



INVENTORIES

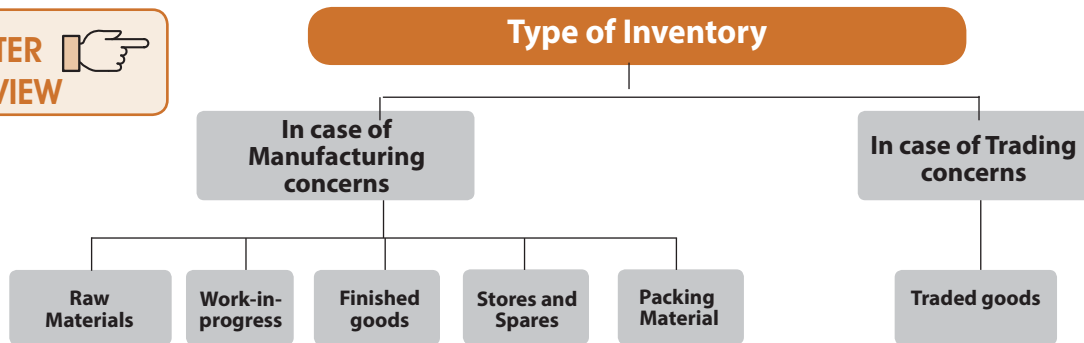


LEARNING OUTCOMES

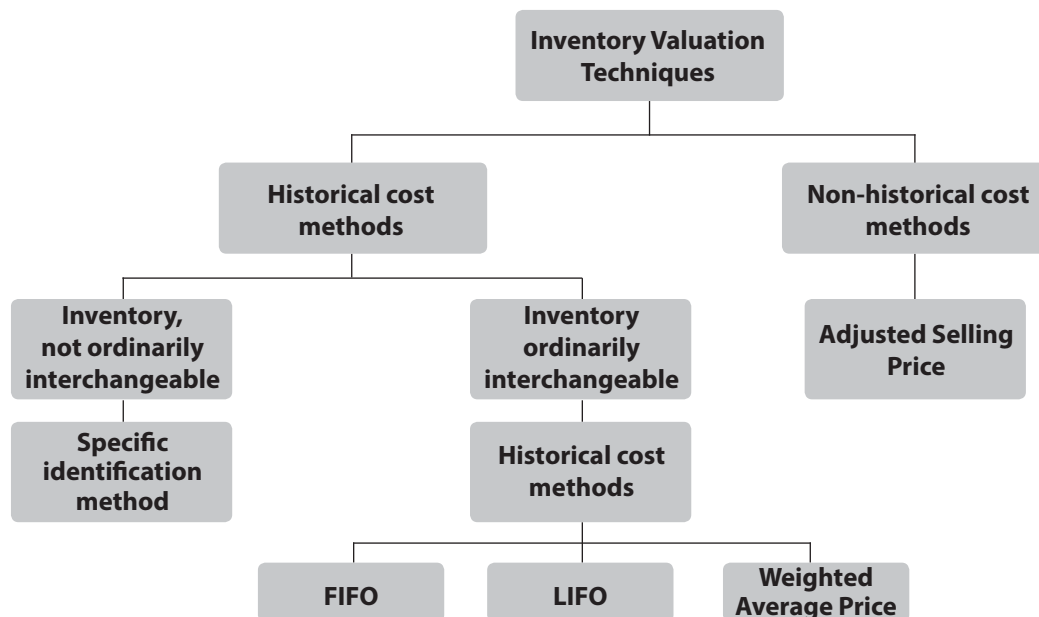
After studying this chapter, you will be able to:

- ◆ Understand the meaning of term 'Inventory'.
- ◆ Learn the technique of Specific identification method, FIFO, Average Price, Weighted Average Price and Adjusted Selling Price methods of inventory valuation.
- ◆ Understand the methods of inventory record keeping and comprehend the intricacies relating to Inventory taking.

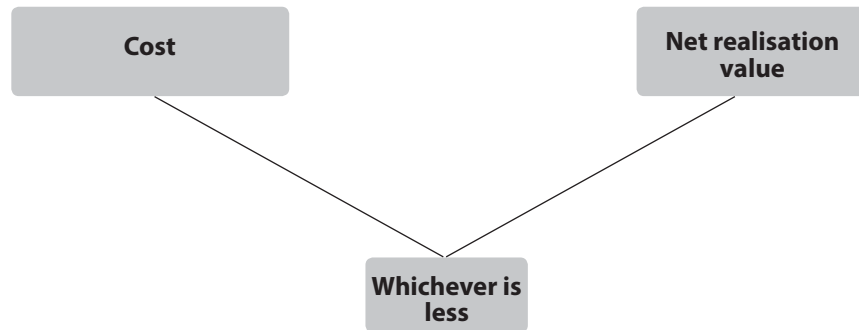
CHAPTER OVERVIEW



Formulae for Determining Cost of Inventory



Basis of Inventory Valuation



1. MEANING

Inventory can be defined as assets held

- ♦ for sale in the ordinary course of business, or
- ♦ in the process of production for such sale, or
- ♦ for consumption in the production of goods or services for sale, including maintenance supplies and consumables other than machinery spares, servicing equipment and standby equipment.

There can be different types of inventory based on nature of business of an enterprise. The inventories of a trading concern consist primarily of products purchased for resale in their existing form. It may also have an inventory of supplies such as wrapping paper, cartons, and stationery. The inventories of manufacturing concern consist of several types of inventories: raw material (which will become part of the goods to be produced), work-in-process (partially completed products in the factory) and finished products. In manufacturing concerns inventories will also include maintenance supplies, consumables, loose tools and spare parts. However, inventories do not include spare parts, servicing equipment and standby equipment which can be used only in connection with an item of fixed asset and whose use is expected to be irregular; such machinery spares are generally accounted for as fixed assets. Similarly, in an enterprise engaged in construction business, projects under construction are also considered as inventory.

At the year-end every business entity needs to ascertain the closing balance of Inventory which comprise of Inventory of raw material, work-in-progress, finished goods and other consumable items. Value of closing Inventory is put at the credit side of the Trading Account and asset side of the Balance Sheet. So before preparation of final accounts, the accountant should know the value of Inventory of the business entity. However, we shall restrict our discussion on inventory valuation of a manufacturing concern and goods of a trading concern.

