

## CHAPTER 7

### DISCUSSION QUESTIONS

1. A manufacturing firm has three types of inventories: (1) raw materials, (2) work-in-process, and (3) finished goods. Raw materials are goods acquired in an undeveloped state that compose a major part of a finished product. Work-in-process inventory is the partly finished products. Finished goods are the completed products waiting for sale.
2. The cost of inventory consists of all the costs involved in buying and preparing merchandise for sale. For a manufacturing company, inventory cost for raw materials generally includes the purchase price paid for the materials, freight costs, and receiving and storage costs. The cost of work-in-process inventory includes the cost of raw materials, the cost of production labor, and some share of the cost of the manufacturing overhead required to keep the factory running. The cost of finished goods inventory is the total of the materials, labor, and manufacturing overhead costs used in the production process for those items.
3. It is more difficult to account for the inventory of a manufacturing firm than for a merchandising firm because the former has three different types of inventories: raw materials, work-in-process, and finished goods. In addition, the work-in-process and finished goods inventories are composed of raw materials, labor, and manufacturing overhead. Often, it is difficult to measure the amount of labor and manufacturing overhead that should be included in the inventory amounts.
4. The buyer owns merchandise being shipped under the terms FOB shipping point; thus, the buyer would generally pay the shipping costs and be responsible for any other ownership costs during shipping.
5. The cost of inventory is transferred from an asset to an expense when the inventory is sold. Until sold, inventory is a current asset on the balance sheet. When sold, it becomes part of the cost of goods sold on the statement of comprehensive income.
6. With good internal control procedures, a perpetual inventory record provides better control over inventory because it always shows the amount of inventory that should be in the warehouse (except for theft). A periodic inventory record shows only the amount of inventory that was on hand at the beginning of the period. With the periodic method, the inventory account is not adjusted until the next physical count is taken, usually at the end of an accounting period.
7. Purchase discounts and purchase returns are accounted for differently with the two methods. With the periodic method, both discounts and returns are accounted for by using separate accounts (Purchase Discounts and Purchase Returns); these are contra accounts to the purchases account. With the perpetual method, discounts and returns are accounted for by crediting Inventory directly. Since a perpetual inventory account always shows the amount of inventory that should be on hand, when inventory is returned to suppliers, the inventory account must be decreased.
8. The costs of transporting inventory into a firm are not treated in the same way as the costs of transporting inventory out. The costs of transporting inventory into the firm are treated as an addition to the costs of inventory, whereas costs of transporting inventory out of the firm are delivery expenses (operating expenses). The reason for the different treatments is that the total cost of inventory is the amount paid for the inventory plus those costs necessary to get it ready for sale. For example, if a company located in San Francisco buys inventory in Chicago, that inventory will not be worth anything to the firm until it is in San Francisco and ready for sale. Thus, the total cost of the inventory is the sum of the purchase price and the shipping costs (freight in).
9. Missing a purchase discount raises the cost of inventory. Increased inventory cost ultimately means higher cost of goods sold and lower net income.
10. With a perpetual system, Inventory is already adjusted to its ending balance (unless there is theft or shrinkage) because the in-

ventory account is adjusted with the recording of every sale and purchase transaction. With a periodic system, the inventory account must be adjusted at the end of the period because no adjustments have been made to the inventory account throughout the period. The closing process, under a periodic method, involves closing net purchases to Inventory and then adjusting Inventory to the appropriate amount. Through this process, the purchases and purchase-related accounts are closed, the inventory account is adjusted to its ending balance, and the cost of goods sold amount ends up in the cost of goods sold account.

11. Even though perpetual inventory records should always reflect the amount of inventory actually on hand, the inventory still needs to be counted to discover the extent of theft, spoilage, and clerical errors. Also, a physical count is a good way to identify which inventory is obsolete, broken, damaged, or slow selling.
12. The only adjusting entry required to account for inventory with the perpetual method is the entry to reflect any shortage or overage from theft, obsolescence, and accounting errors. All other entries to the inventory account are made when merchandise is purchased, sold, or returned, or when discounts are granted.
13. When goods being held on consignment are included in the ending inventory balance, inventory is overstated. When ending inventory is overstated, cost of goods sold is understated, and the result is an overstatement of both gross margin and net income.
14. When inventory is not recorded as a purchase but is included in the inventory balance, the amount of net income is overstated. As shown here, an understatement of the purchase amount results in an understatement of cost of goods sold and a corresponding overstatement of both gross margin and net income.

Beginning inventory	xxx	(OK)
+ Net purchases	xxx	(understated)
= Cost of goods available for sale	xxx	(understated)
- Ending inventory	xxx	(OK)
= Cost of goods sold	xxx	(understated)
Gross margin	xxx	(overstated)
Net income	xxx	(overstated)

15. When inventory is sold and shipped but not recorded as a sale, net income will be understated. As shown below, when sales are understated and net cost of goods sold is correct, the gross margin and net income will be understated.

Sales revenue	xxx	(understated)
Cost of goods sold:		
Beginning inventory	xxx	(OK)
+ Net purchases	xxx	(OK)
= Cost of goods available for sale	xxx	(OK)
- Ending inventory	xxx	(OK)
= Cost of goods sold	xxx	(OK)
Gross margin	xxx	(understated because of sales)
Net income	xxx	(understated because of sales)

16. "Movement of goods" refers to the flow of the actual inventory through the firm; "cost flow" refers to the flow of the costs of the inventory. A firm may have a FIFO physical flow pattern for the inventory, but may use FIFO, or weighted average cost for costing the inventory.
17. Inventory should be valued at its net realizable value when it is damaged, used, or obsolete. The net realizable value is the amount that could be realized from the sale of the merchandise. Writing inventory down to its net realizable value before its sale is the conservative approach because it recognizes losses on inventory when they occur instead of when the inventory is sold. It also guarantees that inventories will not be carried on the books at amounts that exceed their future economic benefits.
18. It is necessary to know which cost formula for inventory firms are using before comparing their financial records because the cost formula can indicate how closely the reported inventory amounts reflect current inventory costs. For example, a firm using LIFO during inflationary periods will probably have very old inventory costs on its balance sheet, but its statement of comprehensive income will quite accurately reflect the amount of real net income earned. On the other hand, a firm that uses FIFO will show relatively accurate cur-

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rent costs of inventory on the balance sheet, but its statement of comprehensive income will show net income that is unrealistically high because the cost of goods sold does not consist of current costs. In trying to compare two firms, one using FIFO and one using LIFO, the differences in the inventory and net income amounts might result more from how inventory costs are handled than from differences

in amounts of inventory on hand or the profitability of the company.

19. The inventory turnover ratio reveals how fast inventory is sold—how long inventory is being held before it is sold. Holding other things constant, the inventory turnover ratio can provide a preliminary indication of how well the organization is managing its inventory.

## PRACTICE EXERCISES

### PE 7–1 (LO1) Inventory Identification

The correct answer is A. Cranes at a construction site have not been purchased with the intent of being resold to customers. The answer is not D because the screws would be considered part of the overhead cost involved in the manufacturing of inventory.

### PE 7–2 (LO1) Costs Included in Inventory

The correct answer is C. The company president's salary is an example of an administrative expense that does not relate directly to the cost of inventory. The answer is not E because the factory supervisor's salary is part of manufacturing overhead, which is included in the cost of manufactured inventory.

### PE 7–3 (LO1) Goods in Transit

Collin Wholesale owns the inventory on December 31, 2017. With shipping terms of FOB destination, the seller owns the inventory during transit because ownership does not transfer until the goods reach their destination.

### PE 7–4 (LO1) Computing Cost of Goods Sold

Beginning inventory.....	HK\$60,000
Add: Purchases .....	<u>250,000</u>
Cost of goods available for sale .....	HK\$310,000
Less: Ending inventory.....	<u>45,000</u>
Cost of goods sold.....	<u>HK\$265,000</u>

### PE 7–5 (LO2) Inventory Purchases

(1). and (2).

	<u>Perpetual</u>	<u>Periodic</u>
Inventory .....	37,500	Purchases.....
Accounts Payable .....	37,500	37,500 Accounts Payable .....

### PE 7–6 (LO2) Transportation Costs

(1). and (2).

	<u>Perpetual</u>	<u>Periodic</u>
Inventory .....	920	Freight In .....
Cash .....	920	920 Cash .....

**Chapter 7**
**PE 7–7 (LO2) Purchase Returns**
**(1). and (2).**

<u>Perpetual</u>	<u>Periodic</u>
Accounts Payable .....	3,000
Inventory .....	3,000

Accounts Payable .....	3,000
Purchase Returns .....	3,000

 Returned 20 tables costing £150 each;  $20 \times £150 = £3,000$ .

**PE 7–8 (LO2) Purchase Discounts**
**(1). and (2).**

<u>Perpetual</u>	<u>Periodic</u>
Accounts Payable .....	34,500
Inventory .....	690
Cash .....	33,810

Accounts Payable .....	34,500
Purchase Discounts ...	690
Cash .....	33,810

 Paid for 230 tables [(250 purchased – 20 returned) × £150 = \$34,500] with a 2% discount ( $£34,500 \times 0.02 = £690$ ).

**PE 7–9 (LO2) Sales**
**(1). and (2).**

<u>Perpetual</u>	<u>Periodic</u>
Accounts Receivable .....	14,000
Sales ( $70 \times £200$ ) .....	14,000
Cost of Goods Sold.....	10,570
Inventory ( $70 \times £151$ ) .	10,570

Cost per table

Initial cost	£ 150 per table
Transportation	£ 920/(250 tables – 20 tables returned) = £ 920/230 tables = £ 4 per table
Discount	£ 690/230 tables = £ 3 per table
Total	£ 150 + £ 4 – £ 3 = £ 151 per table

**PE 7–10 (LO2)      Sales Returns**

(1). and (2).

	<u>Perpetual</u>		<u>Periodic</u>
<b>Sales Returns (6 × \$200)</b>	1,200	<b>Sales Returns .....</b>	1,200
<b>Accounts Receivable ..</b>	1,200	<b>Accounts Receivable..</b>	1,200
<b>Inventory (6 × \$151).....</b>	<b>906</b>		
<b>Cost of Goods Sold.....</b>	906		

For computation of the cost per table, refer to PE 7–9.

**PE 7–11 (LO3)      Closing Inventory Entries for a Periodic System**

(1). <b>Inventory .....</b>	34,730
<b>Purchase Returns .....</b>	3,000
<b>Purchase Discounts.....</b>	690
<b>Freight In .....</b>	920
<b>Purchases.....</b>	37,500
(2). <b>Cost of Goods Sold.....</b>	10,180
<b>Inventory ( £ 34,730 – £ 24,550) .....</b>	10,180

**PE 7–12 (LO3)      Inventory Shrinkage**

<b>Cost of Goods Sold.....</b>	3,500
<b>Inventory (€182,000 – €178,500) .....</b>	3,500

**PE 7–13 (LO3)      Computing Cost of Goods Sold with a Periodic System**

<b>Beginning inventory.....</b>	<b>NT\$ 6,000</b>
Plus: Net purchases.....	23,000
Cost of goods available for sale .....	NT\$29,000
Less: Ending inventory.....	(7,500)
<b>Cost of goods sold.....</b>	<b>NT\$21,500</b>

**PE 7–14 (LO3)      Errors in Ending Inventory**

Net income is **overstated** by €20,000. An ending inventory overstatement reduces the reported cost of goods sold. If cost of goods sold is understated by €20,000, gross margin and net income will both be overstated by €20,000.

