CHAPTER 6
INVENTORIES

Objectives: After studying this chapter, you should be able to:

- Describe the steps in determining inventory quantities.
- Explain the accounting for inventories and apply the inventory cost flow methods.
- Explain the lower-of-cost -or-net realizable value basis of accounting for inventories

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I. Classifying Inventory

A company classifies its inventory depending on whether the firm is a merchandiser or manufacturer.

For a merchandising company Inventory has two common characteristics

- They are owned by the company
- They are in a form ready for sale to customers.

II. Determining inventory quantities

At the statement of financial position date, companies must determine

- How many units are on hand, and value those units.

Two steps are required to achieve this:

- Take a physical inventory count
- Determine ownership of goods

➢ Physical Inventory taken for two reasons:

Perpetual System

1. Check accuracy of inventory records.
2. Determine amount of inventory lost (wasted raw materials, shoplifting, or employee theft).

Periodic System

1. Determine the inventory on hand
2. Determine the cost of goods sold for the period.

Taking a Physical Inventory

- Involves counting, weighing, or measuring each kind of inventory on hand.

Taken,

- when the business is closed or business is slow.
- at end of the accounting period.

➢ Determining Ownership of Goods

Goods in Transit

- Purchased goods but not yet received.
- Sold goods but not yet delivered.

{Goods in transit should be included in the inventory of the company that has **legal title** to the goods. Legal title is determined by the **terms of sale**.}

FOB shipping point	Ownership of the goods passes to the buyer when the public carrier accepts the goods from the seller
FOB destination	Ownership of the goods remains with the seller until the goods reach the buyer.

III. **Periodic Inventory System**:
Computation of ending inventory in units

Date	Details	Units	Unit cost	(**Cost of goods available for sale) or** Total cost
	Beginning inv	xx	$ xx	xx
	Purchase	xx	$ xx	xx
	Purchase returns	(xx)	$(xx)	(xx)
	Purchase	xx	$ xx	xx
	Total units available for sale	xx		xx
	Less: Total units sold	(xx)		
	Ending inventory in units	xx		

There are two assumed cost flow methods:

1. **First-in, first-out (FIFO)**
2. **Average-cost**

(Note: Cost flow does not need to be consistent with the physical movement of the goods.)

FIRST-IN, FIRST-OUT (FIFO)

- Earliest goods purchased are the first to be sold.
- Cost of earliest goods purchased are the first to be recognized as cost of goods sold.
- Ending inventory consists of items purchased late in the year.

Illustration: Data for Kait Electronics' Condensers.

Kait Electronics				
Date	**Explanation**	**Units**	**Unit Cost**	**Total Cost**
Jan 1	Beginning inventory	10	$ 100	$ 1,000
Apr 15	Purchase	20	110	2,200
Aug 24	Purchase	30	120	3,600
Nov 27	Purchase	40	130	5,200
	Total units available for sale	100		$12,000
	Units sold	55		
	Units in ending inventory	45		

Solution:

Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	10	HK$100	HK$ 1,000
Apr. 15	Purchase	20	110	2,200
Aug. 24	Purchase	30	120	3,600
Nov. 27	Purchase	40	130	5,200
	Total	100		HK$12,000

Step 1: Ending Inventory

Date	Units	Unit Cost	Total Cost
Nov. 27	40	HK$130	HK$ 5,200
Aug. 24	5	120	600
Total	45		HK$5,800

Step 2: Cost of Goods Sold

Cost of goods available for sale	HK$12,000
Less: Ending inventory	5,800
Cost of goods sold	HK$ 6,200

AVERAGE COST

- Goods available for sale are homogeneous.
- Cost of goods available for sale is allocated on the basis of the **weighted average unit cost** incurred.
- The weighted average unit cost is applied to the units on hand to determine the cost of ending inventory.