2. INVENTORY VALUATION

A primary issue in accounting for inventories is the determination of the value at which inventories are carried in the financial statements until the related revenues are recognized. Inventory is generally the most significant component of the current assets held by a trading or manufacturing enterprise. It is widely recognized that inventory is one of the major assets that affects efficiency of operations. Both excess of inventory and its shortage affects the production activity, and the profitability of the enterprise whether it is a manufacturing or a trading business. Proper valuation of inventory has a very significant bearing on the authenticity of the financial statements. The significance of inventory valuation arises due to various reasons as explained in the following points:

(i) Determination of Income

The valuation of inventory is necessary for determining the true income earned by a business entity during a particular period. To determine gross profit, cost of goods sold is matched with revenue of the accounting period. Cost of goods sold is calculated as follows:

Cost of goods sold = Opening inventory + Purchases + Direct expenses - Closing inventory.

Inventory valuation will have a major impact on the income determination if merchandise cost is large fraction of sales price. The effect of any over or under statement of inventory may be explained as:

- (a) When closing inventory is overstated, net income for the accounting period will be overstated.
- (b) When opening inventory is overstated, net income for the accounting period will be understated.
- (c) When closing inventory is understated, net income for the accounting period will be understated.
- (d) When opening inventory is understated, net income for the accounting period will be overstated.

The effect of misstatement of inventory figure on the net income is always through cost of goods sold. Thus, proper calculation of cost of goods sold and for that matter, proper valuation of inventory is necessary for determination of correct income.

(ii) Ascertainment of Financial Position

Inventories are classified as **current assets**. The value of inventory on the date of balance sheet is required to determine the financial position of the business. In case the inventory is not properly valued, the balance sheet will not disclose the truthful financial position of the business.

(iii) Liquidity Analysis

Inventory is classified as a current asset, it is one of the components of net working capital which reveals the liquidity position of the business. Current ratio which studies the relationship between current assets and current liabilities is significantly affected by the value of inventory.

(iv) Statutory Compliance

Schedule III to the Companies Act, 2013 requires valuation of each class of goods i.e. raw material, work-in-progress and finished goods under broad head to be disclosed in the financial statements. As per the requirements of the Accounting Standards, the financial statements should disclose:

- (a) the accounting policies adopted in measuring inventories, including the cost formula used, and
- (b) the total carrying amount of inventories and its classification appropriate to the enterprise.

The common classification of inventories are raw materials; work-in-progress; finished goods; stores-in-trade (in respect of goods acquired for trading) and spares and loose tools.



3. BASIS OF INVENTORY VALUATION

Inventories should be generally **valued at the lower of cost or net realizable value**. This principle is governed by 'Principle of Conservative Accounting' under which any expenses or losses from transactions entered or event occurred are to be recognized immediately, however, any gains or profits are recognized until its becomes due or are actually realized. Under the principle of 'lower of cost or net realizable value' any loss due to decrease in sales price of the inventory below its cost is recognized immediately as it is anticipated that the enterprise will make losses whenever it will sell.

Cost: As per **Accounting Standards**, Cost of inventories should comprise

1. all cost of purchase,
2. costs of conversion (primarily for finished goods and work - in progress) and
3. other costs incurred in bringing the inventories to their present location and condition.

Cost of purchase consist of purchase price including duties and taxes (other than those subsequently recoverable by the enterprise from the taxing authorities), freight inwards and other expenditure directly attributable to the acquisition. Trade discounts, rebates, duty drawbacks and other similar items are deducted in determining costs of purchase. In other words, cost includes any amount paid to the seller reduced by any discounts/rebates given by the seller. Similarly, any duties paid to the supplier will be part of cost of the inventory unless the enterprises can recover these taxes duties from the authorities.

Costs of conversion of inventories include costs directly related to the units of production, such as direct labour. They also include a systematic allocation of fixed and variable overheads.

Other Costs may include administrative overheads incurred to bring the inventory into present location and condition or any cost specifically incurred on inventory of a specified customer. Interest and other borrowing costs are generally not included in the cost of inventory. However, in some circumstances where production process is longer and it is required to carry inventory for a long period e.g. wine, rice and timber it may be appropriate to consider interest and other borrowing cost also part of cost of inventory.

Exclusions from cost of inventories: Following expenses are generally not included in the costs of inventories:

- (a) abnormal amounts of wasted materials, labour or other production overheads;
- (b) storage costs, unless those costs are necessary in the production process prior to further production stage;
- (c) administrative overheads that do not contribute to bringing the inventories to their present location and condition; and
- (d) selling and distribution costs

Net realizable value: This 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. In case of finished goods and traded goods Net realizable value will generally mean selling price which reduced by selling and distribution expenses. In case of work in progress, expenses and overheads required to be incurred to convert work -In progress into finished goods and making it ready for sale will also be reduced from selling price. In case of raw materials, replacement cost is generally considered as net realizable value.

An assessment is made of as at each balance sheet date. Inventories are usually written down to net realizable value on an item-by-item basis. In some circumstances, however, it may be appropriate to group similar or related items e.g. in case of interchangeable items it may not be possible to identify cost and net realizable value of each item separately.

4. INVENTORY RECORD SYSTEMS

There are two principal systems of determining the physical quantities and monetary value of inventories sold and in hand. One system is known as '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 useful information obtained from perpetual system is more than cost incurred on it. These systems are distinguished on the basis of the actual records kept to ascertain the cost of goods sold and the closing inventory valuations.

4.1 PERIODIC INVENTORY SYSTEM

Periodic inventory system is a method of ascertaining inventory by taking an **actual physical count (or measure or weight)** of all the inventory items on hand at a **particular date** on which inventory is valued. It is because of actual physical count that the system is also called physical inventory system. The cost of goods sold is determined as shown below:

Opening inventory (known) + Purchases (known) - closing inventory (physically counted) = Cost of goods sold.

Periodic inventory system is simple and less expensive than the perpetual system. In this system, inventory account is adjusted at the end of the accounting period to determine cost of goods sold. This system suffers from various limitations:

- (i) Physical inventory taking is required more than once a year for preparation of quarterly or half yearly financial statements thereby making this system more expensive.
- (ii) Physical count of goods requires closure of normal operations of business.
- (iii) As cost of goods sold is taken as residual figure, it is not possible to identify loss of goods due to pilferage, damage or even fraud.
- (iv) Inventory control is not possible under this system.
- (v) Books of accounts does not reflect inventory in hand and its value therefore, it is difficult to plan operations e.g. how much or when to order/manufacture.

This system is used by small enterprises where is easy to control physical inventory. This system is not considered suitable for medium or larger enterprises which generally use Perpetual Inventory system.

