

CHAPTER



10

Accounting for Inventory



Learning Outcomes

In this chapter, you will learn to:

- ▶ define the term 'inventory'
 - ▶ explain the cost concept that underpins inventory accounting
 - ▶ list the categories of inventory
 - ▶ explain and illustrate inventory measurement
 - ▶ differentiate between the different inventory measurement models
 - ▶ explain how accounting ethics affect accounting policy of inventory measurement
 - ▶ explain the concept of net realizable value
 - ▶ differentiate between perpetual inventory system and periodic inventory system
 - ▶ explain the accounting concepts that are applicable to inventory accounting
 - ▶ list the disclosure requirements under MFRS 102
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10.0 INTRODUCTION

Think ‘inventory’, and you would think of stocks of merchandising items that you see in hypermarkets and supermarkets. These lines of product items seem to be infinite, and overwhelmingly huge in numbers, offering a customer anything and everything. Therefore, managing inventory is at the heart of all merchandising activities from which profits are derived. Inventory management involves accounting. Without accounting, it is difficult to gauge how well inventory is managed as part of the company’s performance.

Inventory makes up a large amount of the assets in the statement of financial position, therefore it is important to know how to analyze and manage inventory. Inventory valuation comes from being able to understand how inventory is measured and the methods of measurement.

10.1 DEFINITION

Inventory is defined in the accounting standards as assets

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

Inventory for a manufacturing entity comprises the following components:

- a. finished goods—assets held for sale in the ordinary course of business;
- b. work-in-process—assets in the process of production for such sale;
- c. consumable stores—assets in the form of supplies to be consumed in the production process, and
- d. raw materials—assets in the form of materials to be consumed in the production process.

Consumable stores and raw materials are consumables in the entity’s normal production cycle, while finished goods are held primarily for the purpose of trading. Inventories are classified as current assets.

The key words that distinguish inventory from ‘other assets’ are ‘held for sale’ or ‘for the purpose of resale’. This describes clearly the business process of trading, which is buying and selling of goods or merchandise. Goods are not just confined to small items. Goods held for sale may range from retail items to investment goods which can cost millions. For example, a property company may own land and building for the purpose of resale. These are inventories to the company concerned.

While most retail merchandises are goods sold for immediate use, there are manufacturing concerns which manufacture finished goods. The process of manufacturing a finished product involves the stages of raw materials, unfinished

Inventory is defined as assets held for sale.

goods (or work-in-progress) and finished goods. Each stage is measured and accounted for separately. For reporting purposes, the inventory is accounted for under the categories of raw materials, work-in-progress, and finished goods. The usage of raw materials is regarded as part of the cost of production. For financial reporting purposes, the costs of raw materials and work-in-progress are regarded as part of the cost of goods sold.

The following are some examples of inventories:

- a. An entity buys and sells commercial property for profit in the near term. The commercial properties are regarded as inventory to the entity, but they may be classified as assets held for sale for other entities not trading (buy and sell) in commercial properties.
- b. An entity trades in taxi licences which are transferable. Therefore the taxi licences are inventory to the taxi licence trader and are regarded as current assets held for sale in the ordinary course of business.
- c. A vintner processes grapes that are harvested from his vineyards into wine over a two-year production cycle. From the point of harvest to the bottled wine process, the grapes are recognized as inventory as they are part of the raw materials for production. Note however that from planting to the point of harvest, the vintner's grapes are not inventory—they are separately classified as biological assets.
- d. An entity holds lubricants that are to be used by the entity's machinery for production purpose. The lubricants can be regarded as inventory as they are consumed for production purpose.
- e. A chemical manufacturer maintains its plant using a specially designed cleaning machine and a set of low-cost common tools. The cleaning machine is for long-term use and therefore cannot be regarded as inventory. However, the common tools, which are used for servicing the plant, can be regarded as inventory as they are supplies consumed in the production process.

10.2 COST CONCEPT

For a retail business, such as a shoe shop, the cost of goods sold is represented by the cost of purchases of the shoe inventory that has been sold. For first time or new business, the business has no existing inventory. However, once the business begins to run, purchasing and sales activities will commence. Along the way, the business will have existing stock of goods purchased. At the end of the accounting period, the business would have existing inventory not sold. Therefore, the cost of goods sold will be simply defined as:

	RM
For first year of business:	
Purchases	XX
<i>Less:</i> Inventory on hand	(XX)
Cost of goods sold	XX

	RM
For second and subsequent year of business:	
Opening inventory on hand	XX
Purchases	XX
	XX
<i>Less:</i> Closing inventory on hand	(XX)
Cost of goods sold	XX

This simple cost concept is also applicable to businesses that provide services instead of selling merchandise. Service businesses do not have 'goods', so how is cost of goods sold or services offered measured?

Take for example the case of an accountant who provides services ranging from accounting to advisory services for his clients. What would be their cost of services rendered? It would include:

- a. telephone charges;
- b. transport expenses;
- c. time costs calculated based on work assignments, and
- d. other disbursement charges made on behalf of clients.

10.3 CATEGORIES OF INVENTORY

Accounting recognizes that there are different categories of inventory that exist in a manufacturing concern, as compared to a retailing business. In retailing business, the inventories are made up of stocks of finished products or goods that are ready for immediate sale. The customers are the end-users of these ready-made products.

However, if one were to step into a manufacturing environment like a factory that manufactures the finished goods, one will see a very different situation. In the manufacturing process, the items purchased are raw materials, not finished goods. The raw materials will go through a process of transformation, changing from one stage to another, i.e. from raw materials to finished goods. Along the way, some of the goods will still be at the stage of being manufactured, and they are not yet a complete or finished product. Thus, in a manufacturing concern, inventory is categorised into three components.

- a. Raw materials;
- b. Work-in-progress, and
- c. Finished goods.

Inventory may be categorized as raw materials, work-in-progress and finished goods.

Each of these components must be measurable or estimable for accounting purposes. Together, these components make up part of the total cost of production. Refer to Chapter 12 on manufacturing accounts for a better understanding of how the components of inventory are measured and accounted for.

10.4 INVENTORY ACCOUNTING UNDER MFRS 102

Inventory accounting is governed by the accounting standard, MFRS 102–Inventories. The standard lays down the rules of accounting for all types of inventories. It requires that inventories be measured at the lower of cost and net realizable value (NRV). It also provides guidelines for determining inventory costs (including cost formulas) and subsequent recognition of inventory as expense, including any write down to net realizable value.

The standard defines inventory as assets held for sale in the ordinary course of business (finished goods), assets in the production process (work-in-progress) and materials and supplies consumed in the course of production (raw materials).

However, the standard does not apply to agricultural produce and commodities which are measured at fair value.

10.5 INVENTORY MEASUREMENT

The standard requires that inventory be measured at costs, and costs can include the following elements:

- a. Costs of purchase (including taxes, transport, and handling) net of trade discounts received;
- b. Costs of conversion (including fixed and variable manufacturing overheads), and
- c. Other costs incurred in bringing the inventories to their present location and condition.