Formula to find cost of ending inventory under **Average cost method**

- ❖ Cost of goods available for sale / Total units available for sale × ending inventory in units

Using the above illustration for the computation under **Average cost** method

Cost of Goods Available for Sale

Date	Explanation	Units	Unit Cost	Total Cost
Jan. 1	Beginning inventory	10	HK$100	HK$ 1,000
Apr. 15	Purchase	20	110	2,200
Aug. 24	Purchase	30	120	3,600
Nov. 27	Purchase	40	130	5,200
	Total	100		HK$12,000

Step 1: Ending Inventory

HK$12,000 ÷ 100 = HK$120

Units	Unit Cost	Total Cost
45	HK$120	HK$5,400

Step 2: Cost of Goods Sold

Cost of goods available for sale	HK$12,000
Less: Ending inventory	5,400
Cost of goods sold	HK$ 6,600

Additional Formulas

- Cost of goods sold
  Cost of goods available for sale - Cost of ending inventory
- Gross profit = Net sales – Cost of goods sold
- Net sales = Sales - Sales return and allowances
- Gross profit rate = (Gross profit / Net sales) × 100

IV. Perpetual Inventory System- FIFO

Companies using perpetual inventory system need to prepare an inventory stock card.

Inventory Stock Card			
Date	**Purchase**	**Cost of goods sold**	**Balance**

Example:

Kait Electronics			
Date	**Explanation**	**Units**	**Unit Cost**
Jan 1	Beginning inventory	10	$ 100
Apr 15	Purchase	20	110
Aug 24	Purchase	30	120
Sept.10	Sales	55	-
Nov 27	Purchase	40	130

Compute Cost of Goods Sold and Ending Inventory under FIFO

Solution

Date	Purchases	Cost of Goods Sold	Balance (in units and cost)
January 1			(10 @ HK$100) HK$ 1,000
April 15	(20 @ HK$110) HK$2,200		(10 @ HK$100) (20 @ HK$110) HK$ 3,200
August 24	(30 @ HK$120) HK$3,600		(10 @ HK$100) (20 @ HK$110) (30 @ HK$120) HK$ 6,800
September 10		(10 @ HK$100) (20 @ HK$110) (25 @ HK$120) **HK$6,200**	(5 @ HK$120) HK$ 600
November 27	(40 @ HK$130) HK$5,200		(5 @ HK$120) (40 @ HK$130) **HK$5,800**

Cost of goods sold

Cost of ending inventory

Lower-of-Cost-or-Net Realizable Value

- Sometimes a business may hold inventory without knowing if or when it will sell due to reasons like obsolescence, defects, over supply, major price declines etc. These causes uncertainty about the inventory's conversion into cash. Therefore, accountants evaluate inventory and employ lower of cost or net realizable value considerations.
- If inventory is carried on the accounting records to greater than its net realizable value a write-down from the recorded cost to the lower would be made.
- When the value of inventory is lower than its cost
  - Companies can "write down" the inventory to its net realizable value in the period in which the price decline occurs.
  - In the context of **inventory**, **net realizable value** is the expected selling price in the ordinary course of business minus any costs of completion, disposal, and transportation

Illustration: Assume that TCR TV has the following lines of merchandise with costs and market values as indicated.

	Cost	Net Realizable Value	Lower-of-Cost-or-Net Realizable Value
Flatscreen TVs	$60,000	$55,000	$ 55,000
Satellite radios	45,000	52,000	45,000
DVD recorders	48,000	45,000	45,000
DVDs	15,000	14,000	14,000
Total inventory			**$159,000**

Problems

Problem 6-1

The inventory records of Jeremiah Company reveals the following data for the month of October, 20XX.