4.2 PERPETUAL INVENTORY SYSTEM

Perpetual inventory system is a system of **recording inventory balances after each receipt and issue**. In order to ensure accuracy of perpetual inventory records, physical inventory should be checked and compared with recorded balances. Under this system, cost of goods issued is directly determined and inventory of goods is taken as residual figure with the help of inventory ledger in which flow of goods is recorded on continuous basis. The basic feature of this system is the maintenance of inventory ledger to have records of goods on continuous basis. Under perpetual inventory system, closing inventory is determined as follows:

Opening inventory (known) + Purchases during the period (known) – Cost of Goods Sold (known) = Closing Inventory (balancing figure)

Perpetual inventory system helps to overcome the limitations of periodic system. As inventory is taken as residual figure, it includes loss of goods. However, the main limiting factor is the cost of using this system.

4.3 DISTINCTION BETWEEN PERIODIC INVENTORY SYSTEM AND PERPETUAL INVENTORY SYSTEM

Both the systems - Periodic Inventory System and Perpetual Inventory System are not mutually exclusive and complementary in nature. Distinction between both the systems can be explained as follows:

S. No.	Periodic Inventory System	Perpetual Inventory System
1.	This system is based on physical verification.	It is based on book records.
2.	This system provides information about inventory and cost of goods sold at a particular date.	It provides continuous information about inventory and cost of sales.
3.	This system determines inventory and takes cost of goods sold as residual figure.	It directly determines cost of goods sold and computes inventory as balancing figure.
4.	Cost of goods sold includes loss of goods as goods not in inventory are assumed to be sold.	Closing inventory includes loss of goods as all unsold goods are assumed to be in Inventory.
5.	Under this method, inventory control is not possible.	Inventory control can be exercised under this system.
6.	This system is simple and less expensive.	It is costlier method.
7.	Periodic system requires closure of business for counting of inventory.	Inventory can be determined without affecting the operations of the business.

5. FORMULAE/METHODS TO DETERMINE COST OF INVENTORY

5.1 HISTORICAL COST METHODS

There is no unique formula for determination of historical cost of inventories. The different techniques for valuation of inventory have been discussed below:

(i) Specific Identification Method

Pricing under this method is based on actual physical flow of goods. It attributes specific costs to identified goods and requires keeping different lots purchased separately to identify the lot out of which units in inventories are left. The historical costs of such specific purpose inventories may be determined on the basis of their specific purchase price or production cost.

This method is generally used to ascertain the cost of inventories of items that are not ordinarily interchangeable and their value is high like expensive medical equipments, otherwise it requires the use of FIFO (First in first out) or weighted average price/average price formula.

(ii) FIFO (First in first out) Method

This method is based on the assumption that cost should be charged to revenue in the order in which they are incurred, that is, it is assumed that the issue of goods is usually from the earliest lot on hand. The inventory of goods on hand therefore, consists of the latest consignments. Thus, the closing inventory is valued at the price paid for such consignments.

The FIFO formula assumes that the items of inventories which were purchased or produced first are consumed or sold first and consequently items remaining in the inventory at the end of the period are those most recently purchased or produced. This assumption is in line with the good business practice to disposing goods in the order of their acquisition especially in the case of perishable goods and items with frequent technological changes. It must be kept in mind that this assumption of cost flow or goods flow need not be true as a physical fact i.e. not necessary goods are physically also sold or issued in the chronological order of their purchase or production. It relates only to the method of accounting and not to the actual physical movement of goods.

Now, let us take an example to understand the application of FIFO method.

ILLUSTRATION 1

A manufacturer has the following record of purchases of a condenser, which he uses while manufacturing radio sets:

Date	Quantity (units)	Price per unit
Dec. 4	900	50
Dec. 10	400	55
Dec. 11	300	55
Dec. 19	200	60
Dec. 28	800	47
	2,600	

1,600 units were issued during the month of December till 18th December.

SOLUTION

The closing inventory is 1,000 units and would consist of:

800 units received on 28th December; and

200 units received on 19th December as per FIFO

	₹
The value of 800 units @ ₹ 47	37,600
The value of 200 units @ ₹ 60	12,000
Total	49,600

(iii) LIFO (Last in first out) Method

As the name suggests, the LIFO formula assigns to cost of goods sold, the cost of goods that have been purchased last though the actual issues may be made out of the earliest lot on hand to prevent unnecessary deterioration in value. The closing inventory then is assumed to consist of earlier consignments and its value is then calculated according to such consignments. Under this basis, goods issued are valued at the price paid for the latest lot of goods on hand which means inventory of goods in hand is valued at price paid for the earlier lot of goods. In the absence of details of issue, the price paid for the earliest consignments is used for valuing closing inventory. LIFO method is based on the principle of matching current cost with current revenue as cost of recently purchased or produced goods are charged to cost against each sale. The cost of goods sold under this method represents the cost of recent purchases resulting that there is better matching of current costs with current sales.

**ILLUSTRATION 2**

In the previous example assume that following issues were made during the month of December:

Record of issues

Date	Quantity (units)
Dec. 5	500
Dec. 20	600
Dec. 29	500
Total	1,600

Using LIFO method, following will be stock ledger:

Date	Receipts			Issues			Balance inventory			
	Dec.	Qty.	Rate	Amount	Qty	Rate	Amount	Qty.	Rate	Amount
4		900	50	45,000	-	-	-	900	50	45,000
5		-	-	-	500	50	25,000	400	50	20,000
10		400	55	22,000	-	-	-	400	50	20,000
								400	55	22,000
11		300	55	16,500	-	-	-	400	50	20,000
								400	55	22,000
								300	55	16,500
19		200	60	12,000	-	-	-	400	50	20,000
								400	55	22,000
								300	55	16,500
								200	60	12,000
20		-	-	-	200	60	12,000			
		-	-	-	300	55	16,500			
		-	-	-	100	55	5,500	400	50	20,000

28	800	47	37,600	-	-	-	300	55	16,500
							400	50	20,000
28							300	55	16,500
29	-	-	-	500	47	23,500	800	47	37,600
							400	50	20,000
							300	55	16,500
							300	47	14,100

Therefore, cost of closing inventory of 1,000 pcs will be ₹ 50,600.

LIFO method is based on an **irrational assumption** that inventories entering last in the stores are issued or consumed first. However, the flow of goods which is generally observed in business entities is contradictory to this assumption. It should be noted that while applying LIFO, there will be difference in cost of goods sold and value of closing inventory, if the entity follows periodic as against perpetual method of inventory valuation. Therefore, LIFO method is no longer adopted for valuing inventories. Accounting Standards also does not permit the usage of LIFO Method. Generally, in practice, FIFO and Weighted Average Price Method are popular among the business entities and both these methods are also permitted by Accounting Standards.