The standard cost and retail methods may be used for the measurement of cost, provided that the results approximate actual cost.

For consistency, the same cost formula should apply for all inventories with similar characteristics, but for groups of inventories that have different characteristics, different cost formulas are permitted.

A key concept about accounting measurement of an asset is that it must be reliably measured. An asset is said to be reliably measured if its value can be determined in terms of cost, be it purchase cost or a cost based on fair market value. Whatever costs that go into inventory is important because it affects profits and by extension, income taxes. For example, a car is a finished product, but what goes into the cost of making the car may include the following costs:

- a. Steel;
- b. Glass;
- c. Leather;
- d. Labour;

- e. Factory overheads;
- f. Shipping cost of raw materials purchased;
- g. Insurance on materials on transit;
- h. Design;
- i. Import duties;
- j. Engine;
- k. Accessories and spare parts;
- l. Tyres, and
- m. Computerized equipment.

Therefore, the cost of a finished product in the inventory is the sum of all the costs incurred to bring the product to its intended use.

10.6 COST MEASUREMENT

Inventory is measured by the cost of purchase, transfer cost or other costs incurred in bringing the inventory to its present location and condition.

When inventory is purchased, the purchase price may include other costs such as import duties, taxes, transport and handling charges, insurance, and other direct costs attributable to the product. Likewise, trade discounts, rebates and other similar discounts may be deducted from the cost of purchase. All these are included as the cost of purchase.

Total purchase costs may be measured thus:

Purchase price at gross	xx
Shipping cost	xx
Insurance on purchased items	xx
Less: Trade discounts	(xx)
Net purchase cost	xx

Measuring inventory is not as easy as it sounds simply because an inventory of finished goods may consist of different types of the same products in terms of pricing, size, weights, features and characteristics, quality, etc. Hence an inventory may consist of multi-priced products, and it may be difficult to trace which product is sold first and which ones later.

Specifically, the accounting standard (International Financial Reporting Standards, or IFRS) for measurement of inventory recognizes two common measurement or valuation methods for inventory, **first-in first-out** (FIFO) and **weighted average cost**. However, it must be noted that there may be other appropriate methods of valuation which are equally acceptable in accounting, such as specific unit cost.

The most commonly accepted measurement methods of inventory are first-in-first-out (FIFO) and weighted average costs.

However, it must be noted that the new accounting standards have prohibited the use of last-in-first-out (LIFO) method as a measurement method for inventory. This method was once popular in the United States because of its tax benefits. For example, under LIFO, during times of rising prices, closing inventories tend to carry a lower value, resulting in lower profit and hence lower income tax liability.

There are also other disadvantages in the use of the LIFO method, such as:

- a. LIFO is more complicated, and therefore more costly to apply.
- b. LIFO is not suitable for businesses where cost is declining.
- c. LIFO has no relevance when prices are generally stable and does not change much.
- d. LIFO is not a good indicator of closing inventory as the remaining inventory cost could be extremely old and does not represent current prices, thus understating the closing inventory value.

Example 10.1

A trader imported goods at a cost of RM100, inclusive of RM10 non-refundable import duties and RM10 refundable purchase taxes. The risk and rewards of ownership of the imported goods were transferred to the retailer upon collection of the goods from the seaport warehouse. All goods are cash paid on delivery.

The trader incurred RM20 to transport the goods to its business premises and a further RM5 in delivering the goods to its customer. Further, selling cost of RM2 is incurred in selling the goods.

The cost of the purchase is therefore $100 - 10 + 20 = 110$.

The cost does not include refundable purchase taxes and delivery and selling costs.

10.6.1 FIFO

Under the FIFO method, the inventory cost is measured based on movement of inventory on the assumption that the first batch of stock to come in will be the first batch to be sold, as illustrated below.

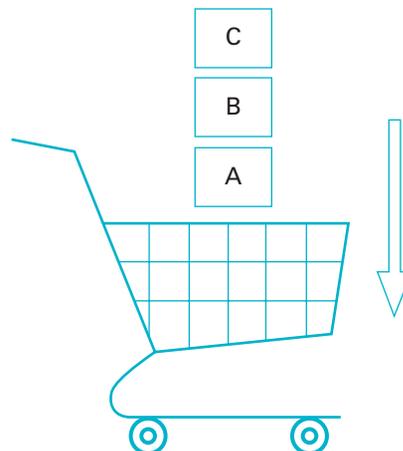


Figure 10.1 Inventory movement of stocks – FIFO method

The FIFO valuation method assumes that most of the items in the inventory are fungible stock, i.e. the items are indistinguishable in terms of shapes and sizes, other than in terms of prices.

Example 10.2

Syarikat ABC has the following units of inventory on hand as at 1 January 2016:

	RM
Balance on hand: 25 units@RM10	250
Purchases for the year:	
Jan. 50 units@RM12	600
Feb. 150 units@RM11.50	1,725

Sales for the year: 100 units at cost, all in the month of June.

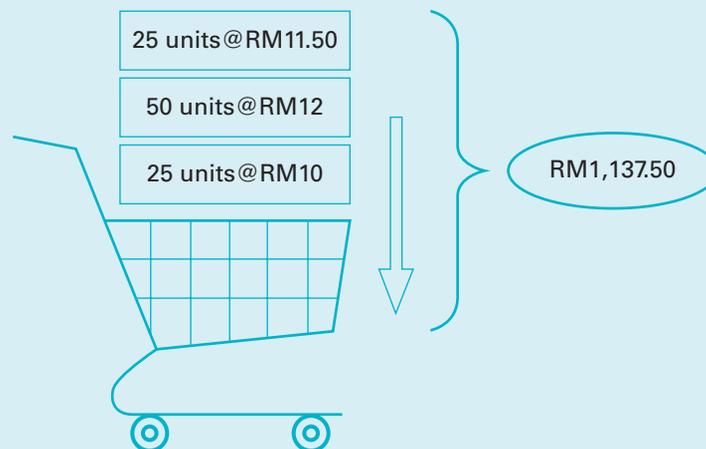


Figure 10.2 Syarikat ABC's inventory movement of stocks – FIFO method

Using a stock card, we can record the inventory movement as follows:

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
1 Jan 16	Balance b/d							25	10	250
Jan	Purchase	50	12	600				50	12	600
Feb	Purchase	150	11.50	1,725				150	11.50	1,725
Jun	Sale				25	10	250			
	Sale				50	12	600			
	Sale				25	11.50	287.50	125	11.50	1,437.50
	Total			2,325			1,137.50			

The cost of goods sold is RM1,137.50. The closing inventory is RM1,437.50.

The above example is a simple one because it is based on the assumption that all goods are purchased first and sold afterwards (in reality goods are purchased and sold at random and does not follow a purchase-first-then-sell sequence).

