg	@ Rs.60 per kg
February 26	1500 kg	@ Rs.55 per kg
April 13	2500 kg	@ Rs.58 per kg
July 10	4000 kg	@ Rs.56 per kg
September 18	1600 kg	@ Rs.61 per kg
November 29	1000 kg	@ Rs.65 per kg

While preparing its final accounts on 31st December, 2010, the company had 1500 kg of raw materials in godown. Calculate the values of closing stock of raw materials and the cost of goods sold under periodic system, according to:

- 1) FIFO basis
- 2) LIFO basis
- 3) Weighted average basis.

Solution 4:

Total purchases: from Jan to Nov.	11,400 kg	Rs.
	Less : closing stock	
	1,500 kg	
Units issued	9,900 kg	
FIFO METHOD		
Cost of ending inventory	Rs.	Rs.
	1000 x 65 =	65,000
	500 x 61 =	30,500
		95,500
Cost of units issued	800 x 60 =	48,000
	1,500 x 55 =	82,500
	2,500 x 58 =	1,45,000
	4,000 x 56 =	2,24,000
	1,100 x 61 =	67,100
		5,66,600
LIFO METHOD		
Cost of ending inventory	800 x 60 =	48,000
	700 x 55 =	38,500
		86,500
Cost of units issued	800 x 55 =	44,000
	2,500 x 58 =	1,45,000
	4,000 x 56 =	2,24,000

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	1,600 x 61 =	97,600
	1000 x 65 =	65,000
		5,75,600
WEIGHTED AVERAGE METHOD		
Total cost of purchases	800 x 60 =	
	1,500 x 55 =	48,000
	2,500 x 58 =	82,500
	4,000 x 56 =	1,45,000
	1,600 x 61 =	2,24,000
	1,000 x 65 =	97,600
		6,62,100
Weighted average =	6,62,100	Rs. 58.08
	11,400	
Cost of ending inventory	1,500 x 58.08=	87,118
Cost of units issued	9,900 x 58.08=	5,74,982

Illustration 5: The following are the details of a spare part of Sridhar Mills:

1/1/2010 Opening stock- NIL

1/1/2010 Purchases 150 units @ Rs. 30 per unit

15/1/2010 Issued for consumption 80 units

1/2/2010 Purchases 250 units at Rs. 40 per unit

15/2/2010 Issued for consumption 110 units

20/2/2010 Issued for consumption 120 units

1/3/2010 Purchases 190 units @ Rs.50 per unit

15/3/2010 Issued for consumption 100 units

Find out the value of stock as on 31/3/2010 if the company follows(as per perpetual system):

1. FIFO basis
2. LIFO basis
3. Weighted average basis.

Solution 5:

FIFO (Perpetual System)

STOCK LEDGER

Date	Receipts			Issues			Balance		
	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.
1.1.2010	150	30	4500				150	30	4500
15.1.2010				80	30	2400	70	30	2100
1.2.2010	250	40	10000				70	30	2100
							250	40	10000
15.2.2010				70	30	2100	210	40	8400
				40	40	1600			
20.2.2010				120	40	4800	90	40	3600
1.3.2010	190	50	9500				90	40	3600
							190	50	9500
15.3.2010				90	40	3600	180	50	9000
				10	50	500			
Total	590		24000	410		15000	180		9000

Answer: FIFO (Perpetual System)

Ending inventory = 180 x Rs.50 =Rs.9000

Cost of goods issued = Rs.15000

LIFO (Perpetual System)

STOCK LEDGER

Date	Receipts			Issues			Balance		
	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.
1.1.2010	150	30	4500				150	30	4500
15.1.2010				80	30	2400	70	30	2100
1.2.2010	250	40	10000				70	30	2100
							250	40	10000
15.2.2010				110	40	4400	70	30	2100
							140	40	5600

Inventory Valuation

20.2.2010				120	40	4800	70	30	2100
							20	40	800
1.3.2010	190	50	9500				70	30	2100
							20	40	800
							190	50	9500
15.3.2010				100	50	5000	70	30	2100
							20	40	800
							90	50	4500
Total	590		24000	410		16600	180		7400

Answer: LIFO (Perpetual System)

Ending inventory = Rs.7400

Cost of goods issued = Rs.16600

Weighted Average Method (Perpetual System)

STOCK LEDGER

Date	Receipts			Issues			Balance		
	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.	Units	Unit price Rs.	Amount Rs.
1.1.2010	150	30	4500				150	30	4500
15.1.2010				80	30	2400	70	30	2100
1.2.2010	250	40	10000				320	37.81	12100
15.2.2010				110	37.81	4160	210	37.81	7940
20.2.2010				120	37.81	4537	90	37.81	3403
1.3.2010	190	50	9500				280	46.08	12903
15.3.2010				100	46.08	4608	180	46.08	8295
Total	590		24000	410		15705	180		8295

Answer: Weighted Average (Perpetual)

Ending inventory = Rs.8295

Cost of goods issued = Rs.15705

8. Accounting Standard-2

(Revised – Applicable from accounting periods on or after 1.4.1999)

The revised Accounting Standard (AS)-2 on 'Valuation of Inventories' issued by the Council of the Institute of Chartered Accountants of India describes the following with respect to inventory valuation:

Objective – The objective is to value inventory so that they may be disclosed in the financial statements at the end of the accounting period at such values. The aim of AS -2 is to facilitate ascertainment of the cost of inventories and the net realizable value for reporting purposes in the financial statements.