**Chapter 7**
**PE 7–15 (LO3) Inventory Errors—Multiple Years**
2016

Beginning inventory	\$ XXX	(OK)
+ Purchases	<u>XXX</u>	(OK)
= Cost of goods available for sale	\$ XXX	(OK)
- Ending inventory	<u>2,000</u>	(understated)
= Cost of goods sold	<u>\$2,000</u>	(overstated)
Net income	\$2,000	(understated)

Correct net income: \$3,000 + \$2,000 = \$5,000

**PE 7–16 (LO3) Inventory Errors—Multiple Years**
2017

Beginning inventory	\$2,000	(understated)
+ Purchases	<u>XXX</u>	(OK)
= Cost of goods available for sale	\$2,000	(understated)
- Ending inventory	<u>450</u>	(overstated)
= Cost of goods sold	<u>\$2,450</u>	(understated)
Net income	\$2,450	(overstated)

Correct net income: \$3,000 – \$2,450 = \$550

**PE 7–17 (LO4) Specific Identification Cost Formula**

	<u>Cameras</u>	<u>Costs</u>
Beginning inventory	8	NT\$800
Net purchases	<u>34</u>	<u>4,000</u>
Goods available for sale	<u>42</u>	<u>NT\$4,800</u>
Ending inventory	<u>16</u>	<u>1,755</u>
Cost of goods sold	<u>26</u>	<u>NT\$3,045</u>

**(1). Cost of goods sold calculation:**

4 cameras from beginning inventory, NT\$100 each.....	NT\$ 400
5 cameras purchased October 3, NT\$110 each .....	550
3 cameras purchased on October 14, NT\$115 each.....	345
14 cameras purchased on October 20, NT\$125 each.....	1,750
Total cost of goods sold (26 units).....	<u>NT\$3,045</u>

**PE 7–17 (LO4) (Continued)**
**(2). Ending inventory calculation:**

4 cameras from beginning inventory, NT\$100 each.....	NT\$ 400
7 cameras purchased on October 3, NT\$110 each.....	770
4 cameras purchased on October 14, NT\$115 each.....	460
1 camera purchased on October 20, NT\$125.....	125
<b>Total ending inventory (16 units).....</b>	<b>NT\$1,755</b>

**PE 7–18 (LO4) FIFO Cost Formula**

	<u>Cameras</u>	<u>Costs</u>
Beginning inventory	8	NT\$ 800
Net purchases	<u>34</u>	<u>4,000</u>
Goods available for sale	<u>42</u>	<u>NT\$4,800</u>
Ending inventory	<u>16</u>	<u>1,990</u>
Cost of goods sold	<u>26</u>	<u>NT\$2,810</u>

**(1). FIFO Cost of goods sold calculation (oldest 26 units):**

8 cameras from beginning inventory, NT\$100 each.....	NT\$ 800
12 cameras purchased October 3, NT\$110 each .....	1,320
6 cameras purchased on October 14, NT\$115 each.....	690
<b>Total cost of goods sold (26 units) .....</b>	<b>NT\$2,810</b>

**(2). FIFO Ending inventory calculation (newest 16 units):**

1 camera purchased on October 14, NT\$115.....	NT\$ 115
15 cameras purchased on October 20, NT\$125 each.....	1,875
<b>Total ending inventory (16 units) .....</b>	<b>NT\$1,990</b>

**PE 7–19 (LO4) Weighted Average Cost Formula**

	<u>Cameras</u>	<u>Costs</u>
Beginning inventory	8	NT\$ 800
Net purchases	<u>34</u>	<u>4,000</u>
Goods available for sale	<u>42</u>	<u>NT\$4,800</u>

$(\$4,800/42 \text{ units}) = \$114.286 \text{ per unit}$

**(1). Weighted average cost of goods sold:  $26 \text{ units} \times \text{NT\$114.286 per unit} = \text{NT\$2,971 (rounded)}$**

**(2). Weighted average ending inventory:  $16 \text{ units} \times \text{NT\$114.286 per unit} = \text{NT\$1,829 (rounded)}$**

**Chapter 7**
**PE 7–20 (LO5)      Lower of Cost or Net Realizable Value**
**Lower of Cost or Net Realizable Value:**

Item A	\$ 720
Item B	375
Item C	<u>1,100</u>
Total	<u><u>\$2,195</u></u>

**PE 7–21 (LO5)      Recording an Inventory Write-Down**

Cost of Goods Sold.....	700
Allowance for Inventory Write-Down .....	700

**PE 7–22 (LO6)      Inventory Turnover**

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}} = \frac{\text{NT\$300,000}}{(\text{NT\$65,000} + \text{NT\$75,000})/2} = 4.29$$

**PE 7–23 (LO6)      Number of Days' Sales in Inventory**

$$\text{Number of Days' Sales in Inventory} = \frac{365}{\text{Inventory Turnover}} = \frac{365}{4.29^*} = 85.08 \text{ days}$$

\*For computation of inventory turnover, refer to PE 7–22.

**PE 7–24 (LO6)      Number of Days' Purchases in Accounts Payable**

$$\begin{aligned} \text{Number of Days' Purchases} \\ \text{in Accounts Payable} &= \frac{365}{(\text{Purchases}/\text{Average Accounts Payable})} \\ &= \frac{365}{(\text{NT\$364,000} / \text{NT\$49,000}^*)} \\ &= 49.13 \text{ days} \end{aligned}$$

\*Average Accounts Payable = (NT\$52,000 + NT\$46,000)/2 = NT\$49,000

## EXERCISES

### E 7-1 (LO1)      Goods on Consignment

1. £30,000      Counted  
   – 8,000      On consignment from supplier, Jacob Company  
   +10,000      On consignment to customer, Adrienne Company  
   £32,000      Ending inventory
2. £27,000      Beginning inventory  
   +59,000      Net purchases  
   £86,000      Cost of goods available for sale  
   –32,000      Ending inventory [determined in part (1)]  
   £54,000      Cost of goods sold
3. £36,000      Counted  
   + 4,000      On consignment to customer, Adrienne Company  
   –10,000      On consignment from suppliers, Jacov Company  
   £30,000      Ending inventory
4. £24,000      Beginning inventory  
   X      Net purchases  
   £77,500      Cost of goods available for sale  
   –30,000      Ending inventory [determined in part (3)]  
   £47,500      Cost of goods sold  

$$X = £47,500 + £30,000 - £24,000 = \underline{£53,500}$$

### E 7-2 (LO1)      Determining the Correct Inventory Amount

- £594,000      Counted  
   +50,000      Title passed to Beta when goods were shipped  
   + 0      No effect  
   + 0      No effect  
   +70,000      Title remains with Beta until purchaser receives goods  
   + 0      No effect  
   £714,000      Ending inventory

### E 7-3 (LO2)      Recording Sales Transactions—Perpetual Inventory System

June 24	Accounts Receivable .....	75,000
	Sales Revenue .....	75,000
	Cost of Goods Sold.....	45,000

	<b>Inventory.....</b>	<b>45,000</b>
	<i>Sold merchandise to Emily Clark, terms 2/10, n/30 (cost is £75,000 × 0.60 = £45,000).</i>	
30	<b>Cash .....</b>	<b>39,200</b>
	<b>Sales Discounts .....</b>	<b>800</b>
	<b>Accounts Receivable.....</b>	<b>40,000</b>
	<i>Received partial payment from Emily Clark (discount is £40,000 × 0.02 = £800).</i>	
June 30	<b>Sales Returns .....</b>	<b>10,000</b>
	<b>Accounts Receivable.....</b>	<b>10,000</b>
	<b>Inventory .....</b>	<b>6,000</b>
	<b>Cost of Goods Sold .....</b>	<b>6,000</b>
	<i>Accepted return of merchandise that originally sold for \$10,000 (cost is £10,000 × 0.60 = £6,000).</i>	

**E 7–4 (LO2)      Perpetual Inventory System**

Oct.	2	<b>Inventory .....</b>	<b>27,650</b>
		<b>Accounts Payable.....</b>	<b>27,000</b>
		<b>Cash.....</b>	<b>650</b>
5		<b>Accounts Receivable .....</b>	<b>8,250</b>
		<b>Sales Revenue .....</b>	<b>8,250</b>
		<b>Cost of Goods Sold.....</b>	<b>4,900</b>
		<b>Inventory.....</b>	<b>4,900</b>
10		<b>Accounts Payable .....</b>	<b>13,950</b>
		<b>Inventory.....</b>	<b>279*</b>
		<b>Cash.....</b>	<b>13,671</b>
		<i>*(HK\$13,950 × 0.02 = HK\$279)</i>	
14		<b>Accounts Payable .....</b>	<b>1,100</b>
		<b>Inventory.....</b>	<b>1,100</b>
19		<b>Cash .....</b>	<b>4,560</b>
		<b>Accounts Receivable.....</b>	<b>4,560</b>
20		<b>Accounts Payable .....</b>	<b>11,950*</b>
		<b>Cash.....</b>	<b>11,950</b>
		<i>*(HK\$27,000 – HK\$13,950 – HK\$1,100)</i>	
22		<b>Accounts Receivable .....</b>	<b>5,200</b>
		<b>Sales Revenue .....</b>	<b>5,200</b>
		<b>Cost of Goods Sold.....</b>	<b>3,800</b>
		<b>Inventory.....</b>	<b>3,800</b>

Oct. 24 Sales Returns .....		3,250
Cash .....		3,250
Inventory .....	1,800	
Cost of Goods Sold .....		1,800
Beginning inventory .....	HK\$12,000	
	27,650	
	(4,900)	
	(279)	
	(1,100)	
	(3,800)	
	<u>1,800</u>	
Ending inventory .....	<u>HK\$31,371</u>	

**E 7–5 (LO2) Recording Sales Transactions—Periodic Inventory System**

June 24 Accounts Receivable .....	105,000
Sales Revenue .....	105,000
<i>Sold merchandise to Jack Simpson, terms 2/10, n/30.</i>	
30 Cash .....	58,800
Sales Discounts .....	1,200
Accounts Receivable .....	60,000
<i>Received partial payment from Jack Simpson (discount is £60,000 × 0.02 = £1,200).</i>	
30 Sales Returns .....	15,000
Accounts Receivable .....	15,000
<i>Accepted return of £15,000 of merchandise.</i>	

**E 7–6 (LO2) Cost of Goods Sold Calculations**

	Able <u>Company</u>	Baker <u>Company</u>	Carter <u>Company</u>	Delmont <u>Company</u>	Eureka <u>Company</u>
Beginning inventory	£ 32,000	£ 49,600	(5) €34,200	(7) €65,800	€38,400
Purchases	53,000	(3) 131,200	86,000	179,000	(9) 129,000
Purchase returns	(1) 800	2,000	3,600	400	4,400
Cost of goods available for sale	84,200	(4) 178,800	116,600	(8) 244,400	163,000
Ending inventory	(2) 17,400	44,400	30,400	57,600	(10) 26,200
Cost of goods sold	66,800	134,400	(6) 86,200	186,800	136,800

**Chapter 7**
**E 7–6 (LO2) (Continued)**
**Calculations (in the following order):**

- (1) £32,000 + £53,000 – £84,200 = £800
- (2) £84,200 – £66,800 = £17,400
- (3) £178,800 + £2,000 – £49,600 = £131,200
- (4) £134,400 + £44,400 = £178,800
- (5) €116,600 + €3,600 – €86,000 = €34,200
- (6) €116,600 – €30,400 = €86,200
- (7) €244,400 + €400 – €179,000 = €65,800
- (8) €57,600 + €186,800 = €244,400
- (9) €163,000 + €4,400 – €38,400 = €129,000
- (10) €163,000 – €136,800 = €26,200