Example 10.3

As per Example 10.2, assume the following:

- Goods were purchased in the following dates:
15 Jan 16: 50 units@RM12 600
15 Jun 16: 150 units@RM11.50 1,725
- Assuming selling price is marked-up by 30% of cost, goods were sold in stages on the following dates:
2 Feb 16: 30 units
12 Mar 16: 10 units
31 Jul 16: 40 units
11 Nov 16: 20 units

The following stock card shows the movements in the inventory during the year:

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
1 Jan 16	Balance b/d							25	10	250
15 Jan 16	Purchase	50	12	600				50	12	600

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
2 Feb 16	Sale				25	10	250			
					5	12	60	45	12	540
12 Mar 16	Sale				10	12	120	35	12	420
15 Jun 16	Purchases	150	11.50	1,725				35	12	420
								150	11.50	1,725
31 Jul 16	Sale				35	12	420			
					5	11.50	57.50	145	11.50	1,667.50
11 Nov 16	Sale				20	11.50	230	125	11.50	1,437.50
	Total			2,375			1,137.50			

The stock card shows the following information:

Opening inventory balance at 1.1.16: RM250

Total purchases for the year: RM2,375

Cost of goods sold: RM1,137.50

Total sales for the year (RM1,137.50 × 1.3): RM1,478.75

Closing inventory balance at 31.12.16: RM1,437.50

With the given information, the gross profit can be calculated as follows:

	RM
Sales	1,478.75
<i>Less:</i> Cost of goods sold	1,137.50
Gross profit	341.25

In summary, the FIFO method has the following features:

- It assumes that the oldest goods are sold first (based on price, not necessarily on physical goods).
- The closing inventory is assigned with cost based on the most recent batches of goods (in the above example, the most recent batches are the goods purchased at RM11.50 per unit).
- The cost of goods sold is assigned with cost from the oldest batches of goods, i.e. those before the RM11.50 per unit batches.

Example 10.4

The following stock card shows the stock movements:

	Purchases	Sales	Unit cost (RM)	Total cost (RM)
Jan	120		2.50	300
Feb		80		
Mar	50		2.60	130
Apr		35		
May	80		2.80	224
Total	250	115		654

The cost of goods sold and closing inventory are calculated as follows:

Cost of goods sold = $115 \times 2.50 = 287.50$

Closing inventory = $250 - 115 = 135$ units.

Value of closing inventory = $5 \times 2.50 + 50 \times 2.60 + 80 \times 2.80 = 12.50 + 130 + 224 = 366.50$

Total cost = $287.50 + 366.50 = 654$ (equal to closing inventory and cost of goods sold added up)

Additionally, the sum of units sold in the cost of goods sold and closing inventory come up to the same number of units that were available for sale.

Under the FIFO assumption, the cost flow result will be the same whether an entity uses the perpetual inventory system or the periodic inventory system. This is a unique feature of the FIFO method of inventory measurement, which does not apply in other cost measurement methods.

Example 10.5

An entity sells a variety of cables. It measures inventory using the FIFO method. The following information shows the movement in the inventory in year 2016:

Date	Description	Units	Total cost (RM)	Unit cost (RM)
10 Jul	Opening balance	1,000	10,000	10
12 Aug	Sold	(200)		
22 Aug	Purchased	400	6,000	15
12 Sep	Purchased	200	4,000	20
30 Sep	Sold	(900)		
	Closing balance	500		

Required:

Determine the cost of goods sold during the period.

Answer:

Date	Description	Unit	Cost per unit	Inventory cost	Cost of goods sold
10 Jul	Opening balance	1,000	10	10,000	
12 Aug	Sold	(200)	10	(2,000)	2,000
22 Aug	Purchased	400	15	6,000	
12 Sep	Purchased	200	20	4,000	
30 Sep	Sold	(900)		(9,500)*	9,500
	Closing balance	500		8,500**	
					11,500

$$*800 \times 10 + 100 \times 15 = 9,500$$

$$**300 \times 15 + 200 \times 20 = 8,500$$

10.6.2 Weighted Average Cost

The weighted average cost averages out the different costs of similar items purchased during the period. The average may be calculated on a periodic basis, or as each additional shipment is received. The average price of each item in the inventory represents a potpourri of different prices of similar items.

The weighted average cost averages out the different costs of similar items purchased during the period.

This method of accounting is appropriate when all similar goods are stored in a warehouse container where it is rarely emptied completely such as nuts and bolts, and stationery items. This method is also appropriate when prices are fluctuating, so that the average cost is representative of normal prices, so that it is more comparable to cost of sales.

Based on the earlier example in which we have the following items in the inventory:

Balance on hand: 25 units@RM10 250

Purchases for the year:

Jan. 50 units@RM12 600

Feb. 150 units @RM11.50 1,725

The average price of each item would be $x = \frac{\text{Total value of inventory}}{\text{Total no. of units}}$

Total value of inventory = 250 + 600 + 1,725 = 2,575

Total no. of units = 25 + 50 + 150 = 225

Therefore, average price per item = 2,575 ÷ 225 = RM11.44

Cost of goods sold = Average unit cost × Number of units sold

Assume that sales price is marked-up by 30%. This will be recorded in the stock card as follows:

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
1.1.16	Balance b/d							25	10	250
Jan	Purchase	50	12	600				75	11.33	850
Feb	Purchase	150	11.50	1,725				225	11.44	2,575
Jun	Sale				100	11.44	1,144	125	11.44	1,430
	Total			2,325			1,144			

Using Example 10.3, where the goods were purchased and sold in between dates, and assuming a selling price of 30% mark-up on the last average cost, the stock card record will look thus:

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
1 Jan 16	Balance b/d							25	10	250
15 Jan 16	Purchase	50	12	600				75	11.33	850
2 Feb 16	Sale				30	11.33	339.90	45	11.33	509.85
12 Mar 16	Sale				10	11.33	113.30	35	11.33	396.55
15 Jun 16	Purchase	150	11.50	1,725				185	11.47	2,121.55
31 Jul 16	Sale				40	11.47	458.80	145	11.47	1,663.15
11 Nov 16	Sale				20	11.47	229.40	125	11.47	1,433.75
	Total			2,375			1,141.40		396.55 + 1,725	

Note that the closing balance at 15 Jun 16 is RM2,121.55, which is not exactly a multiple of 185 and 11.47, due to rounding error.

Also, take note that at each stage of purchases, the average price is recalculated and adjusted.

The gross profit can be calculated as follows:

	RM
Sales (RM1,141.40 × 1.3)	1,483.82
<i>Less:</i> Cost of goods sold	1,141.40
Gross profit	342.42

We can compare the results of FIFO method and weighted average cost method as follows:

	FIFO	Average cost
	RM	RM
Sales	1,478.75	1,483.82
<i>Less:</i> Cost of goods sold	1,137.50	1,141.40
Gross profit	341.25	342.42

For obvious reasons, both methods do not give similar results. When cost of purchase increases over time, sales value will increase proportionately based on a fixed mark-up or profit margin, resulting in higher gross profit, assuming that the increase in selling price has no impact on the customers.