Scope -The Accounting Standard-2 applies to accounting for inventories in cases other than:

- (a) work-in-progress in case of construction contracts,
- (b) work-in-progress in case service providers,
- (c) shares, debentures and other financial instruments held as stock-in-trade and,
- (d) producers' inventories of livestock, agricultural and forest products, and mineral oils, ores and gases. These are valued during specific stages of production at their net realizable value.

AS 2 defines inventories and net realizable value as given below:

"Inventories are assets:

- (a) held for sale in the ordinary course of business;
- (b) in the process of production for such sale; or
- (c) in the form of materials or supplies to be consumed in the production process or in the rendering of services."

In other words, inventories include goods that are held for the purpose of resale. It may be merchandise of electronic products, computer software, land or property that is meant for the purpose of resale. If they are not meant for resale, they are fixed assets and not inventory. Even the spare parts of machinery held for repair and maintenance purpose are assets, not inventories.

"Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated costs necessary to make the sale."

Inventory Valuation

Measurement of Inventories – The rule for measuring inventories is 'Lower of cost or net realizable value'.

Cost of Inventories - The cost of inventories includes all costs incurred in purchase, conversion, and/or bringing the inventories to their present location and condition.

Costs of Purchase–It refers to the price at which the asset has been purchased including any other expenditure that is directly assignable to the purchase of the asset. These may include duties and taxes, freight inwards, trade discounts, rebates, duty drawbacks, etc.

Costs of Conversion – At times goods are not purchased, but are produced or converted in-house. In such cases, inventory is valued at cost of conversion, as against cost of purchase. Such costs include direct costs, such as material and labour and indirect costs, such as direct and indirect overheads. Just as the cost of bringing the inventories to the appropriate location and condition is included in the cost of inventories, the overheads relating to the designing and customizing products as per specifications of the customers are also included in the cost of inventories. However, the interest or any borrowing costs are excluded from the cost of inventory, as they are financing costs.

Also, abnormal loss of materials wasted, shortage costs, administrative overheads that are not directly related to bringing inventories to their required location or desired condition, and selling and distribution costs are excluded from the cost of inventory.

In some cases, there may be a by-product produced with the main product. In such a case, if it is possible to separately identify the cost of conversion of the main product and the by-product, they are suitably charged. If they are not identifiable separately, they are allocated proportionately on the basis of rationality and consistency.

AS 2 prescribes following FIFO or Weighted Average Method for closing inventory valuation.

Disclosure – There must be adequate disclosure in the financial statements of:

- The accounting policies and cost formulas that have been adopted in valuing inventories,
- Inventories, properly classified into raw materials and component parts, work in progress, finished goods, stores and spares, and loose tools, at their carrying amounts.

Value Addition 10: Surf and Learn

AS 2 – Valuation of Inventory

Click on the link below to read in detail the objective, scope, definitions, measurement of inventories, cost formulas, techniques for measurement and net realizable value with respect to valuation of inventories as provided in AS – 2.

Source:

http://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=0CCsQFjAA&url=http%3A%2F%2Fwww.mca.gov.in%2FMinistry%2Fnotification%2Fpdf%2FAS_2.pdf&ei=f3BKUuHFCYPMrQfa3oDYDw&usq=AFQjCNEobPXYKmGGiGBP8PYenqUCxOCdDA&bvm=bv.53371865,d.bmk

Summary:

- Managing inventories in the organizations is becoming an important function now a days.
- It is an important component of current assets that determines the liquidity, profitability, current ratio, net working capital of an enterprise.
- According to Accounting Standard (AS)-2 (Revised), issued by ICAI, inventories refer to those assets that are held for sale in the ordinary course of business, or to be used in the production process of goods or rendering of services.
- Enterprises keep inventory for varied reasons, such as, time lag in the ordering and receiving supplies, uncertain market conditions, for ensuring smooth production process, and for getting economies of scale.
- Inventory management is important to reduce wastages, minimize losses, and enhance profitability.
- There are two basic systems to determine the physical quantities and monetary value of inventories sold and inventories in hand. These are the periodic inventory system and the as the perpetual inventory system.