**E 7–7 (LO2) Journalizing Inventory Transactions**

1.	Jan. 24 Purchases .....	18,000
	Accounts Payable .....	18,000
	30 Accounts Payable .....	18,000
	Purchase Discounts (NT\$18,000 × 0.02)	360
	Cash .....	17,640
	Mar. 14 Purchases .....	140,000
	Freight In .....	1,150
	Accounts Payable .....	140,000
	Cash .....	1,150
	Apr. 1 Accounts Payable .....	25,000
	Purchase Returns .....	25,000
	13 Accounts Payable .....	115,000
	Cash .....	115,000
2.	Beginning inventory .....	\$ 23,400
	Purchases .....	NT\$158,000
	Less: Purchase returns .....	(25,000)
	Purchase discounts .....	(360)
	Add: Freight in .....	1,150
	Net purchases .....	<u>133,790</u>
	Cost of goods available for sale .....	NT\$157,190
	Less: Ending inventory .....	26,250
	Cost of goods sold .....	<u>NT\$130,940</u>

**E 7-8 (LO2, 3) Computing Inventory and Cost of Goods Sold**
**(1) FIFO**

Beginning inventory (46 X \$1,067) .....	\$49,082
<b>Purchases</b>	
Sept. 12 (90 X \$1,122) .....	\$100,980
Sept. 19 (40 X \$1,144) .....	45,760
Sept. 26 (88 X \$1,155) .....	<u>101,640</u>
Cost of goods available for sale .....	<u>248,380</u>
Less: Ending inventory (22 X \$1,155) .....	<u>25,410</u>
Cost of goods sold .....	<u><u>\$272,052</u></u>

**Calculation**

Date	Units	Unit Cost	Total Cost
9/1	46	€ 970	€ 49,082
9/12	90	1,122	100,980
9/19	40	1,144	45,760
9/26	66	1,155	<u>76,230</u>
	<u>242</u>		<u>€272,052</u>

**Weighted Average Cost**

Cost of goods available for sale .....	€297,462
Less: Ending inventory (22 X €1,126.75*) .....	<u>24,788.5</u>
Cost of goods sold .....	€ <u><u>272,673.5</u></u>

\*Average unit cost is €1,126.75 computed as follows:

$$\frac{\text{€297,462 (Cost of goods available for sale)}}{264 \text{ units (Total units available for sale)}} = €1,126.75$$

**Recalculation**

$$242 \text{ units} \times €1,126.75 = €272,673.5$$

(b)

$$\begin{aligned} \text{FIFO } €25,410 \text{ (ending inventory)} + €272,052 \text{ (COGS)} &= €297,462 \\ \text{Weighted average cost } €24,788.5 \text{ (ending inventory)} + €272,673.5 &\quad \} \\ (\text{COGS}) = €297,462, & \end{aligned}$$

Cost of  
goods  
availa-  
ble  
for sale

**Under both methods, the sum of the ending inventory and cost of goods sold equals the same amount, €297,462, which is the cost of goods available for sale.**

**E 7–9 (LO3) Adjusting Inventory (Perpetual System)**

<b>Cost of Goods Sold.....</b>	<b>28,000</b>
<b>Inventory.....</b>	<b>28,000</b>
<i>To adjust the inventory account balance to current amount per physical count.  <math>(HK\\$120,000 - HK\\$92,000 = HK\\$28,000)</math></i>	

**E 7–10 (LO3) Adjusting Inventory and Closing Entries (Periodic System)**

<b>Inventory .....</b>	<b>195,000</b>
<b>Purchase Returns.....</b>	<b>5,000</b>
<b>Purchases.....</b>	<b>200,000</b>
<i>Closed temporary inventory accounts.</i>	
<b>Cost of Goods Sold.....</b>	
<b>Inventory.....</b>	<b>225,000</b>
<i>To adjust the inventory account to the appropriate balance of £95,000. (£125,000 beginning inventory + £195,000 net purchases – £95,000 ending inventory = £225,000)</i>	

**E 7–11 (LO3) Cost of Goods Sold Calculation****Cost of goods sold:**

<b>Inventory January 1, 2017 .....</b>	<b>£ 120,000</b>
<b>Purchases .....</b>	<b>£ 780,000</b>
<b>Less: Purchase returns .....</b>	<b>(22,920)</b>
<b>Purchase discounts .....</b>	<b>(2,640)</b>
<b>Add: Freight in .....</b>	<b><u>37,200</u></b>
<b>Net purchases .....</b>	<b><u>791,640</u></b>
<b>Cost of goods available for sale .....</b>	<b>£ 911,640</b>
<b>Less inventory, December 31, 2017 .....</b>	<b>(144,000)</b>
<b>Cost of goods sold.....</b>	<b><u>£ 767,640</u></b>

**E 7–12 (LO3) Adjusting Inventory Records for Physical Counts**

(a) = €125, (b) = €3.20, (c) = 31, (d) = €1.90

<b>Inventory .....</b>	<b>11.50</b>
<b>Cost of Goods Sold .....</b>	<b>11.50</b>
<i>To adjust inventory after physical count.</i>	

(€125.00 + €60.80 + €65.10 + €81.70 = €332.60;  
 €332.60 - €321.10 = €11.50)

**E 7-13 (LO3)      Inventory Errors**
**1.**

	<b>a</b>	<b>b</b>	<b>c</b>
<b>Sales revenue .....</b>	<b>\$181,000</b>	<b>\$181,000</b>	<b>\$156,000</b>
<b>Beginning inventory.....</b>	<b>\$ 36,000</b>	<b>\$ 36,000</b>	<b>\$ 36,000</b>
<b>Net purchases .....</b>	<b>55,000</b>	<b>55,000</b>	<b>55,000</b>
<b>Cost of goods available for sale .....</b>	<b>\$ 91,000</b>	<b>\$ 91,000</b>	<b>\$ 91,000</b>
<b>Ending inventory .....</b>	<b>(25,000)</b>	<b>(14,500)</b>	<b>(14,500)</b>
<b>Cost of goods sold.....</b>	<b>\$ 66,000</b>	<b>\$ 76,500</b>	<b>\$ 76,500</b>
<b>Gross margin.....</b>	<b>\$115,000</b>	<b>\$104,500</b>	<b>\$ 79,500</b>

- The proper method is (b), recording the sale and not counting the inventory.**
- Method (a) overstates gross margin and net income.**

**E 7-14 (LO4)      Specific Identification Method**
**1. Cost of goods sold:**

Ring A	2 units at NT\$600	= NT\$1,200
Ring A	3 units at 600	= 1,800
Ring A	1 unit at 650	= 650
Ring B	2 units at 450	= 900
Ring B	2 units at 350	= 700
Ring C	4 units at 200	= 800
Ring C	3 units at 250	= 750
Ring C	1 unit at 250	= 250
		<b>NT\$7,050</b>

<b>Beginning inventory.....</b>	<b>NT\$19,650</b>
<b>Net purchases .....</b>	<b>4,800</b>
<b>Cost of goods available for sale .....</b>	<b>NT\$24,450</b>
<b>Ending inventory .....</b>	<b>(17,400)</b>
<b>Cost of goods sold.....</b>	<b>NT\$ 7,050</b>

**Purchases:**

4 Type A rings at NT\$600	= NT\$2,400
2 Type B rings at 450	= 900
5 Type C rings at 300	= 1,500
	<b>NT\$4,800</b>

**Ending inventory:**

Ring A 7 units at NT\$600 = NT\$ 4,200

**Chapter 7**

Ring A	9 units at	650 =	5,850
Ring B	5 units at	300 =	1,500
Ring B	4 units at	350 =	1,400
Ring B	3 units at	450 =	1,350
Ring C	3 units at	200 =	600
Ring C	4 units at	250 =	1,000
Ring C	5 units at	300 =	1,500
			<u>NT\$17,400</u>

**2. Sales:**

Ring A	2 units at	\$1,000 =	NT\$ 2,000
Ring A	3 units at	1,050 =	3,150
Ring A	1 unit at	1,200 =	1,200
Ring B	2 units at	850 =	1,700
Ring B	2 units at	800 =	1,600
Ring C	4 units at	450 =	1,800
Ring C	3 units at	500 =	1,500
Ring C	1 unit at	550 =	<u>550</u>
			<u>NT\$13,500</u>

Sales revenue .....	<b>NT\$13,500</b>
Cost of goods sold.....	<u>7,050</u>
Gross margin.....	<b>NT\$6,450</b>

**E 7–15 (LO4)**
**FIFO Cost Formula**
**Cost of Goods Sold**

<b>Ring Type</b>	<b>Units</b>	<b>Cost</b>	<b>Total Cost</b>
A	6	£ 600	£ 3,600
B	4	300	1,200
C	7	200	1,400
C	1	250	<u>250</u>
			<u>£ 6,450</u>

Beginning inventory.....	<b>£ 19,650</b>
Net purchases .....	<b>4,800*</b>
Cost of goods available for sale .....	<b>£ 24,450</b>
Cost of goods sold.....	<b>6,450</b>
Ending inventory .....	<b>£ 18,000</b>

\* $4 \times £ 600 = £ 2,400$ ;  $2 \times \$450 = £ 900$ ;  $5 \times \$300 = £ 1,500$ ;  
 $£ 2,400 + £ 900 + £ 1,500 = £ 4,800$

**E 7–16 (LO4)**
**FIFO and Weighted Average Cost Calculations (Periodic Inventory System)**
**(a) FIFO**

Cost of goods sold.....	40 computers at NT\$1,350 = NT\$	54,000
Cost of goods available for sale .....	.....	NT\$150,100
Less cost of goods sold .....	.....	54,000
Ending inventory.....	.....	<u>NT\$ 96,100</u>
<b>Cost of goods available for sale:</b>		
Beginning inventory.....	60 computers at NT\$1,350 = NT\$	81,000
Nov. 5 Purchase .....	14 computers at NT\$1,400 =	19,600
11 Purchase .....	12 computers at NT\$1,500 =	18,000
24 Purchase.....	18 computers at NT\$1,750 =	<u>31,500</u>
Cost of goods available for sale .....	.....	<u>NT\$150,100</u>

**(b) Weighted Average Cost**
**Units**

Model B computers available for sale .....	104 (60 + 14 + 12 + 18)
Model B computers sold.....	<u>40</u>
Model B computers ending inventory .....	<u>64</u>

$$\text{Average Cost} = \frac{\$150,100}{104} = \text{NT\$1,443.27 per computer (rounded)}$$

Cost of goods sold.....	40 computers at NT\\$1,443.27 = NT\$	<u>57,731</u>
Ending inventory .....	64 computers at NT\\$1,443.27 = NT\$	<u>92,369</u>

**E 7–17 (LO5)**
**Lower of Cost or Net Realizable Value**

1. Purchases .....	400
Accounts Payable.....	400
<i>Purchased 50 standard widgets at \$8 each.</i>	
2. Purchases .....	300
Accounts Payable.....	300
<i>Purchased 15 deluxe widgets at \$20 each.</i>	
3. There is no entry to write up the inventory. Inventory can never be valued above cost.	
4. Cost of Goods Sold.....	24
Allowance for Inventory Write-Down .....	24
<i>To write down deluxe widgets to lower of cost or NRV [12 at \$20-(\$23-\$5)].</i>	