Computation under periodic inventory system

In the above example, if the entity followed periodic inventory valuation, closing inventory of 1,000 pcs. will be valued as follows:

800 pcs. @ ₹ 47 each (purchased on Dec. 28th)	=	₹ 37,600
200 pcs. @ ₹ 60 each (purchased on Dec. 19th)	=	₹ 12,000
Total 1,000 pcs.	=	<u>₹ 49,600</u>

We can see that cost of closing inventory has changed following LIFO method based on perpetual inventory method and periodic inventory method.

(iv) Simple Average Price Method

Simple Average price for computing value of inventory is a very simple approach. All the different prices are added together and then divided by the number of prices. The closing inventory is then valued according to the price ascertained. This method is generally followed by the entities using periodic inventory method as it does not require efforts of identifying that closing inventory belongs to which consignments or lots.

ILLUSTRATION 3

In the same example of a manufacturer of radio sets given earlier, let us calculate the value of closing inventory using Average Price Method:

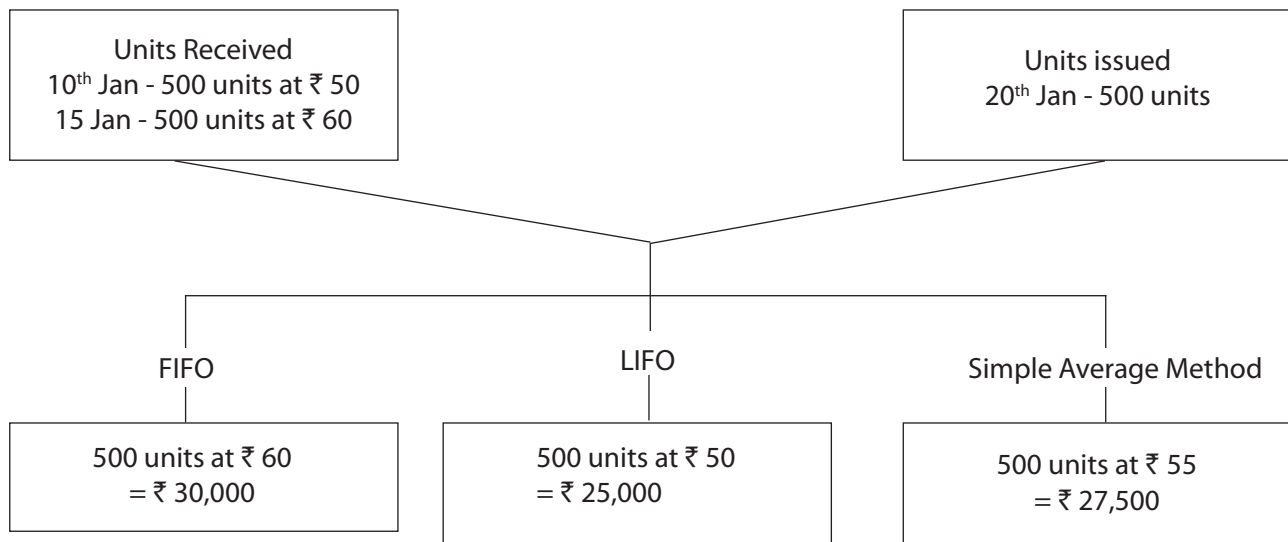
 **SOLUTION**

The simple average in this question is:

$$[(50 + 55 + 55 + 60 + 47)/5] = 267/5 = ₹ 53.4$$

1,000 units valued at ₹ 53.4 would be ₹ 53,400

Let us try to analyze the impact of FIFO, LIFO and Simple Average Price Method with the help of the following chart:



Thus we see that value of inventories changes based on different cost formula used.

(v) Weighted Average Price Method

Simple average price does not consider quantities purchased in various lots. However, it is more logical to compute weighted average price using the quantities purchased in a lot as weights. 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. Thus

$$\text{Weighted average price per unit} = \frac{\text{Total Cost of goods available for sale during the period}}{\text{Total number of units available for sale during the period}}$$

Closing inventory = No. of units in inventory × Weighted average price per unit

Cost of goods sold = No. of units sold × Weighted average price per unit.

 **ILLUSTRATION 4**

On the basis of the data given in illustration 1 and 2, calculate the weighted average price and also the value of closing inventory by weighted average price method.

 **SOLUTION**

The computation of weighted average price in the referred example is shown below:

A new average rate would be calculated on receiving a fresh consignment. Answer on that basis would be as under:

Date	Receipts			Issues			Balance inventory		
	Qty	Rate	Amount	Qty	Rate	Amount	Qty	Rate	Amount
Dec. 4	900	50	45,000	-	-	-	900	50	45,000
Dec. 5	-	-	-	500	50	25,000	400	50	20,000
Dec. 10	400	55	22,000	-	-	-	800	52.5	42,000
Dec. 11	300	55	16,500	-	-	-	1,100	53.18	58,500
Dec. 19	200	60	12,000	-	-	-	1,300	54.23	70,500
Dec. 20	-	-	-	600	54.23	32,538	700	54.23	37,962
Dec. 28	800	47	37,600	-	-	-	1,500	50.37	75,562
Dec. 29	-	-	-	500	50.37	25,185	1,000	50.37	50,377

Perpetual and Periodic Inventory System and Average Methods of Cost of Inventory

Both Simple Average Method and Weighted Average Method are applied differently in case the entity uses periodic inventory taking or Perpetual inventory taking. In case of periodic inventory taking inventory available for sale during the period is considered together and an average rate is computed and closing inventory is valued using that rate. In case perpetual inventory records are maintained average rate of inventory is computed on each new purchase and next issue is recorded using new average rate.

Illustration 4 above is an example of Weighted average method used in perpetual inventory recording system. In case the entity would have been using periodic inventory recording system, closing inventory would have been valued as below:

Details of purchases/receipt during the period

Date	Qty.	Rate	Value
Dec. 4	900	50	45,000
Dec. 10	400	55	22,000
Dec. 11	300	55	16,500
Dec. 19	200	60	12,000
Dec. 28	800	47	37,600
Total	2,600	51.19	133,100

Accordingly, closing stock of 1,000 pcs. would have been valued at 51,190 @ ₹ 51.19 per unit.

5.2 NON-HISTORICAL COST METHODS

Non-historical cost methods do not consider the historical cost incurred to acquire the goods. Non-historical cost methods include Adjusted Selling Price method and Standard Cost method. Adjusted Selling Price method can be explained as follows:

(i) Adjusted selling price method

This method is also called retail inventory method. It is used widely in retail business or in business where the inventory comprises of items, the individual costs of which are not readily ascertainable. The use of this method is appropriate for measuring inventories of large numbers of rapidly changing items that have similar margins and for which it is impracticable to use other costing methods. The cost of the inventory is determined by reducing from the sales value of the inventory an appropriate percentage of gross margin. The percentage used takes into consideration inventory which has been marked below its original selling price. An average percentage for each retail department is often used. The calculation of the estimated gross margin of profit may be made for individual items or groups of items or by departments, as may be appropriate to the circumstances.