The same conditions under the weighted average cost method have a different impact on the gross profit. Profit improves slightly against the FIFO method.

Example 10.6

Based on the information in Example 10.5, except that this time the entity allocates the cost of inventories by using the weighted average cost method, calculated as each additional shipment is received. The movements in inventory in the stock card would be as follows:

Date	Description	Unit	Cost per unit	Inventory cost	Cost of goods sold
10 Jul	Opening balance	1,000	10	10,000	
12 Aug	Sold	(200)	10	(2,000)	2,000
	Balance	800	10	8,000	
22 Aug	Purchased	400	15	6,000	
12 Sep	Purchased	200	20	4,000	
	Average cost	1,400	12.86	18,000	
30 Sep	Sold	(900)	12.86		11,574
	Closing balance	500	12.86	6,430	
					13,574

Example 10.7

Based on the information in Example 10.5, assume that the entity allocates the cost of inventories using the weighted average cost method calculated at the end of the period using the periodic inventory system.

Date	Description	Unit	Cost per unit	Inventory cost	Cost of goods sold
10 Jul	Opening balance	1,000	10	10,000	
12 Aug	Purchased	400	15	6,000	
12 Sep	Purchased	200	20	4,000	
	Total goods available for sale	1,600	12.50	20,000	
	Total goods sold in the period	(1,100)	12.50	(13,750)	13,750
30 Sep	Closing balance	500	12.50	6,250	

10.6.3 Specific Identification Method

This method requires that the cost of each item in the inventory be identified (Figure 10.3). This means that the method requires a high degree of accuracy to the cost of inventory, since the exact cost at which the item of stock was purchased can be recorded in the inventory records, and charged to the cost of goods sold when the same item is sold.



Figure 10.3 Cost of each item in inventory identified

The specific identification method requires that the cost of each item in the inventory be identified separately.

It is most relevant to businesses that have expensive low-volume items because it is easier to track the physical flow of these items of inventory. However, it is impracticable to apply this to high-volume inventory which has potentially thousands of items in it.

Items with serial number, stamped receipt date, or some form of identification tags (like RFID tags) can be easily identified. The principle requirements of specific identification method are:

- Each purchased inventory item must be identified clearly and separately.
- The cost of each inventory item must be identified clearly and separately.
- The sale of each inventory item must be identified clearly and separately.

Examples of businesses that can apply the specific identification method are antique furniture shops, jewelry shops, real estate, watch shops and art gallery.

Assume that you are running a business that trades in high-cost furniture. Here are the relevant information:

Opening inventory consists of 10 sofas@RM1,500, 5 dining tables@RM1,000 and 3 reclining chairs@RM900.

During the year, you purchased 5 sofas@RM1,500 and 3 dining tables@RM1,000. You also sold off 8 sofas, 6 dining tables and 2 reclining chairs. Each item sold is marked-up by 50%. Your stock card will look thus:

Date	Particulars	Purchases			Sales			Balance		
		Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost	Qty.	Unit cost (RM)	Total cost
	Balance b/d									
	Sofa							10	1,500	15,000
	Table							5	1,000	5,000
	Chair							3	900	2,700
	Sofa	5	1,500	7,500				15	1,500	22,500
	Table	3	1,000	3,000				8	1,000	8,000
	Chair							3	900	2,700
	Sofa				8	1,500	12,000	7	1,500	10,500
	Table				6	1,000	6,000	2	1,000	2,000
	Chair				2	900	1,800	1	900	900
	TOTAL			10,500			19,800			13,400

In the stock card, each category of inventory is separately identified in terms of volume and value.

Cost of goods sold = RM19,800

Gross profit = Sales less cost of goods sold = (RM19,800 × 1.5) – 19,800
= RM9,900

10.7 COST MEASUREMENT TECHNIQUES

There are other inventory valuation methods that are acceptable for accounting purposes. These include

- the standard cost method, and
- the retail inventory method.

10.7.1 Standard Cost Method

Under the standard cost method, both inventory and the cost of goods sold are based on the standard fixed cost assigned to the items by the management. This

way, inventory is valued at a predetermined cost. The profit margin can also be predetermined based on projected costs.

The standard cost method is part of management accounting.

Under the standard cost method, both inventory and the cost of goods sold are based on the standard fixed cost assigned to the items by the management.

10.7.2 Retail Inventory Method

Most retailers and small businesses apply this method to estimate the closing inventory balances. The method establishes the relationship between cost and selling price. As this method is not very accurate, physical inventory count should apply periodically and the difference is accounted for.

To apply the retail inventory method to calculate the closing inventory balance, follow the steps below:

First, determine the mark-up percentage on cost. This can be a standard mark-up of $x\%$.

Mark-up percentage on cost or cost-to-retail ratio = $\frac{\text{Total goods available for sale at cost}}{\text{Total goods available for sale at retail price}}$.

Thus, if the total cost of goods purchased is RM1,000 and the goods could be sold at retail price for RM1,500, then the mark-up would be $(1,000 \div 1,500) = 0.67$ or 67%.

Second, determine the value of closing inventory at retail price, which is goods available for sale at retail price less goods sold at retail price.

Third, determine the closing inventory at cost, which is:

Ending inventory at retail price \times Cost of goods sold ratio.

Cost of goods sold ratio = $100\% - \text{Profit margin in percentage}$

Profit margin = $\frac{\text{Mark-up percentage on cost}}{100\% + \text{Mark-up percentage on cost}}$

Example 10.8

Mr Wong sells one type of handbag with an average cost of RM150. He could sell this in the night market for RM200 each. Mr. Wong's opening inventory is RM2,250. He further purchased another 10 handbags for RM1,500. His sales for the year was RM3,500.

Required:

Calculate his closing inventory balance.

Answer:

Mark-up or cost to retail percentage = $(150 \div 200) = 0.75$ or 75%

	RM	
Opening inventory	2,250	(at cost)
Purchases	1,500	(at cost)
Total goods available for sale	3,750	
Sales	-2,625	$3,500 \times 75\%$
Closing inventory	1,125	

The retail inventory method is quick and easy to use, but it is not an accurate estimate due to the following reasons:

- 1 The closing inventory amount may be different from the physical inventory count, which applies the specific identification method.
- 2 This method assumes that the mark-up is consistently applied across all products in the inventory. If the mark-up is different among the products, it will create wide errors.
- 3 This method also assumes that the historical basis for the mark-up continues from one period to another. However, there may be a mark-up difference between pre-holiday sale and post-holiday sale.

10.8 ACCOUNTING ETHICS

Whenever accounting standards permit variant measurements of assets, there is a tendency on the part of the management to make accounting measurement changes to show the better side of business performance. This is called earnings management, or creative accounting.

Should a business entity switch accounting policies from one valuation method to another, this could be a red flag indicating that the management intends to focus on improving earnings and hiding something rather than improving on their business operations.

An inconsistent application of accounting policies may be indicative of earnings management.