**Chapter 7**
**E 7–17 (LO5) (Continued)**

5. Cost of Goods Sold.....	10
Allowance for Inventory Write-Down .....	10
<i>To write down standard widgets inventory [10 at \$8-(\$10-\$3)].</i>	

6. No entry. Inventory can never be valued above cost.

**E 7–18 (LO5) Lower of Cost or Net Realizable Value**

1. The inventory items should be written down to the following amounts (in NT\$):

<u>Item</u>	<u>Write-Down</u>
Plywood .....	21 units at \$100 (\$450 – \$350) = \$ 2,100
Maple.....	23 units at \$50 (\$1,900 – \$1,850) = 1,150
Pine.....	38 units at \$50 (\$700 – \$650) = 1,900
Redwood.....	Not written down
	<u>\$5,150</u>

2. a. Applied to each item

<u>Item</u>	<u>Write-Down</u>
Plywood .....	\$ 2,100
Maple.....	1,150
Pine .....	<u>1,900</u>
	<u>\$5,150</u>

Cost of Goods Sold .....	5,150
Allowance for Inventory Write-Down .....	5,150

b. Applied to total inventory

<u>Item</u>	<u>Cost</u>	<u>Market</u>	<u>Difference</u>
Plywood ....	$21 \times \$ 450 = \$ 9,450$	$21 \times \$ 350 = \$ 7,350$	\$2,100
Maple.....	$23 \times 1,900 = 43,700$	$23 \times 1,850 = 42,550$	(1,150)
Pine .....	$38 \times 700 = 26,600$	$38 \times 650 = 24,700$	(1,900)
Redwood....	$16 \times 1,600 = 25,600$	$16 \times 1,700 = 27,200$	(1,600)
	<u>\$105,350</u>	<u>\$101,800</u>	<u>\$3,550</u>

Cost of Goods Sold .....	3,550
Allowance for Inventory Write-Down .....	3,550

**E 7-19(LO5)**
**Computing Lower-of-Cost-or-Net Realizable Value**

	<b>Cost</b>	<b>NRV</b>	<b>Lower -of-Cost- or-NRV</b>
Running shoes	€ 12,200	€ 12,600	€ 12,200
Tennis shoes	20,400	19,200	19,200
Basketball shoes	<u>18,000</u>	<u>16,750</u>	<u>16,750</u>
<b>Total inventory</b>	<b><u>€50,600</u></b>	<b><u>€48,550</u></b>	<b><u>€48,150</u></b>

**E 7-20 (LO6)**
**Inventory Ratios**

Atkins	Inventory turnover:	£ 720,000 / £ 50,000	= 14.4 times
	Number of days' sales in inventory:	365 / 14.4	= 25.3 days
Burbank	Inventory turnover:	£ 850,000 / £ \$86,000	= 9.9 times
	Number of days' sales in inventory:	365 / 9.9	= 36.9 days

Atkins Computers is handling its inventory more efficiently, as shown by its higher inventory turnover and its lower days' sales in inventory.

**E7-21 (LO6) Computing Inventory Turnover, and Days in Inventory**
**1. Inventory Turnover**

$$2015: [\text{£}450,000 / (50,000 + 165,000) / 2] = 4.19$$

$$2016: [\text{£}560,000 / (165,000 + 200,000) / 2] = 3.07$$

$$2017: [\text{£}650,000 / (200,000 + 240,000) / 2] = 2.95$$

**2. Number of days in Inventory**

$$2015: 365 / 4.19 = 87.11 \text{ days}$$

$$2016: 365 / 3.07 = 118.89 \text{ days}$$

$$2017: 365 / 2.95 = 123.73 \text{ days}$$

The inventory turnover ratio decreased by approximately 30% from 2015 to 2017 while the days in inventory increased by almost 42% over the same time period. Both of these changes would be considered negative since it's better to have a higher inventory turnover and lower days in inventory.

**Chapter 7**
**E 7–22 (LO6) Analysis of the Operating Cycle**

1. **Inventory Turnover** =  $[\text{€}600,000 \times (1 - 0.37)]/[(\text{€}114,000 + \$87,000)/2] = 3.8$   
**Number of Days' Sales in Inventory** =  $365/3.8 = 96$  days
  
2. **Average collection period: 44 days** =  $365/\text{Accounts Receivable Turnover}$   
**Accounts Receivable Turnover** = 8.3 times  
**Accounts receivable turnover:**  $8.3 = \text{€}600,000/[(\text{€}68,000 + \text{Ending Accounts Receivable})/2]$   
**Ending Accounts Receivable** =  $\text{€}76,578$  (rounded)
  
3. 

<b>Beginning inventory.....</b>	<b>€114,000</b>
<b>Purchases .....</b>	<b>?</b>
<b>Cost of goods available for sale .....</b>	<b>€465,000</b>
<b>Ending inventory .....</b>	<b>(87,000)</b>
<b>Cost of goods sold [€600,000 × (1 – 0.37)] .....</b>	<b><u>€378,000</u></b>

**Purchases** =  $\text{€}351,000$   
**Purchases Turnover** =  $\text{€}351,000/[(\text{€}36,000 + \text{€}42,000)/2] = 9.0$  times  
**Number of Days' Purchases in Accounts Payable** =  $365/9.0 = 41$  days
  
4. Dallen pays its suppliers in 41 days, on average. Dallen collects cash from customers in 140 days (96 days + 44 days). So, on average, 99 days (140 days – 41 days) elapse between the time suppliers are paid and the time cash is received from customers.
  
5. (1) **Inventory Turnover** =  $[\text{€}600,000 \times (1 - 0.37)]/ \text{€}87,000 = 4.3$   
**Number of Days' Sales in Inventory** =  $365/4.3 = 85$  days
  
- (2) **Average collection period: 44 days** =  $365/\text{Accounts Receivable Turnover}$   
**Accounts Receivable Turnover** = 8.3 times  
**Accounts receivable turnover:**  $8.3 = \text{€}600,000/\text{Ending Accounts Receivable}$   
**Ending Accounts Receivable** =  $\text{€}72,289$
  
- (3) 

<b>Beginning inventory .....</b>	<b>€114,000</b>
<b>Purchases .....</b>	<b>?</b>
<b>Cost of goods available for sale .....</b>	<b>€465,000</b>
<b>Ending inventory .....</b>	<b>(87,000)</b>
<b>Cost of goods sold.....</b>	<b><u>€378,000</u></b>

**Purchases** =  $\text{€}351,000$   
**Purchases Turnover** =  $\text{€}351,000/\text{€}42,000 = 8.4$   
**Number of Days' Purchases in Accounts Payable** =  $365/8.4 = 43$  days

- (4) Dallen pays its suppliers in 43 days, on average. Dallen collects cash from customers in 129 days (85 days + 44 days). So, on average, 86 days (129 days – 43 days) elapse between the time suppliers are paid and the time cash is received from customers.

## PROBLEMS

### P 7–1 (LO1)      What Should Be Included in Inventory?

1. NT\$61,800

+ 2,000      a  
– 1,200      b  
+ 2,300      c  
+ 8,000      d  
+ 900      e (2)  
+ 5,100      e (4)

**NT\$78,900**      Ending inventory

2. NT\$ 79,200      Net purchases (as stated)

– 2,600      e (1)  
**\$ 76,600**      Corrected net purchases

\$ 38,700      Beginning inventory

+ 76,600      Net purchases

**\$115,300**      Cost of goods available for sale

– 78,900      Ending inventory

**\$ 36,400**      Cost of goods sold



**P 7–2 (LO2)      (Continued)**

<b>Periodic Inventory System</b>		
<b>g.</b> Accounts Receivable.....	<b>36,000</b>	
Sales .....	36,000	
<i>Sold 400 automobile tires on account at HK\$90 each.</i>		
<b>h.</b> Accounts Receivable.....	<b>30,000</b>	
Sales .....	30,000	
<i>Sold 200 truck tires on account at HK\$150 each.</i>		
<b>i.</b> Sales Returns.....	<b>630</b>	
Accounts Receivable.....	630	
<i>Accepted 7 automobile tires back from customers, HK\$90 each.</i>		

<b>Perpetual Inventory System</b>		
<b>g.</b> Accounts Receivable.....	<b>36,000</b>	
Sales.....		<b>36,000</b>
<i>Sold 400 automobile tires that cost HK\$40 each for HK\$90 each, on account.</i>		
<b>h.</b> Accounts Receivable.....	<b>30,000</b>	
Sales.....		<b>30,000</b>
<i>Sold 200 truck tires that cost HK\$80 each for HK\$150 each, on account.</i>		
<b>i.</b> Sales Returns.....	<b>630</b>	
Accounts Receivable.....		<b>630</b>
<i>Inventory .....</i>		<b>280</b>
<i>Cost of Goods Sold.....</i>		<b>280</b>
<i>Accepted 7 automobile tires (sold for HK\$90 each) back from customers; cost HK\$40 each.</i>		

P 7–2 (LO2)

(Continued)

3. It is helpful to first look at the inventory and related accounts to see what adjustments are needed.

PERIODIC

Inventory	
Auto tires	
beg. inv.	4,000
Truck tires	
beg. inv.	5,600
Purchases	
(a)	20,000
(b)	24,000
Purchase Returns	
	(c) 480

PERPETUAL

Inventory	
Auto tires	
beg. inv.	4,000
Truck tires	
beg. inv.	5,600
(a)	(c) 20,000
(b)	24,000
(i)	(g) 280 (h) 16,000
	21,400

After posting entries (a)–(i), the inventory account has a balance of HK\$21,400.

**P 7–2 (LO2)**
**(Continued)**

### Periodic Inventory System

We now need to make entries to eliminate the balances in all accounts (except Inventory) and add “net purchases” to inventory. The entry is:

Inventory .....	43,520
Purchase Returns.....	480
Purchases.....	44,000

*Closed Net Purchases to Inventory. Closing of temporary inventory accounts.*

After this entry the inventory account includes the beginning inventory and net purchases, so its total is cost of goods available for sale as follows:

Inventory		
<i>Auto tires</i>		
beg. inv.	4,000	
<i>Truck tires</i>		
beg. inv.	5,600	
Net purchases	43,520	
<b>Goods available for sale</b>	<b>53,120</b>	

Now we need to adjust for ending inventory. We know from the physical count that the ending inventory is:

$$\begin{aligned} \text{Auto tires} & 184 \times \text{HK\$40} = \text{HK\$ 7,360} \\ \text{Truck tires} & 164 \times \text{HK\$80} = \underline{\quad 13,120 \quad} \\ \text{Total} & \underline{\quad \text{HK\$20,480} \quad} \end{aligned}$$

### Perpetual Inventory System

Because the physical count of inventory of \$20,480 was less than the balance in the inventory account, an adjustment for shrinkage must be made. The entry is:

Cost of Goods Sold .....	920
Inventory .....	920
<i>Adjusted Inventory for shrinkage (HK\$21,400 – HK\$20,480). Adjustment of Inventory balance to reflect inventory shrinkage.</i>	

The accuracy of this entry can be determined by examining the physical number of tires on hand as follows:

	Automobile Tires	Truck Tires
Beg. inv.	100	70
Transaction (a)	500	
Transaction (b)		300
Transaction (c)	(12)	
Transaction (g)	(400)	
Transaction (h)		(200)
Transaction (i)	7	
Ending inventory	195	170
Per count	184	164
Shrinkage	11	6
Cost	$\frac{\times \text{HK\$ 40}}{\text{HK\$440}}$	$\frac{\times \text{HK\$ 80}}{\text{HK\$480}}$
		<u><math>\text{HK\\$920}</math></u>

**P 7–2 (LO2)**
**(Continued)**


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### Periodic Inventory System

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To adjust Inventory to the correct amount, it must be credited for HK\$32,640 (HK\$53,120 – HK\$20,480). The entry is:

Cost of Goods Sold.....	32,640
Inventory.....	32,640
<i>Adjustment of Inventory to appropriate ending balance.</i>	

The inventory account balance is now HK\$20,480 as shown below.