Inventory Valuation

- Periodic system requires a physical count of the entire inventory items on hand at end of given period. The calculation of ending inventory on hand is done by taking an actual physical count (or measure or weight) at the end of end of an accounting period and then quantity on hand is multiplied by the cost per unit.
- The perpetual inventory system requires continuous updating of stocks with each purchase or sale transaction. A separate account for each type of inventory is maintained in a card or sheet to record the purchase and sale of each inventory item throughout the year. The system is integrated in accounting records by maintaining usual ledger accounts for each inventory item.
- Proper valuation of inventories is of utmost importance for accurate determination of income and to give a true and fair view of business assets.
- Various methods like LIFO, FIFO, Weighted Average, and specific identification methods are used to value inventories.
- Choice of method of valuing inventories depends on various factors like nature of product, policy of business etc. The businessman can adopt any of these methods depending upon nature of business and inventories, keeping in mind the recommendations of AS-2.
- AS-2 recommends the use of FIFO or Weighted average method for inventory valuation.

Exercises:

Theoretical Questions:

1. Distinguish between perpetual and periodic inventory systems.
2. Define inventories. What are the main objectives of inventory valuation?
3. What are the main recommendations of AS-2 regarding valuation of inventories?
4. Compare FIFO and LIFO methods of inventory valuation?
5. Explain the concept of moving average in weighted average method of inventory valuation.

Numerical Questions:

Problem-1 : From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic and perpetual systems respectively **(Using FIFO, LIFO and Weighted Average methods)**

Date	Transaction	Units	Cost (Rs.)
Jan. 1	Opening Balance	400	7.50
Feb. 25	Sales	300	
March 22	Purchases	600	8
April 16	Sales	500	-
April 20	Purchases	500	9
May 2	Purchases	400	8.50
June 30	Sales	400	-
July 6	Sales	500	-
September 11	Purchases	300	9.50
December 31	Sales	200	-

Problem 2: From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic and perpetual systems respectively **(Using FIFO and LIFO methods)**

Date	Transaction	Units	Cost (Rs.)
Jan. 1	Opening Balance	50	4
Feb. 2	Sales	10	
March 12	Purchases	40	3
April 1	Sales	70	-
April 28	Purchases	30	4
May 29	Purchases	20	5
June 30	Sales	20	-
July 16	Sales	10	-
October 11	Purchases	40	3
December 31	Sales	5	-

Problem 3: From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic and perpetual systems respectively **(Using FIFO, LIFO and Weighted Average methods)**

Date	Transaction	Units	Cost (Rs.)
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Inventory Valuation

Jan. 1	Opening Balance	1500	24
Feb. 2	Sales	150	
March 12	Purchases	400	23
April 1	Sales	700	-
April 28	Purchases	300	24
May 29	Purchases	250	25
June 30	Sales	1200	-
July 16	Sales	150	-
October 11	Purchases	400	22
December 31	Sales	250	-

Problem 4: From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic systems respectively (**Using FIFO, LIFO and Weighted Average methods**)

Date	Transaction	Units	Cost (Rs.)
Jan. 1	Opening Balance	145	10
Feb. 2	Purchases	150	11
March 12	Purchases	40	12
April 1	Purchases	70	10.50
April 28	Purchases	30	11
May 29	Purchases	50	12.50
June 30	Purchases	100	13
July 16	Purchases	100	12
October 11	Purchases	40	12.5
December 31	Purchases	25	13

At the end of the year the firm is left with 150 units.

Problem 5: From the given transactions, calculate cost of closing inventories and cost of goods sold under periodic and perpetual systems respectively (**Using FIFO, LIFO and Weighted Average methods**)

Date	Transaction	Units	Cost (Rs.)
Jan. 1	Opening Balance	40	15
Feb. 25	Sales	30	
March 22	Purchases	60	16
April 16	Sales	50	-
April 20	Purchases	50	18
May 2	Purchases	40	17
June 30	Sales	40	-
July 6	Sales	50	-
September 11	Purchases	30	19
December 31	Sales	20	-

Answers to Numerical Questions:

Answer 1 Perpetual Inventory System

Method	CS	COGS
FIFO	2850	15700
LIFO	2500	16050
W.Av.	2745	15805

Periodic Inventory System

Method	CS	COGS
FIFO	2850	15700
LIFO	2250	16300
W.Avg.	2530	16020

Answer 2 Perpetual Inventory System

Method	CS	COGS
FIFO	240	420
LIFO	225	435
W.Av.	230	430

Periodic Inventory System

Inventory Valuation

Method	CS	COGS
FIFO	240	420
LIFO	245	415
W.Av.	238	422

Answer 3 Perpetual Inventory System

Method	CS	COGS
FIFO	8800	58650
LIFO	9000	58450
W.Av.	10355	57095

Periodic Inventory System

Method	CS	COGS
FIFO	8800	58650
LIFO	9600	57850
W.Av.	9467	57983

Answer 4 Periodic Inventory System

Method	CS	COGS
FIFO	1845	6850
LIFO	1505	7190
W.Av.	1739	6956

Answer 5 Perpetual Inventory System

Method	CS	COGS
FIFO	570	3140
LIFO	500	3210
W.Av.	549	3161

Periodic Inventory System

Method	CS	COGS
FIFO	570	3140
LIFO	450	3260
W.Av.	506	3204

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