ILLUSTRATION 5

M/s X, Y and Z are in retail business, following information are obtained from their records for the year ended 31st March, 2016:

Goods received from suppliers (subject to trade discount and taxes)	₹ 15,75,500
Trade discount 3% and sales tax 11%	
Packaging and transportation charges	₹ 87,500
Sales during the year	₹ 22,45,500
Sales price of closing inventories	₹ 2,35,000

Find out the historical cost of inventories using adjusted selling price method.

SOLUTION

Determination of cost of purchases:

Goods received from suppliers	₹ 15,75,500
Less: Trade discount 3%	₹ (47,265)
	15,28,235
Add: Sales Tax 11%	₹ 1,68,106
	₹ 16,96,341
Add: Packaging and transportation charges	₹ 87,500
	₹ (17,83,841)

Determination of estimated gross profit margin:

Sales during the year	₹	22,45,500
Closing inventory at the selling price	₹	2,35,000
		24,80,500
Less: Purchases	(₹)	17,83,841
Gross profit	₹	6,96,659
Gross profit margin		28.09%

Inventory valuation:

Selling price of closing inventories	₹	2,35,000
Less: Gross profit margin 28.09%	₹	(66,012)
	₹	1,68,988

 **ILLUSTRATION 6**

From the following information, calculate the historical cost of inventories using adjusted selling price method:

	₹
Sales during the year	2,00,000
Cost of purchases	2,00,000
Opening inventory	Nil
Closing inventory at selling price	50,000

 **SOLUTION**
Calculation of gross margin of profit:

	₹
Sales	2,00,000
Add: Closing inventory (at selling price)	50,000
Selling price of goods available for sale:	2,50,000
Less: Cost of goods available for sale	2,00,000
Gross margin	50,000

$$\text{Rate of gross margin} = \frac{50,000}{2,50,000} \times 100 = 20\%$$

$$\text{Cost of closing inventory} = 50,000 \text{ less } 20\% \text{ of } ₹ 50,000 = ₹ 40,000$$

(ii) **Standard cost method** - This method is used when there is frequent change in the price per unit of the goods and goods are purchased frequently by the business e.g. crude oil. Based on the experience a standard cost is determined on the basis of frequent changes in prices and inventory is valued on that price per unit.

6. INVENTORIES TAKING

Normally all operations are suspended for one or two days during the financial year and physical inventory is taken for everything in the godown or the store periodically. For the year-end inventory valuation, physical inventory taking is done during the last week of the financial year or during the first week of next financial year. If inventory taking is finished on 26th March, whereas accounting year ends on 31st March purchases and sales between 26th and 31st March are then separately adjusted. Later, a value is put on each item. The principle of cost or Net realizable value, whichever is lower, is applied either for the inventory as a whole or item by item.

Normally, enterprises prefer to perform inventory taking closing day, however, sometimes inventory taking cannot be carried out on the closing day. It is carried out a few days later or sometimes even a few days earlier. In such a case, the actual value of the inventory must be so adjusted as to relate it to the end of the year concerned. For doing so, it will be necessary to take into account the goods that have come in (purchases and sales returns) and those that have gone out (sales and purchase returns) during the interval between the close of the year and the date of actual inventory taking. Further, the adjustment of all goods must be on the basis of cost. Suppose, a firm that closes its books on 31st December, carried out the inventory taking on the 7th January next year and actual inventory was of the cost of ₹ 7,85,000, during the period January 1 to 7 purchases were ₹ 1,53,000 and sales ₹ 2,50,000, the mark up being 25% on cost. The inventory on 31st December would be ₹ 8,32,000 as shown below:

	₹
Inventory ascertained on January 7	7,85,000
Less: Purchases during the period Jan. 1 to 7	1,53,000
	6,32,000
Add: Cost of goods sold during the period:	
$2,50,000 \times (100/125)$	2,00,000
	8,32,000

ILLUSTRATION 7

From the following particulars ascertain the value of Inventories as on 31st March, 2017:

	₹
<i>Inventory as on 1.4.2016</i>	1,42,500
<i>Purchases</i>	7,62,500
<i>Manufacturing Expenses</i>	1,50,000
<i>Selling Expenses</i>	60,500
<i>Administrative Expenses</i>	30,000
<i>Financial Charges</i>	21,500
<i>Sales</i>	12,45,000

At the time of valuing inventory as on 31st March, 2016, a sum of ₹ 17,500 was written off on a particular item, which was originally purchased for ₹ 50,000 and was sold during the year for ₹ 45,000. Barring the transaction relating to this item, the gross profit earned during the year was 20 percent on sales.

 **SOLUTION**

Statement of Inventory in trade as on 31st March, 2017

	₹	₹
Inventory as on 31st March, 2016	1,42,500	
Less: Book value of abnormal inventory (₹ 50,000 - ₹ 17,500)	32,500	1,10,000
Add: Purchases		7,62,500
Manufacturing Expenses		1,50,000
		<u>10,22,500</u>
Less: Cost of goods sold:		
Sales as per books	12,45,000	
Less: Sales of abnormal item	45,000	
	<u>12,00,000</u>	
Less: Gross Profit @ 20%	2,40,000	9,60,000
Inventory in trade as on 31st March, 2017		<u>62,500</u>

 **ILLUSTRATION 8**

A trader prepared his accounts on 31st March, each year. Due to some unavoidable reasons, no inventory taking could be possible till 15th April, 2017 on which date the total cost of goods in his godown came to ₹ 5,00,000. The following facts were established between 31st March and 15th April, 2017.

- (i) Sales ₹ 4,10,000 (including cash sales ₹ 1,00,000)
- (ii) Purchases ₹ 50,340 (including cash purchases ₹ 19,900)
- (iii) Sales Return ₹ 10,000.

Goods are sold by the trader at a profit of 20% on sales.

You are required to ascertain the value of inventory as on 31st March, 2017.