<b>Inventory</b>		
<b>Auto tires</b>		
beg. inv.	4,000	Adjust end. inv. 32,640
<b>Truck tires</b>		
beg. inv.	5,600	
<b>Net purchases</b>	<b>43,520</b>	
<b>End. inv.</b>	<b>20,480</b>	

The cost of goods sold account will be closed with other closing entries.

**P 7–3 (LO2) Statement of Comprehensive Income Calculations**

The easiest way to solve this problem is to set up the known data in statement of comprehensive income format as follows (ignore comprehensive income):

**Stout Company**  
**Statement of Comprehensive Income**  
**For the Year Ended December 31, 2017**

**Revenues:**

<b>Gross sales .....</b>	€ (1)
<b>Less sales returns .....</b>	<u>4,200</u>
<b>Net sales .....</b>	<u><u>\$169,800</u></u>

**Cost of goods sold:**

<b>Inventory, January 1, 2017 .....</b>	€22,000
<b>Gross purchases.....</b>	€ (2)
<b>Less purchase returns .....</b>	<u>(2,000)</u>
<b>Add freight in.....</b>	<u>800</u>
<b>Cost of goods available for sale .....</b>	<u><u>€84,000</u></u>
<b>Less inventory, December 31, 2017 .....</b>	<u><u>(4)</u></u>

<b>Cost of goods sold.....</b>	<u><u>(3)</u></u>
<b>Gross margin.....</b>	<u><u>€ (5)</u></u>
<b>Operating expenses .....</b>	<u><u>7,500</u></u>
<b>Net income .....</b>	<u><u>€ (6)</u></u>

Given the above statement, the calculations can be completed in the following order:

<b>(1) Gross sales</b>	<b>(3) Cost of goods sold</b>
€169,800 + €4,200 = \$174,000	€174,000 = 250% (X) X = €69,600
<b>(2) Net purchases</b>	<b>(4) Ending inventory</b>
€ 84,000      Cost of goods available for sale	€84,000 – €69,600 = €14,400
<u>– 22,000</u>	<b>Beginning inventory</b>
<u>€ 62,000</u>	<b>Net purchases</b>
<b>Gross purchases</b>	<b>(5) Gross margin</b>
€ 62,000	€169,800 – €69,600 = €100,200
+ 2,000	<b>(6) Net income</b>
<u>– 800</u>	€100,200 – €7,500 = €92,700
<u>€ 63,200</u>	<b>Gross purchases</b>

**P 7–4 (LO2)****Statement of Comprehensive Income Calculations**

	<b>Company A</b>	<b>Company B</b>	<b>Company C</b>	<b>Company D</b>
<b>Sales revenue .....</b>	<b>€2,000</b>	<b>(4) €499</b>	<b>€480</b>	<b>€1,310</b>
<b>Beginning inventory.....</b>	<b>200</b>	<b>76</b>	<b>0</b>	<b>600</b>
<b>Purchases .....</b>	<b>(1) 1,320</b>	<b>423</b>	<b>480</b>	<b>249</b>
<b>Purchase returns.....</b>	<b>(20)</b>	<b>(19)</b>	<b>(0)</b>	<b>(8) (19)</b>
<b>Cost of goods available for sale.....</b>	<b>1,500</b>	<b>480</b>	<b>480</b>	<b>830</b>
<b>Ending inventory .....</b>	<b>300</b>	<b>110</b>	<b>(6)</b>	<b>155</b>
<b>Cost of goods sold.....</b>	<b>1,200</b>	<b>370</b>	<b>(7)</b>	<b>325 (9) 635</b>
<b>Gross margin .....</b>	<b>(2) 800</b>	<b>(5) 129</b>	<b>155 (10)</b>	<b>675</b>
<b>Operating expenses .....</b>	<b>108</b>	<b>22</b>	<b>34</b>	<b>129</b>
<b>Net income.....</b>	<b>(3) 692</b>	<b>107</b>	<b>121</b>	<b>546</b>

The individual missing numbers are computed as follows, *in the order given*. Note: Cost of goods available for sale has been inserted to simplify the calculation.

**Company A:**

- (1) Since ending inventory is €300 and cost of goods sold is €1,200, goods available for sale must be €1,500. The beginning inventory of \$200 and net purchases must total €1,500. Purchases is therefore €1,320 ( $\text{€}200 + \text{€}1,320$  minus purchase returns of \$20 total €1,500).
- (2) Sales revenue (€2,000) minus cost of goods sold (€1,200) equals gross margin (€800).
- (3) Gross margin (€800) minus operating expenses (€108) equals net income (€692).

**Company B:**

- (5) Operating expenses (€22) plus net income (€107) equals gross margin (€129).
- (4) Gross margin (€129) plus cost of goods sold (€370) equals sales revenue (€499).

**Company C:**

- (7) Sales revenue (€480) minus gross margin (€155) equals cost of goods sold (€325).
- (6) Goods available for sale (€480) minus cost of goods sold (€325) equals ending inventory (€155).

**Company D:**

- (10) Net income (€546) plus operating expenses (€129) equals gross margin (€675).
- (9) Sales revenue (€1,310) minus gross margin (€675) equals cost of goods sold (€635).

**Chapter 7**  
**P 7–4 (LO2) (Continued)**

- (8) Cost of goods sold (\$635) plus ending inventory (\$195) equals goods available for sale (\$830). Goods available for sale (\$830) equals beginning inventory (\$600) plus purchases (\$249) minus purchase returns (\$19).

**P 7–5 (LO3) The Effect of Inventory Errors**

1.	<u>Net Purchases</u>	<u>Ending Inventory</u>	
	\$ 80,800	\$29,800	
	+ 1,800	+ 800	
	— 3,000	— 300	
	<u>\$79,600</u>	<u>\$30,300</u>	
2.	Beginning inventory.....		\$ 20,200
	Net purchases .....		+ 79,600
	Cost of goods available for sale .....		\$ 99,800
	Ending inventory .....		— 30,300
	Cost of goods sold .....		<u>\$ 69,500</u>
3.	Beginning inventory.....		\$ 20,200
	Net purchases (before correcting).....		+ 80,800
	Cost of goods available for sale .....		\$101,000
	Ending inventory (before correcting) .....		— 29,800
	Cost of goods sold (overstated) .....		\$ 71,200
	Cost of goods sold (correct) .....		— 69,500
	Overstatement .....		<u>\$ 1,700</u>

**P 7–6 (LO3)      Correction of Inventory Errors**

The best way to solve this problem is to remember that inventory overstatements at the beginning of the year reduce net income, and overstatements at the end of the year increase net income as shown below. (Understatements have the opposite effect.)

<b>Overstatement—Beginning of Year</b>	<b>Overstatement—End of Year</b>
Revenue .....	OK
Cost of goods sold:	
Beginning inventory .....	Too high
Purchases.....	<u>OK</u>
Goods available .....	Too high
Ending inventory.....	<u>OK</u>
Cost of goods sold.....	<u>Too high</u>
Gross margin.....	Too low
Expenses .....	<u>OK</u>
Net income.....	<u>Too low</u>
Revenue .....	OK
Cost of goods sold:	
Beginning inventory .....	OK
Purchases.....	<u>OK</u>
Goods available.....	<u>OK</u>
Ending inventory.....	<u>Too high</u>
Cost of goods sold.....	<u>Too low</u>
Gross margin .....	Too high
Expenses.....	<u>OK</u>
Net income .....	<u>Too high</u>

The correct amount of net income can be calculated by subtracting overstatements of ending inventory and adding overstatements of beginning inventory. Remember that the ending inventory of one period becomes the beginning inventory of the next period.

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Reported net income.....	\$30,000	\$40,000	\$35,000	\$45,000
Inventory overstatement, beginning of year.....		3,000		
Inventory understatement, beginning of year.....		(4,000)		(1,000)
Inventory overstatement, end of year.....		(3,000)		(2,000)
Inventory understatement, end of year .....	4,000		1,000	
Correct net income.....	<u>\$34,000</u>	<u>\$33,000</u>	<u>\$39,000</u>	<u>\$42,000</u>

**P 7-7 (LO3)      The Effect of Inventory Errors**

1. The effect of each of these errors on gross margin is as follows:

- (a) No effect (liabilities are understated).
- (b) Ending inventory is understated, \$4,400.
- (c) Net purchases are overstated, \$900.
- (d) Net purchases are understated, \$1,200.
- (e) Net purchases are overstated, \$3,100.
- (f) Ending inventory is overstated, \$800.

The following analysis shows how these errors affect cost of goods sold:

<u>Error</u>	<u>Beginning Inventory</u>	<u>Net Purchases</u>	<u>=</u>	<u>Goods Available</u>	<u>-</u>	<u>Ending Inventory</u>	<u>=</u>	<u>Cost of Goods Sold</u>
(a)	No effect	No effect		No effect		No effect		No effect
(b)	No effect	No effect		No effect		\$4,400 understated		\$4,400 overstated
(c)	No effect	\$900 overstated		\$900 overstated		No effect		\$900 overstated
(d)	No effect	\$1,200 understated		\$1,200 understated		No effect		\$1,200 understated
(e)	No effect	\$3,100 overstated		\$3,100 overstated		No effect		\$3,100 overstated
(f)	<u>No effect</u>	<u>No effect</u>		<u>No effect</u>		<u>\$800 overstated</u>		<u>\$800 understated</u>
Totals	No effect	<u>\$2,800 overstated</u>		<u>\$2,800 overstated</u>		<u>\$3,600 understated</u>		<u>\$6,400 overstated</u>

If cost of goods sold is overstated by \$6,400, gross margin is understated by \$6,400. The correct gross margin is \$31,400 (\$25,000 + \$6,400).