10.9 NET REALIZABLE VALUE

Net realizable value (NRV) is defined as 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. It is the net amount received from the sale of inventory in the ordinary course of business.

According to accounting standards, and standard industry practice, inventories must be measured at the lower of cost and net realizable value (NRV). The accounting standards recognize that inventories can depreciate in value due to many factors, such as obsolescence, damage and/or out of fashion or their prices have declined. Therefore, inventory must be tested for its net present value whenever there is evidence or indication of decline in value.

The NRV is based on the most reliable evidence available in which the inventories are expected to be realized or sold. It takes into consideration fluctuations of price or cost directly relating to events at the end of the financial year. The difference between the cost and the NRV of the inventory represents a loss and is recognized as an expense in the 'statement of profit or loss and other comprehensive income' in that financial period.

The retail inventory method establishes the relationship between cost and selling price.

The net realizable value (NRV) 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.

Example 10.9

Assume that a business has a product in its inventory which costs RM1,000. The product could be sold at 30% mark-up, which is RM1,300. However, it could not be sold for one year, and at the end of the financial year, the product was damaged and has a market price of RM500 only. The business engages a sales agent to sell the product for RM1,000 but the agent requested for RM300 as sales commission. Therefore, the net realizable value (NRV) of the product would be $RM1,000 - RM300 = RM700$.

If the product had not been sold at the end of the financial year, the inventory value for that product should be RM700 (NRV) and not RM1,300 (cost).

In this second example, assume that the business has an inventory item that was first purchased for RM1,000 and has been in stock for a very long time. In order to sell the item, it will cost RM100 to modify the item after which it could only be sold for RM800.

The net realizable value of the item should be $RM800 - RM100 = RM700$. The value of closing inventory should be less by $RM1000 - RM700 = RM300$.

10.10 PERIODIC INVENTORY SYSTEM

Most small businesses do not keep detailed records of inventory. They would only count their inventory at the end of the accounting period. This system of inventory accounting is called periodic inventory system. It is therefore obvious and natural that the average cost method is applied to measure closing inventory under this system. This follows a simple calculation, whereby average cost is based on the total cost of inventory on hand during the accounting period divided by the number of units of inventory available for sale in the period.

$$\begin{aligned} &\text{Average cost} \times \text{No. of units of closing inventory on hand} \\ &= \text{Value of closing inventory} \end{aligned}$$

The average cost is usually based on the rule of thumb which is a very rough estimate, provided by the management. Assume that a small business proprietor estimated that the average cost per item of his inventory is RM10.00 and he has about 100 items in the closing inventory. The value of his closing inventory is therefore $10 \times 100 = RM1,000$.

Another back-door approach to calculating the value of closing inventory under this system is to take a physical count of the inventory at the end of the accounting period, and the cost of goods sold can be calculated using this simple formula:

$$\begin{aligned} \text{Cost of goods sold} &= \text{Value of opening inventory} + \text{Cost of goods purchased} \\ &\quad - \text{Value of closing inventory} \end{aligned}$$

The periodic inventory system does not require the keeping of detail inventory records, but is based on a periodic inventory check.

The periodic inventory system is not accurate and can be open to abuse since no detailed record is kept, and is not recommended for accounting purposes. The accounting standards imply that the periodic inventory system is not appropriate, because the standard only recognizes valuation methods based on detailed inventory records.

The reason the periodic inventory system may not be accurate is because sometimes the proprietor may accidentally include goods in the closing inventory that are held on behalf of others (consignment goods), or that it may have its own goods being held by others and not in the business premises (goods purchased on transit).

10.11 PERPETUAL INVENTORY SYSTEM

Under the perpetual inventory system, the cost of closing inventory and the cost of goods sold can be calculated directly from the inventory records. If there is any discrepancy between the cost of closing inventory in accounting record and those based on actual physical count, the value of inventory and the cost of goods sold as per accounting records must be adjusted.

The relationship between inventories and cost of goods sold may be illustrated thus (Figure 10.4).

Under the perpetual inventory system, the cost of closing inventory and the cost of goods sold can be calculated directly from the inventory records.

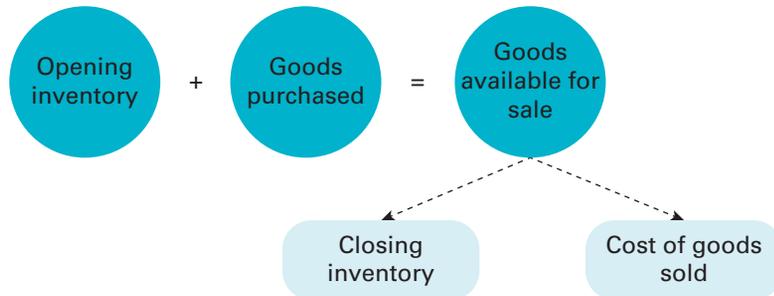


Figure 10.4 Relationship between inventories and cost of goods sold

10.12 ALLOCATION OF INVENTORY TO OTHER ASSET ACCOUNTS

Assume a manufacturing entity holds a store of custom-made spare ball bearings (the bearings have no alternative use). The bearings are first classified as equipment (asset). Subsequently when the bearings are consumed in the production process, the bearings form part of the cost of the inventories of commercial bearings, so that the depreciation of the bearings also forms part of the cost of the inventory bearings. Therefore the bearings are recognized as expense in the statement of profit or loss, when income from the sale of the bearings is recognized.

Now let us assume an entity manufactures hammers for sale. Some hammers are however kept for use in the production of other equipment in the production process. On initial recognition, the hammers were recognized as equipment (not inventories). Subsequently the hammers form part of the cost of the inventory of hammers when they are consumed in the production process (including the depreciation of the hammers). Thus the equipment hammers are accounted for as expense in the statement of profit or loss when the income from the sale of the inventory hammers is recognized.

10.13 CONSISTENCY

The accounting standards prescribe the use of a consistent method of measurement. For example, all inventories with a similar nature must be measured using the most appropriate cost method regardless of location, for business entities having branches in different geographical locations.

The accounting concept of consistency was one of the early accounting concepts introduced in the **Conceptual Framework for Financial Reporting**. Under this concept, a reporting entity is expected to apply the same measurement methods and procedures to measure assets from period to period. This is important as it enables investors to compare the financial results of an entity's financial statements year-on-year. However, the consistency concept does not mean that an entity cannot change its measurement method, especially when the existing measurement method is no longer relevant or does not give relevant and reliable information to the users. The accounting standards allow a reporting entity to change the measurement if by changing the new method, it gives better information to the users in terms of more reliable, relevant and better quality information.

10.14 OTHER APPLICABLE ACCOUNTING CONCEPTS

10.14.1 Matching/Accruals

The accruals or matching concept requires that transactions or events be recognized when they are incurred, whether on cash basis or credit. An inventory item is measured when it is purchased. The opening and closing inventories typically apply the accrual concept of recognising the item (inventory) or event in the financial statements even though the item has not been consumed, and revenue has not been generated as yet. When the inventory is sold or realised, recognition of the sales matches with the purchase of the inventory prior to the sale. This is the application of the matching concept.