**SOLUTION****Statement of valuation of Inventory on 31st March, 2017**

	₹	₹
Value of Inventory as on 15th April, 2017		5,00,000
Add: Cost of goods sold during the period between 31st March, 2017 to 15th April, 2017		
Sales (₹ 4,10,000 - ₹ 10,000)	4,00,000	
Less: Gross Profit (20% of ₹ 4,00,000)	80,000	3,20,000
		<hr/> 8,20,000
Less: Purchases during the period from 31st March, 2017 to 15th April, 2017		<hr/> 50,340
		<hr/> <hr/> 7,69,660

**ILLUSTRATION 9**

Inventory taking for the year ended 31st March, 2016 was completed by 10th April 2016, the valuation of which showed a inventory figure of ₹ 16,75,000 at cost as on the completion date. After the end of the accounting year and till the date of completion of inventory taking, sales for the next year were made for ₹ 68,750, profit margin being 33.33 percent on cost. Purchases for the next year included in the inventory amounted to ₹ 90,000 at cost less trade discount 10 percent. During this period, goods were added to inventory at the mark up price of ₹ 3,000 in respect of sales returns. After inventory taking it was found that there were certain very old slow moving items costing ₹ 11,250, which should be taken at ₹ 5,250 to ensure disposal to an interested customer. Due to heavy flood, certain goods costing ₹ 15,500 were received from the supplier beyond the delivery date of customer. As a result, the customer refused to take delivery and net realizable value of the goods was estimated to be ₹ 12,500 on 31st March. Compute the value of inventory for inclusion in the final accounts for the year ended 30th March, 2016.

**SOLUTION****Statement showing the valuation of Inventory
as on 31st March, 2016**

	₹
Value of Inventory as on 10th April	16,75,000
Add: Cost of goods sold after 31st March till Inventory taking (₹ 68,750 - ₹ 17,190)	51,560
Less: Purchases for the next period (net)	(81,000)
Less: Cost of Sales Returns	(2,250)
Less: Loss on revaluation of slow moving inventories	(6,000)
Less: Reduction in value on account of default	(3,000)
Value of Inventory on March 31	<hr/> 16,34,310

Note: Profit margin of 33.33 percent on cost means 25 percent on sales price.

ILLUSTRATION 10

The following are the details of a spare part of Sriram mills:

1-1-2016	Opening Inventory	Nil
1-1-2016	Purchases	100 units @ ₹ 30 per unit
15-1-2016	Issued for consumption	50 units
1-2-2016	Purchases	200 units @ ₹ 40 per unit
15-2-2016	Issued for consumption	100 units
20-2-2016	Issued for consumption	100 units

Find out the value of Inventory as on 31-3-2016 if the company follows First in first out basis.

SOLUTION

First-in-First out basis

Sriram Mills

Calculation of the value of Inventory as on 31-3-2016

Date	Units	Receipts		Units	Issues		Balance		
		Rate	Amount		Rate	Amount	Units	Rate	Amount
		₹	₹		₹	₹		₹	₹
1-1-2016	Balance							Nil	
1-1-2016	100	30	3,000				100	30	3,000
15-1-2016				50	30	1,500	50	30	1,500
1-2-2016	200	40	8,000				50	30	1,500
							200	40	8,000
15-2-2016				50	30	1,500			
				50	40	2,000	150	40	6,000
20-2-2016				100	40	4,000	50	40	2,000

Therefore, the value of Inventory as on 31-3-2016: 50 units @ ₹ 40 = ₹ 2,000

ILLUSTRATION 11

The following are the details of a spare part of Sriram Mills:

1-1-2016	Opening Inventory	Nil
1-1-2016	Purchases	100 units @ ₹ 30 per unit
15-1-2016	Issued for consumption	50 units
1-2-2016	Purchases	200 units @ ₹ 40 per unit

15-2-2016	Issued for consumption	100 units
20-2-2016	Issued for consumption	100 units

Find out the value of Inventory as on 31-3-2016 if the company follows Weighted Average basis.

SOLUTION

Weighted Average basis

Sriram Mills

Calculation of the value of Inventory as on 31-3-2016

Date	Receipts		Issues			Balance			
	Units	Rate	Amount	Units	Rate	Amount	Units	Rate	Amount
		₹	₹		₹	₹		₹	₹
1-1-2016	Balance							Nil	
1-1-2016	100	30	3,000				100	30	3,000
15-1-2016				50	30	1,500	50	30	1,500
1-2-2016	200	40	8,000				250	38	9,500
15-2-2016				100	38	3,800	150	38	5,700
20-2-2016				100	38	3,800	50	38	1,900

Therefore, the value of Inventory as on 31-3-2016 = 50 units @ ₹ 38 = ₹ 1,900

SUMMARY

- Inventory can be defined as assets held for sale in the ordinary course of business, or in the process of production for such sale, or for consumption in the production of goods or services for sale, including maintenance supplies and consumables other than machinery spares.
- The inventories of manufacturing concern consist of several types of inventories: raw material (which will become part of the goods to be produced), parts and factory supplies, work-in-process (partially completed products in the factory) and, of course, finished products.
- Proper valuation of inventory has a very significant bearing on the authenticity of the financial statements.
- Cost of goods sold is calculated as follows:

$$\text{Cost of goods sold} = \text{Opening Inventory} + \text{Purchases} + \text{Direct expenses} - \text{Closing Inventory}.$$
- Inventories should be generally valued at the lower of cost or net realizable value.
- Inventory Valuation Techniques:

Historical Cost Methods

- ✓ Specific Identification Method
- ✓ FIFO (First in first out) Method
- ✓ LIFO (Last in first out) Method
- ✓ Average Price Method
- ✓ Weighted Average Price Method

Non-Historical Cost Methods

- ✓ Adjusted selling price method
- ✓ Standard cost method

There are two principal systems of determining the physical quantities and monetary value of inventories sold and in hand. One system is known as 'Periodic Inventory System' and the other as the 'Perpetual Inventory System'.



... TEST YOUR KNOWLEDGE

MCQs

1. The amount of purchase if
Cost of goods sold is ₹ 80,700
Opening Inventory ₹ 5,800
Closing Inventory ₹ 6,000
(a) ₹ 80,500 (b) ₹ 74,900 (c) ₹ 80,900.
2. Average Inventory = ₹ 12,000. Closing Inventory is ₹ 3,000 more than opening Inventory. The value of closing Inventory = _____.
(a) ₹ 12,000 (b) ₹ 24,000 (c) ₹ 13,500.
3. While finalizing the current year's profit, the company realized that there was an error in the valuation of closing Inventory of the previous year. In the previous year, closing Inventory was valued more by ₹ 50,000. As a result
(a) Previous year's profit is overstated and current year's profit is also overstated
(b) Previous year's profit is overstated and current year's profit is understated
(c) Previous year's profit is understated and current year's profit is also understated
4. Consider the following for Q Co. for the year 2015-16:
Cost of goods available for sale ₹ 1,00,000
Total sales ₹ 80,000
Opening inventory of goods ₹ 20,000

Gross profit margin on sales 25%

Closing inventory of goods for the year 2015-16 as

(a) ₹ 80,000 (b) ₹ 60,000 (c) ₹ 40,000

5. Average Inventory = ₹ 12,000. Closing Inventory is ₹ 3,000 more than opening Inventory. The value of closing Inventory = _____.