2. Since the ending inventory of 2017 becomes the beginning inventory of 2018, net income would be \$3,600 overstated.

## Cost of Goods Available for Sale

Beginning inventory.....	€ 5,760
10/6 purchases .....	+ 12,480
10/15 purchases .....	+ 7,560
10/27 purchases .....	+ 8,960
<b>Cost of goods available for sale .....</b>	<b>€ 34,760</b>

## Ending Inventory in Units:

Units available for sale (120+240+140+160) .....	660
Sales (200+130+240) .....	- 570
<b>Units remaining in ending inventory .....</b>	<b>90</b>

## Sales Revenue

10/11 sales .....	14,000
10/22 sales .....	+ 10,400
10/29 sales .....	+ 19,200
<b>Total sales revenue .....</b>	<b>€ 43,600</b>

(a)

### (1) FIFO

#### Ending Inventory

10/27 (90@€56) .....	5,040
----------------------	-------

#### Cost of Goods Sold

Cost of goods available for sale .....	34,760
Ending Inventory .....	- 5,040
<b>Cost of goods sold.....</b>	<b>€ 29,720</b>

### (2) Weighted Average Cost

**Weighted Average cost per unit:  $34,760/660=52.667$**

**Ending Inventory**  
**(90@€52.667) .....** **4,740**

**Cost of Goods Sold**

**Cost of goods available for sale .....** **34,760**

**Ending Inventory .....** **- 4,740**

**Cost of goods sold.....** **€ 30,020**

- (b) Weighted average cost produces the lower ending inventory value and its cost of goods sold is higher than FIFO.**

**P 7–9 (LO4)**
**Cost Formulas for Inventory**
**1. a. FIFO**

<b>Beginning inventory units.....</b>	<b>460</b>
<b>Purchase, January 16 .....</b>	<b>110</b>
<b>Purchase, February 16 .....</b>	<b>105</b>
<b>Purchase, March 10 .....</b>	<b><u>150</u></b>
<b>Total units available.....</b>	<b>825</b>

**Units sold:**

<b>January 25.....</b>	<b>(216)</b>
<b>February 27 .....</b>	<b>(307)</b>
<b>March 30 .....</b>	<b>(190)</b>
<b>Total units sold .....</b>	<b><u>(713)</u></b>
<b>Ending inventory.....</b>	<b><u>112</u></b>

	<u>Units</u>	<u>Total Cost</u>
<b>Ending inventory.....</b>	<b>112(at NT\$28)</b>	<b>NT\$3,136</b>
<b>Cost of goods sold:</b>		
<b>Beginning inventory .....</b>	<b>460(at NT\$30)</b>	<b>NT\$13,800</b>
<b>Purchase, January 16 .....</b>	<b>110(at NT\$32)</b>	<b>3,520</b>
<b>Purchase, February 16 .....</b>	<b>105(at NT\$36)</b>	<b>3,780</b>
<b>Purchase, March 10 .....</b>	<b>38(at NT\$28)</b>	<b>1,064</b>
	<b>713</b>	<b><u>NT\$22,164</u></b>

**Or:**

<b>Cost of goods available for sale.....</b>	<b>NT\$25,300</b>
<b>Less ending inventory.....</b>	<b>3,136</b>
<b>Cost of goods sold .....</b>	<b><u>NT\$22,164</u></b>

**Gross margin:**

<b>Sales revenue.....</b>	<b>NT\$31,500*</b>
<b>Less cost of goods sold .....</b>	<b>22,164</b>
<b>Gross margin .....</b>	<b><u>NT\$ 9,336</u></b>

**\*Sales revenue:**

$$\begin{array}{l}
 216 \text{ at NT\$45=} \text{ NT\$ 9,720} \\
 307 \text{ at } 40= \text{ 12,280} \\
 190 \text{ at } 50= \text{ 9,500} \\
 \hline
 \text{NT\$31,500}
 \end{array}$$

**b. Weighted Average cost**

	<u>Units</u>	<u>Total Cost</u>
Beginning inventory .....	460 (at NT\$30)	NT\$13,800
Purchase, January 16 .....	110 (at NT\$32)	3,520
Purchase, February 16 .....	105 (at NT\$36)	3,780
Purchase, March 10 .....	150 (at NT\$28)	4,200
	<u>825</u>	<u>NT\$25,300</u>

$$\frac{\$25,300}{825} = \text{NT\$30.67 average cost (rounded)}$$

**Ending inventory:**

$$112 \text{ at NT\$30.67} = \underline{\text{NT\$3,435}}$$

**Cost of goods sold:**

Cost of goods available for sale .....	NT\$25,300
Less ending inventory .....	3,435
Cost of goods sold .....	<u>NT\$21,865</u>

**Gross margin:**

Sales revenue.....	NT\$31,500
Less cost of goods sold.....	21,865
Gross margin .....	<u>NT\$ 9,635</u>

2. In this case, the weighted average cost formula results in higher gross margin. The reason for this unusual result is that prices are neither going up nor going down consistently, but are moving randomly in both directions. Since the higher costs are the average costs (not the earliest), the weighted average cost formula keeps more of these costs in inventory than FIFO.

**1. FIFO**

Cases remaining .....	4,370
<b>Cost of goods available for sale:</b>	
5,100 at £10.50 .....	£ 53,550
1,210 at £12.00 .....	14,520
1,050 at £12.50 .....	13,125
<u>2,120</u> at £13.00 .....	<u>27,560</u>
<u>9,480</u>	<u>£ 108,755</u>

**P 7-10 (LO4) (Continued)****Cost of goods sold:**

$$\begin{aligned} 5,100 \text{ cases at } £10.50 &= £53,550 \\ 10 \text{ cases at } £12.00 &= \underline{120} \\ &\underline{\underline{£53,670}} \end{aligned}$$

<b>Cost of goods available for sale .....</b>	<b>£ 108,755</b>
<b>Cost of goods sold.....</b>	<b>53,670</b>
<b>Ending inventory .....</b>	<b><u>£ 55,085</u></b>

**2. Weighted Average cost**

<b>Cost of goods available for sale .....</b>	<b>£ 108,755</b>
<b>Total units available .....</b>	<b>÷ 9,480</b>
<b>Weighted average cost per unit .....</b>	<b><u>£ 11.47</u></b>

**Cost of goods sold:  $£11.47 \times 5,110 = £58,612$**

**Ending inventory:  $£108,755 - £58,612 = £50,143$**

**P7-11 (LO4) Determining and Analyzing Cost of Goods Sold and Ending Inventory Using FIFO and Weighted Average Cost Formulas****1. Cost of Goods Available for Sale**

<b>Beginning inventory.....</b>	<b>€ 31,500</b>
<b>3/5 purchases .....</b>	<b>+ 84,000</b>
<b>3/13 purchases .....</b>	<b>+108,000</b>
<b>3/21 purchases .....</b>	<b>+ 60,000</b>
<b>3/26 purchases .....</b>	<b>+ 66,000</b>
<b>Cost of goods available for sale .....</b>	<b><u>€349,500</u></b>

**2. (1) FIFO****Ending Inventory**

<b>Units (2,250+5,250+6,000+3,000+3,000-15,000).....</b>	<b>4,500</b>
<b>10/27 (3,000@€22+1,500@€20).....</b>	<b>€96,000</b>

**Cost of Goods Sold**

<b>Cost of goods available for sale .....</b>	<b>349,500</b>
<b>Ending Inventory .....</b>	<b>- 96,000</b>
<b>Cost of goods sold.....</b>	<b><u>€253,500</u></b>

**(2) Weighted average Cost**

**Weighted-Average cost per unit:  $349,500/19,500=17.92$**

**Ending Inventory**

(4,500@€17.92) ..... 80,640

<b>Cost of Goods Sold</b>	349,500
<b>Cost of goods available for sale</b>	.....
<b>Ending Inventory</b>	<u>- 80,640</u>
<b>Cost of goods sold</b>	<u>€268,860</u>

- (c) (1) As shown above, FIFO produces the higher inventory amount, €96,000.
- (2) As shown above, weighted average cost produces the higher cost of goods sold, €268,860

**P 7–12 (LO6)****Calculating and Interpreting Inventory Ratios**

1.

	<u>Inventory Turnover</u>	<u>Number of Days' Sales in Inventory</u>
<b>Captain Geech Boating</b>	$\frac{\$1,735 \text{ M}}{(\$462 \text{ M} + \$653 \text{ M})/2} = 3.11 \text{ times}$	$\frac{365}{3.11} = 117 \text{ days}$
<b>Merchant Marine</b>	$\frac{\$1,221 \text{ M}}{(\$120 \text{ M} + \$90 \text{ M})/2} = 11.63 \text{ times}$	$\frac{365}{11.63} = 31 \text{ days}$

2. The results of the ratios show that Captain Geech Boating has more than a third of the year's inventory on hand, while Merchant Marine has just over one month's inventory on hand. Captain Geech could be holding inventory longer because it is selling expensive boats, or the company could be carrying too much inventory. Both ratios show that Merchant Marine is managing its inventory more efficiently with a smaller amount of money tied up in inventory.

## ANALYTICAL ASSIGNMENTS

### AA 7-1 Why Use a Perpetual System?

#### Discussion

You should strongly recommend that Eddie switch inventory systems. Explain to him that the perpetual inventory system provides for continually updated inventory and cost of goods sold amounts, whereas the periodic inventory system calculates cost of goods sold and the amount of inventory actually on hand only at the end of the period. You should advise Eddie that although the perpetual inventory system is more time consuming and probably more expensive, it will assist him in identifying shrinkage by continuously tracking inventory; also it will aid in determining how much shoplifting and other theft is occurring. You should tell him that perhaps small businesses with small amounts of inventory can get by with the periodic inventory system, but that a business like his with large amounts of inventories would greatly benefit from the additional information the perpetual method provides. You should stress to him that, with the technology available today, the perpetual inventory records can easily be maintained and he can minimize inventory holding costs while maximizing customer satisfaction.

### AA 7-2 Should We Reduce Inventory?

#### Discussion

Your advice to Eddie should include the important point that although his business makes its profit by selling inventory, having too much inventory on hand can be very costly. Holding inventory costs money. If, for example, you make \$10 by selling one unit of inventory, but it costs \$3 to order and store the inventory, the profit shrinks to \$7. Assuming customer satisfaction, it is wise to hold just enough inventory to serve those customers. Wasting money on holding inventory is like any other kind of waste and should be eliminated.

## Chapter 7

**AA 7–3      You Decide: Should inventory be recorded at cost or net realizable value?****Judgment Call**

Issues to be discussed with this question are:

1. Unfortunately for Bill, inventory must be recorded at cost. He can provide note disclosure that states the nature of the inventory, what he believes the current market value is, and his methodology for determining that market value. However, for the financial statements to be presented in accordance with GAAP, only the historical costs of inventory can be recorded.
2. The issue of at what levels to report inventory is akin to the question of how to value marketable securities on the balance sheet. With marketable securities, sometimes market values can be used depending on the purpose for which the securities are being held. Such flexible accounting standards have not been issued for inventory.
3. If the market value of the inventory drops below its cost, however, the inventory must be written down to the lower of cost or net realizable value.

**AA 7–4      La-Z-Boy and McDonald's****Real Company Analysis**

1. Hopefully, students will realize that McDonald's number of days' sales in inventory should be very short (after all, we don't want to be fed lettuce and tomatoes that have been sitting around for 60 days), and that La-Z-Boy's number of days' sales in inventory is probably much longer.
2. Number of days' sales in inventory for McDonald's:

$$\$5,552.2 / [(\$110.0 + \$100.1)/2] = 52.85 \text{ times}$$

$$365 \text{ days} / 52.85 = 6.9 \text{ days}$$

Number of days' sales in inventory for La-Z-Boy:

$$\$921.142 / [(\$147.01 + \$156.79)/2] = 6.26 \text{ times} \quad 365 \text{ days} / 6.26 = 58.3 \text{ days}$$

3. The two companies deal with entirely different types of inventories. McDonald's inventory is perishable, so three days seems reasonable. La-Z-Boy, on the other hand, deals with furniture. Furniture is meant to last a long time, and changes in fashion make holding large furniture inventories risky. Fashion changes quickly, but not as quickly as hamburgers can spoil.

**AA 7–5      Why No LIFO?****International**

Students often think the American way is the way of the world. If inventory is accounted for a certain way in the United States, it must be accounted for the same way around the world. Not so with LIFO. With this case, students are forced to think about the consequences of using the LIFO inventory system.