10.14.2 Prudence/Faithful Representation

The concept of prudence requires that a degree of caution be exercised when estimating or valuing an asset, especially under conditions of uncertainty. For inventory, prudence requires that the item be valued based on the lower of cost and net realizable value. It recognizes that some items may not have the actual cost value due to factors that cause the value to depreciate, such as technological obsolescence or economic factors affected by government policies. Therefore, recognising the value of the inventory at cost may not be a faithful representation of the fair market value of the asset based on the principle of faithful representation.

The common accounting concepts applicable to inventory accounting are matching, prudence/faithful representation, materiality and comparability.

10.14.3 Materiality

Materiality is defined in the Conceptual Framework as the quality of information that if omitted, or misstated, could influence decisions of users. If inventory is valued based on error, or due to failure to practise prudence, and if this error affects economic decisions, then it fails the principle of materiality.

An example of accounting error that is material is it is common practice for big businesses to have inventories that are for non-trading purposes, such as supply of stationery, or staff uniforms. At year-end these inventories must be accounted for as unconsumed inventories, but in most cases the entity may just charge it wholesale to the statement of profit or loss and other comprehensive income instead of recognising it as asset in the statement of financial position.

10.14.4 Comparability

The concept of comparability requires that financial results be comparable between different periods, or between reporting entities of diverse industries. There are many valuation methods that are acceptable for inventory valuation under accounting standards. To meet comparability, an entity must use the most appropriate inventory valuation method which must be applied consistently from period to period. Any change of valuation methods will affect the principle of comparability, although justification may be acceptable.

10.15 DISCLOSURE

Financial reporting under accounting standards would be incomplete without the disclosure requirements.

Under MFRS 102, the following matters must be disclosed as part of financial reporting relating to inventory accounting.

- a. Accounting policy for inventories;
- b. Carrying amount, generally classified as merchandise, supplies, materials, work-in-progress and finished goods, as appropriate;

- c. Carrying amount of any inventories carried at fair value less costs to sell;
- d. Amount of any write down of inventories recognized as an expense in the period;
- e. Amount of any reversal of a write down to NRV and the circumstances that led to such a reversal;
- f. Carrying amount of inventories pledged as security for liabilities, and
- g. Cost of inventories recognized as expense (cost of goods sold).

10.16 CONCLUSION

There are many inventory valuation models that can be used for accounting purposes, the most prevalent being first-in-first-out (FIFO) method and weighted average cost method. With effect from 2009, the new accounting standards (MFRS 102) have prohibited the use of the last-in, first-out (LIFO) formula to measure the cost of inventories. This is because the LIFO measurement has some serious limitations. LIFO does not give a realistic value to the inventory because it requires closing inventory to be measured at past market value. In contrast, FIFO measurement requires that closing inventory be measured at current market value.

The FIFO measurement also complies with the accounting standards requirement that the carrying amount of inventories must reflect the current fair market value.

The accounting standards on inventory measurement also recognize the various types of costs of inventories that must be accounted for in financial reporting.

Inventories are recognized as an expense when they are sold.

Summary

- ▶ Inventory is defined as goods held for sale or services rendered for a fee.
- ▶ In a manufacturing concern, inventories may include raw materials, work-in-progress and finished goods.
- ▶ In inventory accounting, $\text{Cost of goods sold} = \text{Opening inventory} + \text{Net purchases less Closing inventory}$.
- ▶ Inventory is measured by the cost of purchase, transfer cost or other costs incurred in bringing the inventory to its present location and condition.
- ▶ $\text{Net purchases} = \text{Gross purchases} + \text{Shipping cost} + \text{Insurance on purchased goods} - \text{Purchases returns} - \text{Trade discounts}$.
- ▶ The most common inventory valuation methods are the first-in-first-out (FIFO) method and weighted average cost method. Other less popular but acceptable methods of inventory valuation are the specific identification method, standard cost method and retail inventory method.
- ▶ Accounting ethics require that accounting policies, including changes in inventory valuation methods, be applied consistently.

- ▶ Net realizable value (NRV) is defined as 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.
- ▶ The periodic inventory system requires that all inventories be measured based on physical count at the end of the accounting period and calculated using the average cost method in order to determine the closing inventory value.
- ▶ The perpetual inventory system requires that the inflow and outflow of inventory items be recorded systematically and in detail so that the closing inventory value can be derived based on the record.

Review Questions

- 1 Explain the cost concept that underpins inventory accounting.
- 2 List the categories of inventory in a manufacturing concern.
- 3 Explain and illustrate inventory measurement.
- 4 Differentiate between the different methods of inventory measurement.
- 5 Why is the last-in-first-out (LIFO) valuation method not recognized in accounting practices?
- 6 Explain how accounting ethics affect accounting policy of inventory measurement.
- 7 Explain the concept of net realizable value (NRV).
- 8 Differentiate between perpetual inventory system and periodic inventory system.
- 9 Explain the accounting concept that is applicable to inventory accounting.

Application Exercises

Multiple-choice Questions

- 1 Which of the following best defines an inventory?
 - A Tangible and/or intangible assets held for sale in the ordinary course of business.
 - B 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.
 - C Assets held for sale, in the process of production, or in the form of raw materials or supplies to be consumed in the production process.
 - D Tangible assets held for sale in the ordinary course of business, in the process of production, or in the form of raw materials or supplies to be consumed in the production process or in the rendering of services.

- 2 MFRS 102 requires that inventory be measured at
- A historical cost
 - B fair value less cost to sell
 - C the lower of cost and fair value
 - D the lower of cost and estimated selling price less costs to complete and sell.
- 3 How is the cost of inventory calculated?
- A Cost of purchase and production costs
 - B Costs of purchase, costs of conversion (e.g. allocated production of overheads) and other costs incurred in bringing the inventory to their present location and condition
 - C All direct and indirect costs relating to production (also called production overhead)
 - D Not possible to calculate without full information
- 4 Which of the following costs is not part of inventory cost?
- A Wages of factory workers
 - B Storage costs related to production process
 - C All direct manufacturing costs
 - D Abnormal amounts related to wasted materials
- 5 Which of the following cost measurements is most relevant?
- A LIFO
 - B Specific identification, FIFO, weighted average cost
 - C Only FIFO and weighted average cost
 - D The standard accepts all measurement models as long as they are relevant
- 6 Supplies to be consumed in the production process (also called consumable stores) are to be treated as:
- A Inventory
 - B Intangibles
 - C Property, plant and equipment
 - D Investment property
- 7 An entity purchased goods for sale on 1 Jan 2016 for RM55,000, including RM5,000 refundable purchase taxes. The goods are normally purchased on 60-day credits. However as a special promotion, the purchase commitment for these goods are to be made in full on 31 Dec 2016. For these goods, there is a delivery charge of RM1,200, which were due on 1 Jan 2016. Assume a discount rate of 10% p.a. Calculate the cost of the inventory.
- A 48,800
 - B 51,091
 - C 46,545
 - D 46,654
- 8 On 1 Jan 2016, an entity purchased 57 units of goods for sale for RM4,560. On 1 April 2016, a further 25 units were acquired for RM212.50. On 1 July 2016, 35 units were sold for RM420. The entity values inventory using FIFO method. On 31 Dec 2016, the entity has a closing inventory of 47 units. Calculate its value.
- A 388.50
 - B 385.40
 - C 569.50
 - D 358.40
- 9 A fruit seller wishes to sell his product by first selling the oldest stock. Which inventory measurement method should he apply?
- A FIFO
 - B LIFO
 - C Weighted average cost
 - D Specific identification