Date	Description	Units	Unit cost or Selling price
Oct 1	Beginning inventory	60	$24
Oct 9	Purchase	120	26
Oct 11	Sale	100	35
Oct 17	Purchase	70	27
Oct 22	Sale	65	40
Oct 25	Purchase	80	28
Oct 29	Sale	120	40

Instructions :

1. Calculate each of the following under **FIFO and Average- cost** methods assuming the company is following **periodic inventory system**.
   a) Cost of ending inventory
   b) Cost of goods sold
   c) Gross profit
   d) Gross profit rate

Date	Description	Units	Unit Cost	CGAS
	Total units available for sale			

Date	Sales revenue		Total sales
	Units	Unit Price	

1. FIFO

a) Cost of ending inventory

b) Cost of goods sold

c) Gross profit

d) Gross profit rate

2. Average cost method.

a) Cost of ending inventory

b) Cost of goods sold

c) Gross profit

d) Gross profit rate

Problem 6-2

The following information is provided for Aura Company. Aura uses the periodic inventory method of accounting for its inventory.

Date	Description	Units	Unit cost or selling price
June 1	Beginning inventory	40	$40
4	Purchase	135	43
10	Sale	110	70
11	Sale return	15	70
18	Purchase	55	46
18	Purchase return	10	46
25	Sale	60	75
28	Purchase	30	50

Instructions: Calculate (a) Cost of Ending inventory, (b) Cost of goods sold (c) Gross profit (d) Gross profit rate under each of the following methods.

(1) FIFO (2) Average-cost.

Date	Description	Units	Unit Cost	CGAS
	Total units available for sale			
	Units sold			
	Ending inventory in units			

Date	Sales revenue		Total sales
	Units	Unit price	

1. FIFO

a) Cost of ending inventory

b) Cost of goods sold

c) Gross profit

d) Gross profit rate

2. Average cost method.

a) Cost of ending inventory

b) Cost of goods sold

c) Gross profit

d) Gross profit rate

Problem 6-3

The following information is provided for Dcore De Company. Dcore De uses the periodic inventory method of accounting for its teak inventory.

Date	Description	Units	Unit cost or selling price
October 1	Beginning inventory	100	$8
2	Purchase	100	9
11	Sales	200	20
29	Purchase	200	10
30	Purchase returns	100	10
31	Sales	80	20

Instructions: Calculate (i) Cost of goods available for sale (ii) Cost of Ending inventory, (iii) Cost of goods sold (iv) Gross profit (v) Gross profit rate under each of the following methods.

(1) FIFO.

(2) Average-cost.

Date	Description	Units	Unit Cost	CGAS
	Total units available for sale			
	Units sold			
	Ending inventory in units			

Date	Sales revenue		Total sales
	Units	Unit Price	

i) Cost of goods available for sale:

1. Use the FIFO method.

(ii) Cost of ending inventory	(iii) Cost of goods sold
(iv) Gross profit	**(v) Gross profit rate**

2. Use the Average-Cost method.

(ii)Cost of ending inventory	(iii)Cost of goods sold
(iv) Gross profit	**(v) Gross profit rate**

Problem 6-4

Srimongkol Paint is a wholesaler of enamel paint operating in Bangkok. Srimongkol Paint uses the **perpetual inventory method**. You are provided with the following information for the month of January, 20XX.

Date	Description	Quantity (Units)	Unit cost or selling price
January 1	Beginning inventory	150	$20
January 2	Purchase	100	25
January 6	Sales	180	40
January 10	Purchase	190	28
January 11	Purchase returns	10	28
January 30	Sales	140	40

Instructions:

1. Prepare the Inventory stock card by using the FIFO method.
2. Compute the a) Cost of Ending inventory, b) Cost of Goods Sold, c) Gross profit d) Gross profit rate. Inventory Stock Card by Using FIFO method.

Date	Purchases			Cost of goods sold			Balance		
	Units	@	Total	Units	@	Total	Units	@	Total

2.

a) Cost of ending inventory =
b) Cost of goods sold =
c) Gross profit =
d) Gross profit rate =

Problem 6-5

Fond Inc. uses the perpetual inventory method. The following information is for the month of January 20XX.

Date	Description	Quantity	Unit cost or Selling price
January 1	Beginning Inventory	100	$14
January 5	Purchase	150	17
January 8	Sale	110	28
January 10	Sale return	10	28
January 15	Purchase	55	19
January 16	Purchase return	5	19
January 20	Sale	80	32
January 25	Purchase	30	22

Instruction:

Calculate the (i) Cost of ending inventory (ii) Cost of goods sold (iii) Gross profit (iv) Gross profit rate under **FIFO** method.