This case asks students to think about specific issues. In periods of rising prices, a LIFO method will result in older inventory being disclosed on the balance sheet. In periods of prolonged rising prices, it is possible for very old inventory to be carried on the books even though that inventory was sold long ago.

In addition, should the company ever dip down into those old inventory layers, the result will be artificially high profits. This result would relate solely to accounting methods and not to firm performance.

As a result of this case, students should become familiar with the risks associated with LIFO and the care that must be taken in comparing financial statements of companies using different accounting methods.

## AA 7–6      Shipping Bricks

### Ethics

The company would make a journal entry debiting Accounts Receivable and crediting Sales. If the company was using a perpetual inventory system, it would also have to fabricate the purchase of inventory. Then, when the fictitious inventory was sold, an entry would be made debiting Cost of Goods Sold and crediting Inventory.

A fraud like this could not go on forever because the receivables would build up on the balance sheet. Without a real customer to pay the bill, the receivables balance would just get larger and larger. Eventually, someone would perform an analysis of the accounts receivable and determine that a large number of accounts were uncollectible.

In reviewing the financial statements, users would analyze changes in relationships among accounts. For example, cost of goods sold as a percentage of sales may be decreasing if fictitious inventory is being sold. Also, receivables as a percentage of total assets would be increasing at a faster than expected rate.

## Chapter 7

**EXPANDED MATERIAL****Discussion Questions**

20. The LIFO cost formula results in paying the lowest taxes when prices are rising. With LIFO, the most current costs (and the most expensive when prices are rising) flow to the statement of comprehensive income.
21. Although the costs of the units on hand and sold after each transaction are the same under FIFO perpetual and FIFO periodic, computation of weighted average cost and LIFO under a perpetual system changes every time a purchase is made. With a perpetual system, the exact timing of these purchases is tracked throughout the period; with a periodic system, the computations are made only at the end of the period.
22. When firms cannot count their inventory, they may use various methods to estimate the value of inventory. If a company uses the perpetual method of accounting for inventory and is preparing monthly or quarterly financial statements, the perpetual inventory balance is assumed to be correct. However, with the periodic method, an estimate must be made. The most common method of estimating inventory is the gross margin method. This method uses beginning inventory, purchases, sales, and the historical gross margin percentage to estimate cost of goods sold and ending inventory.

## Practice Exercises

**PE 7–25 (LO7)      LIFO Cost Formula**

	<u>Cameras</u>	<u>Costs</u>
<b>Beginning inventory</b>	<b>8</b>	<b>NT\$ 800</b>
<b>Net purchases</b>	<b>34</b>	<b>4,000</b>
<b>Goods available for sale</b>	<b>42</b>	<b>NT\$4,800</b>
<b>Ending inventory</b>	<b>16</b>	<b>1,680</b>
<b>Cost of goods sold</b>	<b>26</b>	<b>NT\$3,120</b>

**1. LIFO Cost of goods sold calculation (newest 26 units):**

4 cameras purchased October 3, NT\$110 each .....	NT\$ 440
7 cameras purchased October 14, NT\$115 each .....	805
15 cameras purchased on October 20, NT\$125 each .....	1,875
<b>Total cost of goods sold (26 units)</b> .....	<b>NT\$3,120</b>

**2. LIFO Ending inventory calculation (oldest 16 units):**

8 cameras from beginning inventory, NT\$100 each.....	NT\$ 800
8 cameras purchased October 3, NT\$110 each .....	880
<b>Total ending inventory (16 units)</b> .....	<b>NT\$1,680</b>

**PE 7–26 (LO8)      LIFO and a Perpetual Inventory System**
**LIFO**
**1. Cost of Goods Sold**
**2. Ending Inventory**

<b>January 16 (200 units)</b>	$200 \times \$17.50 = \$3,500$	$100 \times \$17.50 = \$1,750$
<b>July 23 (600 units)</b>	$600 \times \$18.00 = \$10,800$	$100 \times \$17.50 = \$1,750$
<b>November 1 (1,300 units)</b>	$1,200 \times \$18.25 = \$21,900$ $100 \times \$18.00 = \$1,800$ <b>Total = \$38,000</b>	$300 \times \$18.00 = \$5,400$ $100 \times \$17.50 = \$1,750$ $200 \times \$18.00 = \$3,600$ <b>Total = \$5,350</b>

**PE 7-27 (LO8)      Weighted Average Cost and a Perpetual Inventory System**

Weighted Average Cost	1. <u>Cost of Goods Sold</u>	2. <u>Ending Inventory</u>
January 16 (200 units)	$200 \times \$17.50 = \$3,500$	$100 \times \$17.50 = \$1,750$

**July 23 (600 units)**

$$\begin{array}{rcl} 100 \times \$17.50 & = & \$1,750 \\ 900 \times \$18.00 & = & 16,200 \\ \hline 1,000 & = & \$17,950 \end{array}$$

$$\$17,950/1,000 = \$17.95 \text{ per unit}$$

$$600 \times \$17.95 = \$10,770 \quad 400 \times \$17.95 = \$7,180$$

**November 1 (1,300 units)**

$$\begin{array}{rcl} 400 \times \$17.95 & = & \$7,180 \\ 1,200 \times \$18.25 & = & 21,900 \\ \hline 1,600 & = & \$29,080 \end{array}$$

$$\$29,080/1,600 = \$18.175 \text{ per unit}$$

$$1,300 \times \$18.175 = \$23,627.5 \quad 300 \times \$18.175 = \$5,452.5$$

$$\text{Total} = \$37,898$$

$$\text{Total} = \$5,452^*$$

\*Rounded

**PE 7-28 (LO9)      Estimating Inventory**

1. and 2.

	Last Year %	Two Years Ago %
Sales.....	\$6,500,000	\$6,500,000
Cost of goods sold (estimated).....	<u>2,600,000</u>	<u>2,275,000</u>
Gross margin (estimated).....	<u>\$3,900,000*</u>	<u>\$4,225,000**</u>
Beginning inventory .....	\$1,650,000	\$1,650,000
+ Purchases.....	<u>4,130,000</u>	<u>4,130,000</u>
= Cost of goods available for sale .....	\$5,780,000	\$5,780,000
- August 17 inventory (estimated) .....	<u>3,180,000</u>	<u>3,505,000</u>
= Cost of goods sold (estimated) .....	<u>\$2,600,000</u>	<u>\$2,275,000</u>

$$*60\% \times \$6,500,000 = \$3,900,000$$

$$**65\% \times \$6,500,000 = \$4,225,000$$

## Exercises

**E 7-23 (LO7)**

### LIFO under Periodic Inventory System

**Cost of Goods Sold**

<u>Ring Type</u>	<u>Units</u>	<u>Cost</u>	<u>Total Cost</u>
A	4	\$600	\$2,400
A	2	650	1,300
B	2	450	900
B	2	450	900
C	5	300	1,500
C	3	250	750
			<u><u>\$7,750</u></u>

Beginning inventory.....	<u><u>\$19,650</u></u>
Net purchases .....	<u><u>4,800</u></u>
Cost of goods available for sale .....	<u><u>\$24,450</u></u>
Cost of goods sold.....	<u><u>7,750</u></u>
Ending inventory .....	<u><u>\$16,700</u></u>

**E 7-24 (LO7)**
**Cost Formulas for Inventory**

1. FIFO
2. LIFO
3. FIFO
4. LIFO
5. FIFO

**E 7-25 (LO8)**
**FIFO, LIFO, and Weighted Average Cost Calculations  
(Perpetual Inventory System)**
**1. (a) FIFO****Cost of goods sold:**

First sale .....	4,000 units at \$2.00 =	\$ 8,000
Second sale .....	3,000 units at 2.00 =	6,000
Third sale .....	5,000 units at 2.00 =	<u>10,000</u>
		<u>\$24,000</u>

<u>Date</u>	<u>Transaction</u>	<u>Number of Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Remaining Inventory</u>	
					<u>Number of Units and Cost</u>	<u>Total Cost</u>
July 1	Beg. inventory	28,000	\$2.00	\$ 56,000	28,000 @ \$2.00	\$56,000
5	Sold	(4,000)	2.00	(8,000)	24,000 @ \$2.00	48,000
13	Purchased	6,000	2.25	13,500	24,000 @ \$2.00 6,000 @ \$2.25	61,500
17	Sold	(3,000)	2.00	(6,000)	21,000 @ \$2.00 6,000 @ \$2.25	55,500
25	Purchased	8,000	2.50	20,000	21,000 @ \$2.00 6,000 @ \$2.25 8,000 @ \$2.50	75,500
27	Sold	(5,000)	2.00	(10,000)	16,000 @ \$2.00 6,000 @ \$2.25 8,000 @ \$2.50	\$65,500 ending inventory

**(b) LIFO****Cost of goods sold:**

First sale .....	4,000 units at \$2.00 =	\$ 8,000
Second sale .....	3,000 units at 2.25 =	6,750
Third sale .....	5,000 units at 2.50 =	<u>12,500</u>
		<u>\$27,250</u>

<u>Date</u>	<u>Transaction</u>	<u>Number of Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Remaining Inventory</u>	
					<u>Number of Units and Cost</u>	<u>Total Cost</u>
July 1	Beg. inventory	28,000	\$2.00	\$ 56,000	28,000 @ \$2.00	\$56,000
5	Sold	(4,000)	2.00	(8,000)	24,000 @ \$2.00	48,000
13	Purchased	6,000	2.25	13,500	24,000 @ \$2.00 6,000 @ \$2.25	61,500
17	Sold	(3,000)	2.25	(6,750)	24,000 @ \$2.00 3,000 @ \$2.25	54,750
25	Purchased	8,000	2.50	20,000	24,000 @ \$2.00 3,000 @ \$2.25 8,000 @ \$2.50	74,750

27	Sold	(5,000)	2.50	(12,500)	24,000 @ \$2.00 3,000 @ \$2.25 3,000 @ \$2.50	\$62,250 ending inventory
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**(c) Weighted Average Cost**

July 1	Beginning inventory .....	28,000 units at \$2.00 =	<u>\$56,000</u>
5	Cost of goods sold.....	4,000 units at \$2.00 =	<u>\$ 8,000</u>
		24,000 units at \$2.00 =	<u>\$48,000</u>
13	New unit cost.....	6,000 units at \$2.25 =	<u>13,500</u>
		30,000 units	<u>\$61,500</u>
			$\$61,500/30,000 = \$2.05$ per unit
17	Cost of goods sold.....	3,000 units at \$2.05 =	<u>\$ 6,150</u>
		27,000 units at \$2.05 =	<u>\$55,350</u>
25	New unit cost.....	8,000 units at \$2.50 =	<u>20,000</u>
		35,000 units	<u>\$75,350</u>
			$\$75,350/35,000 = \$2.15^*$ per unit
27	Cost of goods sold.....	5,000 units at \$2.15 =	<u>\$10,750</u>
	Total cost of goods sold.....		<u>\$ 8,000</u>
			<u>6,150</u>
			<u>10,750</u>
			<u><u>\$24,900</u></u>

\*Rounded

Ending inventory \$89,500 – \$24,900 = \$64,600

2. Any of the three cost formulas can be “best,” depending on the objectives of the firm (such as high earnings or low taxes).