- 10 Houses for sale built by a housing developer should be classified as:
- | | |
|---------------------------------|-------------------|
| A Property, plant and equipment | B Financial asset |
| C Investment property | D Inventory |

Structured Questions

- 1 BCD Trading, a merchandising business, has the following records as at 31 December 2016:

	RM
Opening inventory	10,000
Purchases for the year	35,000
Inward freights	4,400
Trade discounts	1,250
Closing inventory	27,500

Required:

Calculate the cost of goods sold for the year.

- 2 Gangnam Gallery buys and sells paintings of all sorts. The following transactions took place during the month of December 2016:

1 Dec 16	Purchased painting #1 for RM2,000
8 Dec 16	Purchased painting #2 for RM5,500
15 Dec 16	Purchased painting #3 for RM4,000
16 Dec 16	Sold painting #3 for RM10,000
20 Dec 16	Purchased painting #4 for RM1,500
25 Dec 16	Sold the following paintings: #1 for 5,000 #4 for 3,750

Required:

- Prepare a stock card to record the movement of the inventory of paintings using the specific identification method, showing clearly the total closing inventory, purchases and sales.
- Prepare an extract of the statement of profit or loss and other comprehensive income for the month of December 2016, showing clearly the gross profit.

- 3 ABC Trading Enterprise sells computer accessories. For the month of March 2016, the business shows the following inventory records:

Date	Particulars	Quantity (units)	Unit cost
1 Mar 2016	Opening inventory	50	15.00
5 Mar 2016	Purchase	60	14.00
9 Mar 2016	Purchase	80	12.00
15 Mar 2016	Purchase	100	10.00
28 Mar 2016	Purchase	40	15.00

The business has incurred operating expenses for the month of March 2016 amounting to RM300 and a total sale of 264 units on 30.3.2016. All sales are marked-up by 25%.

Required:

Prepare the March 2016 statement of profit or loss and other comprehensive income (extract) showing amounts for first-in-first-out (FIFO) and weighted average cost (AVCO) methods respectively.

- 4 Syarikat CDE trades in sports accessories products. The following table shows the transactions for the month of June 2016:

Date	Particulars	Purchase units	Sales units	Balance units	Unit cost
1 Jun 16	Balance b/d			105	75.00
3 Jun 16	Purchases	75			76.50
5 Jun 16	Purchases	90			78.00
7 Jun 16	Sales		75		
10 Jun 16	Sales		55		
15 Jun 16	Purchases	105			79.50
18 Jun 16	Sales		90		
19 Jun 16	Purchases	83			81.00
25 Jun 16	Purchases	75			81.00
30 Jun 16	Sales		30		

All sales are marked-up by 50%.

Required:

Prepare a stock card to record the movement of the above inventory items using:

- a. the first-in-first-out (FIFO) valuation method
- b. the weighted average cost (AVCO) method

For each of the above methods, compute the cost of closing inventory, cost of goods sold and gross profit.

- 5 The following is the inventory records for Perniagaan Sana Sini which just started its business on 1 January 2016.

Purchases		Sales	
January	1,000 units @ RM1.50	February	200 units @ RM3.00
February	2,000 units @ RM2.00	May	1,900 units @ RM3.50
April	1,500 units @ RM2.00	July	1,100 units @ RM3.50
July	1,800 units @ RM2.20	October	2,500 units @ RM4.00
September	2,400 units @ RM2.50	December	2,300 units @ RM4.50
December	3,000 units @ RM3.00		

Assume that sales were at the beginning of each month and purchases were at the end of each month. Perniagaan Sana Sini adopts the perpetual inventory system.

Required:

- a. Calculate the value of the closing inventories using the first-in-first-out (FIFO) method and weighted average cost method respectively.
- b. Compute the cost of sales and gross profit using both inventories valuation methods.

Note: All computation should be rounded to two decimal points.

- 6 An office furniture retailer carries a particular brand of office chair. During the year ended 30 June 2016, the following purchases occurred:

August 2015	20 chairs at RM60
October 2015	25 chairs at RM62
December 2015	30 chairs at RM65
March 2016	40 chairs at RM64

As at July 2015, the shop had 12 chairs in the inventory, costing RM55 per unit. As at June 2016, a stock count revealed 18 chairs in inventory.

Required:

- a. Compute the value of the office chairs on hand on 30 June 2016 using the weighted average cost (AVCO) method.
- b. Briefly discuss three factors that affect the choice of inventory valuation method.

- 7 Manny Trading sells, for RM250 each unit, a product purchased from several different manufacturers, all charging different prices. The manufacturers' deliveries and the sales for the month of May 2016 are as follows:

		Units	Unit cost (RM)
May 1	Beginning inventory	10	140
5	Purchases	20	150
10	Sales	15	
12	Purchases	34	160
16	Sales	33	
20	Purchases	50	140

Required:

- Prepare the inventory record detailing quantities and values using the first-in-first-out (FIFO) method.
 - Explain the weighted average cost of inventory (AVCO) measurement.
- 8 Ah Chong started trading with a capital in cash of RM20,000 which he placed in the business bank account at the outset. His transactions, none of which were on credit, were as follows (in date sequence) for the first accounting period. All takings were banked immediately and all suppliers were paid by cheque. He traded in only one line of merchandise.

Purchases		Sales	
Quantity	Price per unit (RM)	Quantity	Price per unit (RM)
600	2.00		
700	2.20	800	3.15
800	2.20	600	3.30
900	2.10	1,100	3.20
1,000	1.90	1,300	3.00
1,200	1.80	400	2.75
5,200		4,200	

In addition, he incurred expenses amounting to RM2,000, of which he still owed RM500 at the end of the period.

Required:

Prepare separately using the FIFO and AVCO methods of inventory valuation:

- A statement of cost of sales for the period.
- The statement of profit or loss and other comprehensive income (extract).

(Adapted from ACCA examination)

- 9 For each of the following situations, recommend the inventory valuation method that you would use and briefly explain your choice.
- Your inventory turnover is slow. Inventory costs are increasing, and the company prefers to report high profit.
 - Inventory costs have been stable for several years and will continue to be so.
 - The management prefers a middle path inventory policy that avoids extremes.
- 10 The following is the inventory record of Club Pro Sdn Bhd for the year ended 31 December 2016.