Inventory stock card

Date	Purchases			Cost of Goods sold			Balance		
	Units	Unit cost	Cost	Units	Unit cost	Cost	Units	Unit cost	Cost

i) Cost of ending inventory

ii) Cost of goods sold

iii) Gross profit

iv) Gross profit rate

Problem 6-6

The inventory records of Skyline Company reveal the following data for the month of June, 20XX.

Date		Quantity Units	Unit cost $
20XX June. 1	Beginning Inventory	900	30
6	Sales	200	
15	Purchases	1,200	39
16	Purchase Returns & Allowances	200	39
20	Sales	800	
22	Sales Returns from June 20 sales	100	
30	Purchases	1,100	51

Instructions:

1. Complete the inventory record card assuming that the company uses **perpetual inventory system** and first-in, first-out (FIFO) cost flow assumption and determine the following for the month of June.
   (a) Cost of ending inventory.
   (b) Cost of goods sold.

2. Assuming that the company applies **periodic inventory system and average cost method**, compute the following: -
   (a) Total units available for sales.
   (b) Total cost of goods available for sales.
   (c) Cost of ending inventory.
   (d) Cost of goods sold.

   1. Stock card by using FIFO method

Date	Purchases			Cost of goods sold			Balance		
	Units	Unit cost	Total	Units	Unit Cost	Total	Units	Unit Cost	Total
June 1									
6									
15									
16									
20									
22									
30									

a) Cost of ending inventory

b) Cost of goods sold

2. Periodic Inventory System: (Average cost method)

(a) Total units available for sales	(b) Total cost of goods available for sales
(c) Cost of ending inventory	**(d) Cost of goods sold**

Problem 6-7

The inventory records of Isaac Company reveal the following data for the month of August 20XX.

Date		Quantity Units	Unit cost $
20XX Aug. 1	Beginning Inventory	1,600	21
5	Sales	1,000	
15	Purchases	2,000	19
25	Purchases	1,400	22
27	Sales	1,200	
29	Sales	1,600	
30	Sales Return	300	
31	Purchases	1,000	23

Instructions:

1. Complete the inventory record card provided in the answer sheet assuming that the company uses **perpetual inventory system** and first-in, first-out (FIFO) cost flow assumption and determine the following for the month of August.
   (a) Cost of ending inventory.
   (b) Cost of goods sold.
2. Assuming that the company applies **periodic inventory system and average cost method** compute the following: -
   (a) Total units available for sales.
   (b) Total cost of goods available for sales.
   (c) Cost of ending inventory.
   (d) Cost of goods sold.

1.Perpetual Inventory System. (FIFO)

Inventory Stock card

Date	Purchases			Cost of Goods sold			Balance		
	Units	Unit cost	Total	Units	Unit cost	Total	Units	Unit cost	Total

a. Cost of ending inventory

b. Cost of goods sold

2. Periodic Inventory System (Average cost)

a. Total units available for sales.

b. Total cost of goods available for sales.

c. Cost of ending inventory.

d. Cost of goods sold.

Problem 6-8

Feni Company applied FIFO to its inventory and got the following results for the ending inventory.

Cameras	100 units at a cost per unit of $ 68
DVD players	150 units at a cost per unit of $75

iPods 125 units at a cost per unit of $80

The net realizable value per unit at year-end was cameras $ 70, DVD players $69, and iPods $78.

Instruction:

Determine the amount of ending inventory at lower-of-cost-or-net realizable value.

Problem 6-9

Thunderburn Appliance Center accumulates the following cost and net realizable value data at December 31.

Inventory Categories	Cost	Net realizable value
Cameras	$ 12,000	$ 12,100
Camcorders	9,500	9,200
DVD players	14,000	12,800

Compute the lower-of-cost-or-net realizable value valuation for the company's total inventory.

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