(a) ₹ 12,000 (b) ₹ 24,000 (c) ₹ 13,500

6. If the profit is 25% of the cost price then it is

(a) 25% of the sales price

(b) 33% of the sales price

(c) 20% of the sales price

7. Goods purchased ₹ 1,00,000. Sales ₹ 90,000. Margin 20% on cost. Closing Inventory = ?

(a) ₹ 20,000 (b) ₹ 10,000 (c) ₹ 25,000

8. A company is following weighted average cost method for valuing its inventory. The details of its purchase and issue of raw-materials during the week are as follows:

1.12.2015 opening Inventory 50 units value ₹ 2,200.

2.12.2015 purchased 100 units @ ₹47.

4.12.2015 issued 50 units.

5.12.2015 purchased 200 units @ ₹ 48.

The value of inventory at the end of the week and the unit weighted average costs is

(a) ₹ 14,200 – ₹ 47.33 (b) ₹ 14,300 – ₹ 47.67 (c) ₹ 14,000 – ₹ 46.66

9. The cost of sales is equal to

(a) Opening stock plus purchases

(b) Purchases minus Closing stock

(c) Opening stock plus purchases minus closing stock

10. Inventory is disclosed in financial statements under:

(a) Fixed Assets

(b) Current Assets

(c) Current Liabilities

11. Accounting Standards do not permit following method of inventory valuation

(a) FIFO

(b) Average cost

(c) LIFO

12. Which inventory costing formula calculates value of closing inventory considering that inventory most recently purchased has not been sold?
 - (a) FIFO
 - (b) LIFO
 - (c) Weighted average cost
13. Valuing inventory at cost or net realisable value is based on which principle
 - (a) Consistency
 - (b) Conservatism
 - (c) Going concern
14. Under inflationary trend, which of the methods will show highest value of inventory?
 - (a) FIFO
 - (b) Weighted average
 - (c) LIFO
15. Which of the following methods does not consider historical cost of inventory?
 - (a) Weighted average
 - (b) FIFO
 - (c) Retail price method

Theory Questions

1. Write short notes on:
 - (i) Adjusted Selling Price method of determining cost of stock.
 - (ii) Principal methods of ascertainment of cost of inventory.
2. Distinguish between:
 - (i) LIFO and FIFO basis of costing of stock.
 - (ii) FIFO and weighted average price method of stock costing.
3. Define inventory. Explain the importance of proper valuation of inventory in the preparation of statements of the business entity.

Practical Questions

1. X who was closing his books on 31.3.2016 failed to take the actual stock which he did only on 9th April, 2016, when it was ascertained by him to be worth ₹ 2,50,000.

It was found that sales are entered in the sales book on the same day of dispatch and return inwards in the returns book as and when the goods are received back. Purchases are entered in the purchases day book once the invoices are received.

It was found that sales between 31.3.2016 and 9.4.2016 as per the sales day book are ₹ 17,200. Purchases between 31.3.2016 and 9.4.2016 as per purchases day book are ₹ 1,200, out of these goods amounting to ₹ 500 were not received until after the stock was taken.

Goods invoiced during the month of March, 2016 but goods received only on 4th April, 2016 amounted to ₹ 1,000. Rate of gross profit is 33-1/3% on cost.

Ascertain the value of physical stock as on 31.3.2016.

2. From the following information, ascertain the value of stock as on 31.3.2017:

	₹
Value of stock on 1.4.2016	7,00,000
Purchases during the period from 1.4.2016 to 31.3.2017	34,60,000
Manufacturing expenses during the above period	7,00,000
Sales during the same period	52,20,000

At the time of valuing stock on 31.3.2016 a sum of ₹ 60,000 was written off a particular item which was originally purchased for ₹ 2,00,000 and was sold for ₹ 1,60,000. But for the above transaction the gross profit earned during the year was 25% on cost.

3. The Profit and loss account of Hanuman showed a net profit of ₹ 6,00,000, after considering the closing stock of ₹ 3,75,000 on 31st March, 2016. Subsequently the following information was obtained from scrutiny of the books:

- (i) Purchases for the year included ₹ 15,000 paid for new electric fittings for the shop.
- (ii) Hanuman gave away goods valued at ₹ 40,000 as free samples for which no entry was made in the books of accounts.
- (iii) Invoices for goods amounting to ₹ 2,50,000 have been entered on 27th March, 2016, but the goods were not included in stock.
- (iv) In March, 2016 goods of ₹ 2,00,000 sold and delivered were taken in the sales for April, 2016.
- (v) Goods costing ₹ 75,000 were sent on sale or return in March, 2016 at a margin of profit of 33-1/3% on cost. Though approval was given in April, 2016 these were taken as sales for March, 2016.

Calculate the value of stock on 31st March, 2016 and the adjusted net profit for the year ended on that date.

4. Physical verification of stock in a business was done on 23rd June, 2016. The value of the stock was ₹ 48,00,000. The following transactions took place between 23rd June to 30th June, 2016:

- (i) Out of the goods sent on consignment, goods at cost worth ₹ 2,40,000 were unsold.
- (ii) Purchases of ₹ 4,00,000 were made out of which goods worth ₹ 1,60,000 were delivered on 5th July, 2016.
- (iii) Sales were ₹ 13,60,000, which include goods worth ₹ 3,20,000 sent on approval. Half of these goods were returned before 30th June, 2016, but no information is available regarding the remaining goods.
- (iv) Goods are sold at cost plus 25%. However goods costing ₹ 2,40,000 had been sold for ₹ 1,20,000.

Determine the value of stock on 30th June, 2016.

5. From the following information ascertain the value of stock as on 31st March, 2016 and also the profit for the year:

	₹
Stock as on 1.4.2015	1,42,500
Purchases	7,62,500
Manufacturing expenses	1,50,000
Selling expenses	60,500
Administrative expenses	30,000
Financial charges	21,500
Sales	12,45,000

At the time of valuing stock as on 31st March, 2015, a sum of ₹ 17,500 was written off on a particular item, which was originally purchased for ₹ 50,000 and was sold during the year at ₹ 45,000. Barring the transaction relating to this item, the gross profit earned during the year

ANSWERS / HINTS

MCQs

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

Theoretical Questions

- 1 (i)** Adjusted selling method is also called retail inventory method. It is used widely in retail business or in business where the inventory comprises of items, the individual costs of which are not readily ascertainable. The historical cost of inventory is estimated by calculating it in the first instance at selling price and then deducting an amount equal to the estimated gross margin of profit on such stocks.
- (ii)** The specific identification method, First-In-First-Out (FIFO) and weighted average cost formulae are the principal methods of ascertaining the cost of inventory. The cost of inventories of items that are not ordinarily interchangeable and goods or services produced and segregated for specific projects should be assigned by specific identification of their individual costs under the specific identification method.
- 2 (i)** Under FIFO method of inventory valuation, inventories purchased first are issued first. The closing inventories are valued at latest purchase prices and inventory issues are valued at corresponding old purchase prices. In other words, under FIFO method, costs are assigned to the units issued in the same order as the costs entered in the inventory. During periods of rising prices, cost of goods sold are valued at older and lower prices if FIFO is followed and consequently reported profits rise due to lower cost of goods sold.