Date	Particulars	Units	Cost (RM)	Total (RM)
1 January	Balance	245	3.18	1,016.42
		98	3.34	
6 February	Purchases	840	3.34	2,805.60
19 May	Purchases	635	3.55	2,254.25
12 August	Purchases	420	3.71	1,558.20
4 October	Purchases	740	3.92	2,900.80
31 December	Sales	2,650		11,870.00

Assume that all sales are marked-up by 50%.

Required:

Prepare an extract of the statement of profit or loss and other comprehensive income under the weighted average cost and FIFO valuation methods respectively.

- 11 An inventory count was made for the year ended 31 December 2016, and the closing inventory of Laksamana Enterprise was estimated at RM90,998. Later, during the course of audit, the following matters were discovered:
- Some inventory items with a cost price of RM570 have deteriorated in value due to obsolescence. It would require another RM100 to be spent to restore them to their marketable condition, after which they could be sold for RM700.
 - Some inventory items were damaged and now not saleable. They could however be sold for RM100 as spares after repairs estimated at RM50. Their original cost was RM500.
 - One inventory card had been over-added by RM20 and another under-added by RM5.
 - Laksamana received goods costing RM2,500 during the last week of December 2016 but the invoice was only received on 5 January 2017, and therefore had not been included in the closing inventory.
 - Invoices totaling RM1,500 arrived during the last week of December 2016 and included in purchases and payables, but due to delivery delay the goods did not arrive until late January 2018 and were not included in the closing inventory.
 - An inventory card total of RM1,344 had been transferred to the summary sheet as RM1,433.
 - Some portable small machinery items on temporary lease from another company at a charge of RM400 were included in the inventory.
 - Free samples sent to Laksamana by some suppliers had been included in the inventory at purchase price of RM500.

- i. Goods costing RM125 sent to customers on a sale or return basis had been included in the inventory of Laksamana at their selling price of RM599.
- j. Goods sent on a sale or return basis to Laksamana had been included in inventory at the amount payable of RM499 if retained. There was no decision to retain the goods.

Required:

Based on the above information, prepare a schedule amending the inventory figure as at 31 December 2016. State your reason for each amendment or for not making the amendment.
(Adapted from ACCA examination)

- 12 Jolie Darleen commenced business on 1 April 2015 as a retailer of Bagus Lite-Bicycles. Jolie adopts the perpetual inventory system in maintaining its inventories. During the year ended 31 March 2016, Jolie's dealings in bicycles were as follows:

2015	
April	Bought 6 units at RM1,000 each.
May	Bought 3 units at RM1,100 each.
June	Sold 1 unit at RM1,600.
July	Sold 3 units at RM1,500 each.
August	Bought 2 units at RM1,200 each.
November	Sold 4 units at RM1,620 each.
2016	
January	Bought 5 units at RM1,250 each.
March	Sold 4 units at RM1,590 each.

Required:

- a. Calculate the value of inventory with the following methods:

- i. First-in-first-out (FIFO)
 - ii. Weighted Average Cost (AVCO)
- (Note: Show your calculations to two decimal points.)

- b. Explain the advantages and disadvantages of using each of the inventory valuation methods in part (a).

- 13 On 2 Jan 2016, a manufacturing entity purchased raw materials to be consumed in a production process for RM122,000, including RM2,000 refundable purchase taxes. The purchase price was funded by raising a loan of RM125,000 (including RM3,000 loan commitment fees). The loan is secured by the inventories.

During January 2016, the entity designed the corporate asset for the customer.

Design costs included:

- Cost of external designer = RM10,000
- Labour = RM5,000

During February 2016, the production process commenced and the production team made further modifications necessary to bring the inventories to the conditions in compliance with the agreement. The following costs were incurred in the testing phase:

- Material, net of RM4,500 recovered from the sale of the scrapped output = RM20,000
- Labour = RM8,000
- Depreciation of plant used to perform the modifications = RM4,800

During February 2016, the entity incurred the following additional costs in manufacturing the customized corporate asset:

- Consumable stores = RM15,000
- Labour = RM10,000
- Depreciation of plant used to perform the modifications = RM3,000

The customized corporate asset was ready for sale on 1 March 2016. No abnormal wastage occurred in the development and manufacture of the corporate asset.

Required:

Determine the cost of the inventory.

- 14 The following sale and purchase transactions of inventory relate to Co A, a trader of merchandise:

Date	Unit	Purchases		Sales	
		Unit cost	Total cost	Unit	Total revenue
1 Jan	2,500	2.50	6,250		
2 Feb	1,500	3.00	4,500		
15 Feb				1,550	9,300
16 Mar	1,500	3.00	4,500		
2 Apr	1,000	3.25	3,250		
15 May				2,500	15,000
10 July				900	5,400
10 Aug	3,500	4.00	14,000		
2 Sep	2,150	4.25	9,137.50		
30 Oct				1,400	9,800
12 Nov	1,600	4.55	7,280		
30 Dec				2,500	18,750

Required:

Calculate the cost of inventory for each of the sales made during the year and the cost of the inventories asset on 31 December under each of the following cost models:

- First-in-first-out (FIFO).
- Weighted average (calculated as a moving weighted average).

15 Consider the following inventory movements:

	Purchases	Sales	Cost per unit (RM)	Total cost (RM)
Jul	120		4.50	540
Aug		80		
Sep	50		4.60	230
Oct		70		
Nov		15		
Dec	150		5.00	750
	320	165		1,520

Required:

Calculate the cost of goods sold and the closing inventory based on the weighted average cost measurement model.

Group Activity

- 1 Get students to play this charade game in groups of 5, and see who wins. Explain the rules about charade (you may want to search online to find out more about the rules of the game). Charade the following words:
 - a. Inventory;
 - b. First-in-first-out (FIFO);
 - c. Asset;
 - d. Average cost;
 - e. Perpetual inventory system;
 - f. Cost of goods sold;
 - g. Specific identification method;
 - h. Net realizable value (NRV);
 - i. Consistency;
 - j. Liability;
 - k. Accounting ethics;
 - l. Ignorance;
 - m. Convenience, and
 - n. Dog eats cat.

(Note: Some words/phrases unrelated to the topic are added just to break the monotony and to help the students enjoy the game and learn at the same time. You may want to add on to the list of words to make the game interesting. By all means, improvise your game.)

Additional suggestion:

The group that more than twice guesses the words incorrectly, must explain the meaning of the words/phrases at the end of the game, or do something funny, for example, act out a short drama, a dance, or sing a song, or do a Gangnam-style group dance.

- 2 Group the students into groups of five each. Ask each group to design an inventory card that is most suitable for a merchandising business (for example, shoe shops) where the merchandises come in all shapes and sizes and prices. Each group may choose either the FIFO or the weighted average cost method of inventory valuation using the inventory card. The design may take about 20–30 minutes.

Let each group explain why their design is the best.