On the other hand, under LIFO method of inventory valuation, units of inventories issued should be valued at the prices paid for the latest purchases and closing inventories should be valued at the prices paid for earlier purchases. In other words, closing inventories are valued at old purchase prices and issues are valued at corresponding latest purchase prices.

2 (ii) Under the First-In-First-Out (FIFO) method of valuation of stock, the actual issue of goods is usually the earliest lot on hand. Hence, the stock in hand will therefore consist of the latest consignments. The closing stock is valued at the price paid for such consignments.

The weighted average price method is not a simple average price method. Under this method of valuation of stock, a stock ledger is maintained, recording receipts and issues on daily basis. A new average would be calculated on receiving fresh consignment. The average price thus calculated after considering arrival of new consignment with the previous value of stock and dividing the preceding stock value and the cost of new arrival with the total units of preceding and new arrival will give the weighted average price.

3. Inventory can be defined as assets held

- ◆ for sale in the ordinary course of business, or
- ◆ in the process of production for such sale, or
- ◆ for consumption in the production of goods or services for sale, including maintenance supplies and consumables other than machinery spares.

The significance of inventory valuation arises due to the following reasons:

- (i) Determination of Income
- (ii) Ascertainment of Financial Position
- (iii) Liquidity Analysis
- (iv) Statutory Compliance

Practical Questions

Answer 1

Statement of Valuation of Physical Stock as on 31st March, 2016

		₹
Value of stock as on 9th April, 2016		2,50,000
Add: Cost of sales during the intervening period		
Sales made between 31.3.2016 and 9.4.2016	17,200	
Less: Gross profit @25% on sales	(4,300)	12,900
		2,62,900
Less: Purchases actually received during the intervening period:		
Purchases from 1.4.2016 to 9.4.2016	1,200	
Less: Goods not received upto 9.4.2016	(500)	700
		2,62,200
Less: Purchases during March, 2016 received on 4.4.2016		1,000
Value of physical stock as on 31.3.2016		2,61,200

Statement of Valuation of Stock as on 31st March, 2017

	₹
Value of stock as on 1st April, 2016	7,00,000
Add: Purchases during the period from 1.4.2016 to 31.3.2017	34,60,000
Add: Manufacturing expenses during the above period	7,00,000
	48,60,000
Less: Cost of sales during the period:	
Sales	52,20,000
Less: Gross profit	10,32,000
Value of stock as on 31.3.2017	6,72,000

Working Note:

	₹
Calculation of gross profit:	
Gross profit on normal sales $20/100 \times (52,20,000 - 1,60,000)$	10,12,000
Gross profit on the particular (abnormal) item $1,60,000 - (2,00,000 - 60,000)$	20,000
	10,32,000

Note: The value of closing stock on 31st March, 2017 may, alternatively, be found out by preparing Trading Account for the year ended 31st March, 2017.

Answer 3**Profit and Loss Adjustment Account**

	Dr.		Cr.
	₹		₹
To Advertisement (samples)	40,000	By Net profit	6,00,000
To Sales (goods approved in April to be taken as April sales: 7,500 + 2,500)	1,00,000	By Electric fittings	15,000
		By Samples	40,000
		By Stock (purchases of March	2,50,000
		not included in stock)	
To Adjusted net profit	10,40,000	By Sales (goods sold in March wrongly taken as April sales)	2,00,000

By Stock (goods sent on approval basis not included in stock)	75,000
---	--------

<u>11,80,000</u>

<u>11,80,000</u>

Calculation of value of inventory on 31st March, 2016

₹

Stock on 31st March, 2016 (given)	3,75,000
Add: Purchases of March, 2016 not included in the stock	2,50,000
Goods lying with customers on approval basis	75,000
	<u>7,00,000</u>

Answer 4

Statement of Valuation of Stock on 30th June, 2016

₹

Value of stock as on 23rd June, 2016	48,00,000
Add: Unsold stock out of the goods sent on consignment	2,40,000
Purchases during the period from 23rd June, 2016 to 30th June, 2016	2,40,000
Goods in transit on 30th June, 2016	1,60,000
Cost of goods sent on approval basis (80% of ₹ 1,60,000)	1,28,000
	<u>55,68,000</u>
Less: Cost of sales during the period from 23rd June, 2016 to 30th June, 2016	
Sales (₹ 13,60,000 - ₹ 1,60,000)	12,00,000
Less: Gross profit	<u>96,000</u>
	11,04,000
Value of stock as on 30th June, 2016	<u>44,64,000</u>

Working Notes:

1. Calculation of normal sales:

Actual sales	13,60,000
Less: Abnormal sales	1,20,000
Return of goods sent on approval	<u>1,60,000</u>
	<u>2,80,000</u>

2. Calculation of gross profit:

	10,80,000
Gross profit on normal sales $20/100 \times ₹ 10,80,000$	2,16,000
Less: Loss on sale of particular (abnormal) goods (₹ 2,40,000 - ₹ 1,20,000)	1,20,000
Gross profit	96,000

Answer 5**Statement of Valuation of Stock as on 31st March, 2016**

	₹	₹
Stock as on 31st March, 2015	1,42,500	
Less: Book value of abnormal stock (₹ 50,000 - ₹ 17,500)	32,500	1,10,000
Add: Purchases		7,62,500
Manufacturing expenses		1,50,000
		10,22,500
Less: Cost of sales:		
Sales as per book	12,45,000	
Less: Sales of abnormal item	45,000	
	12,00,000	
Less: Gross profit @ 20% stock as on 31st March, 2016	2,40,000	9,60,000
		62,500

Statement showing Profit for the year ended 31st March, 2016

		₹
Gross profit on normal sales:		2,40,000
<u>Add:</u> Profit on abnormal item:		
Sales value	45,000	
Less: Book value on 31st March, 2015	32,500	12,500
		2,52,500
Less: Overhead expenses:		
Selling expenses	60,500	
Administrative expenses	30,000	
Financial charges	21,500	1,12,000
Net profit		1,40,500