**E 7–26 (LO9)      Gross Margin Method of Estimating Inventory**

1.	Sales revenue .....	\$550,000
<b>Cost of goods sold:</b>		
	Beginning inventory .....	\$ 95,000
	Net purchases .....	<u>300,000</u>
	Cost of goods available for sale .....	\$395,000
	Less ending inventory (\$395,000 – \$330,000).....	<u>65,000</u>
	Cost of goods sold (\$550,000 – \$220,000).....	<u>330,000</u>
	Gross margin (0.40 × \$550,000).....	<u><u>\$220,000</u></u>

**E 7–26 (LO9) (Continued)**

2. The missing inventory could be a result of the following:
- Theft
  - A gross margin percentage lower than 40%. For example, if the gross margin percentage has fallen to 30%, the ending inventory would be only \$10,000.
  - Physical inventory counting mistakes
  - Accounting errors

**E 7–27 (LO9) Estimating Inventory Amounts (Gross Margin Method)**

Sales.....	\$80,000
<b>Cost of goods sold:</b>	
Beginning inventory .....	\$ 6,500
Net purchases .....	<u>48,000</u>
Cost of goods available for sale .....	\$54,500
Ending inventory.....	<u>2,500*</u>
Cost of goods sold.....	<u>52,000</u>
Gross margin ( $0.35 \times \$80,000$ ).....	<u>\$28,000</u>

\*\$54,500 – \$52,000

**E 7–28 (LO9) Estimating Inventory (Gross Margin Method)**

Sales.....	\$2,000,000
<b>Cost of goods sold:</b>	
Beginning inventory .....	\$ 300,000
Net purchases .....	<u>1,600,000</u>
Cost of goods available for sale .....	\$1,900,000
Ending inventory.....	<u>500,000*</u>
Cost of goods sold.....	<u>1,400,000</u>
Gross margin ( $0.30 \times \$2,000,000$ ).....	<u>\$ 600,000</u>

\*\$1,900,000 – \$1,400,000

Computed ending inventory.....	\$500,000
Actual ending inventory .....	<u>450,000</u>
Missing inventory.....	<u>\$ 50,000</u>

## Chapter 7

E 7-29 (LO9)

## Estimated Inventory (Retail Inventory Method)

**Goods available for sale at cost = NT\$52,500 + NT\$141,750 = NT\$194,250****Goods available for sale at retailing price = NT\$143,200 + NT\$411,800  
= NT\$555,000****Cost-to-retail percentage = NT\$194,250/NT\$555,000=35%****Cost of goods sold = NT\$488,700 X 35% = NT\$171,045****Cost of ending inventory = NT\$194,250 – NT\$171,045 = NT\$23,205**

E 7-30 (LO9)

## Estimated Inventory (Retail Inventory Method)

**1. Goods available for sale at cost = NT\$313,500 + NT\$1,202,280 = NT\$1,515,780****Goods available for sale at retailing price = NT\$773,450 + NT\$3,236,550  
= NT\$4,010,000****Cost-to-retail percentage = NT\$1,515,780/NT\$4,010,000= 37.8%****Cost of goods sold = (NT\$3,788,000 – NT\$38,000) 37.8% = NT\$1,417,500****Cost of ending inventory = NT\$1,515,780 – NT\$1,417,500 = NT\$98,280****2. NT\$90,150 – NT\$98,280 = NT\$(8,130)**

## Problems

**P 7-13 (LO7)**

### **LIFO under Periodic System**

**LIFO**

	<u>Units</u>	<u>Total Cost</u>
<b>Ending inventory.....</b>	<b>112 (at \$30)</b>	<b>\$3,360</b>
<b>Cost of goods sold:</b>		
<b>Purchase, March 10 .....</b>	<b>150 (at \$28)</b>	<b>\$ 4,200</b>
<b>Purchase, February 16 .....</b>	<b>105 (at \$36)</b>	<b>3,780</b>
<b>Purchase, January 16 .....</b>	<b>110 (at \$32)</b>	<b>3,520</b>
<b>Beginning inventory .....</b>	<b>348 (at \$30)</b>	<b>10,440</b>
	<b>713</b>	<b><u>\$21,940</u></b>

*Or:*

<b>Cost of goods available for sale.....</b>	<b>\$25,300</b>
<b>Less ending inventory.....</b>	<b>3,360</b>
<b>Cost of goods sold .....</b>	<b><u>\$21,940</u></b>
<b>Gross margin:</b>	
<b>Sales revenue.....</b>	<b>\$31,500</b>
<b>Less cost of goods sold.....</b>	<b>21,940</b>
<b>Gross margin .....</b>	<b><u>\$ 9,560</u></b>

**P 7-14 (LO7)**

### **LIFO under Periodic System**

**LIFO**
**Cost of goods sold:**

<b>2,120 cases at \$13.00 =</b>	<b>\$27,560</b>
<b>1,050 cases at \$12.50 =</b>	<b>13,125</b>
<b>1,210 cases at \$12.00 =</b>	<b>14,520</b>
<b>730 cases at \$10.50 =</b>	<b>7,665</b>
	<b><u>\$62,870</u></b>

<b>Cost of goods available for sale .....</b>	<b>\$108,755</b>
<b>Cost of goods sold.....</b>	<b>62,870</b>
<b>Ending inventory .....</b>	<b><u>\$ 45,885</u></b>

**Chapter 7**
**P 7–15 (LO8) Unifying Concepts: Cost Formulas for Inventory**
**1. FIFO**

Total cases available.....		8,300
Total cases sold .....		<u>4,300</u>
Total cases remaining.....		<u>4,000</u>
<b>Cost of goods available for sale:</b>		
4,100 at   \$10.50 = \$43,050		
1,500 at   11.00 = 16,500		
1,000 at   11.00 = 11,000		
1,700 at   11.50 = <u>19,550</u>		
<u>\$90,100</u>		

**Cost of goods sold:**

First sale .....	950 cases at \$10.50 = \$ 9,975
Second sale .....	1,450 cases at 10.50 = 15,225
Third sale .....	1,700 cases at 10.50 = 17,850
	200 cases at 11.00 = <u>2,200</u>
	<u>\$45,250</u>

Cost of goods available for sale .....	\$90,100
Cost of goods sold.....	<u>45,250</u>
Ending inventory .....	<u>\$44,850</u>

**2. LIFO**
**Cost of goods sold:**

First sale .....	950 cases at \$11.00 = \$10,450
Second sale .....	1,000 cases at 11.00 = 11,000
	450 cases at 11.00 = 4,950
Third sale .....	1,700 cases at 11.50 = 19,550
	100 cases at 11.00 = 1,100
	100 cases at 10.50 = <u>1,050</u>
	<u>\$48,100</u>

Cost of goods available for sale .....	\$90,100
Cost of goods sold.....	<u>48,100</u>
Ending inventory .....	<u>\$42,000</u>

**P 7-15 (LO8)**
**(Continued)**
**Chapter 7**
**3. Weighted average cost**

Aug. 4	<b>New cost per unit</b>	=	4,100 at \$10.50 1,500 at 11.00 5,600	=	\$43,050 16,500 <u>\$59,550</u>
	<b>\$59,550/5,600 units</b>	=	<b>\$10.63 per unit</b>		
Aug. 13	<b>New cost per unit</b>	=	4,650 at \$10.63 1,000 at 11.00 5,650	=	\$49,430 11,000 <u>\$60,430</u>
	<b>\$60,430/5,650 units</b>	=	<b>\$10.70 per unit</b>		
Aug. 26	<b>New cost per unit</b>	=	4,200 at \$10.70 1,700 at 11.50 5,900	=	\$44,940 19,550 <u>\$64,490</u>
	<b>\$64,490/5,900 units</b>	=	<b>\$10.93 per unit</b>		

**Cost of goods sold:**

\$ 90,100

- 43,720

**(4,000 cases at \$10.93 per case) Ending inventory**

**Cost of goods sold**

**P 7-16 (LO8)**
**Perpetual Inventory System with Different Cost Formulas**
**Cost of goods available for sale (Same under all cost formulas)**

	<b>Unit Cost</b>	<b>Number of Units</b>	<b>Amount</b>
<b>Beginning inventory</b>	<b>\$30</b>	<b>460</b>	<b>\$13,800</b>
<b>Purchases</b>	<b>32</b>	<b>110</b>	<b>3,520</b>
	<b>36</b>	<b>105</b>	<b>3,780</b>
	<b>28</b>	<b>150</b>	<b>4,200</b>
		<b><u>825</u></b>	<b><u>\$25,300</u></b>

**Chapter 7**
**P 7–16 (LO8) (Continued)**
**1. a. FIFO**

<u>Date</u>	<u>Transaction</u>	<u>Number of Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Remaining Inventory</u>	
					<u>Number of Units and Cost</u>	<u>Total Cost</u>
Jan. 1	Beg. inventory	460	\$30	\$13,800	460 @ \$30	\$13,800
16	Purchase	110	32	3,520	460 @ \$30 110 @ \$32	17,320
25	Sale	(216)	30	(6,480)	244 @ \$30 110 @ \$32	10,840
Feb. 16	Purchase	105	36	3,780	244 @ \$30 110 @ \$32 105 @ \$36	14,620
27	Sale	(307)	244 @ \$30 63 @ \$32	(9,336)	47 @ \$32 105 @ \$36	5,284
Mar. 10	Purchase	150	28	4,200	47 @ \$32 105 @ \$36 150 @ \$28	9,484
30	Sale	(190)	47 @ \$32 105 @ \$36 38 @ \$28	(6,348)	112 @ \$28	<u>\$ 3,136</u>

**Sales (Same under all assumptions)**

$$\begin{aligned}
 216 @ \$45 &= \$ 9,720 \\
 307 @ \$40 &= 12,280 \\
 190 @ \$50 &= \underline{\underline{9,500}} \\
 &\quad \underline{\underline{\$31,500}}
 \end{aligned}$$

Sales.....	\$31,500
Cost of goods available for sale .....	<u>\$25,300</u>
Ending inventory .....	<u>3,136</u>
Cost of goods sold.....	<u>22,164</u>
Gross margin.....	<u><u>\$ 9,336</u></u>

**P 7–16 (LO8) (Continued)****b. LIFO**

<u>Date</u>	<u>Transaction</u>	<u>Number of Units</u>	<u>Unit Cost</u>	<u>Total Cost</u>	<u>Remaining Inventory</u>	
					<u>Number of Units and Cost</u>	<u>Total Cost</u>
Jan. 1	Beg. inventory	460	\$30	\$13,800	460 @ \$30	\$13,800
16	Purchase	110	32	3,520	460 @ \$30 110 @ \$32	17,320
25	Sale	(216)	110 @ \$32 106 @ \$30	(6,700)	354 @ \$30	10,620
Feb. 16	Purchase	105	36	3,780	354 @ \$30 105 @ \$36	14,400
27	Sale	(307)	105 @ \$36 202 @ \$30	(9,840)	152 @ \$30	4,560
Mar. 10	Purchase	150	28	4,200	152 @ \$30 150 @ \$28	8,760
30	Sale	(190)	150 @ \$28 40 @ \$30	(5,400)	112 @ \$30	\$ 3,360

Sales.....	\$31,500
Cost of goods available for sale .....	<u>\$25,300</u>
Ending inventory .....	<u>3,360</u>
Cost of goods sold.....	<u>21,940</u>
Gross margin.....	<u>\$ 9,560</u>

**c. Weighted average cost**

<u>Date</u>	<u>Transaction</u>	<u>Number of Units and Cost</u>	<u>Total Cost<sup>†</sup></u>	<u>Average Cost</u>
Jan. 1	Beg. inventory	460 @ \$30	\$13,800	
16	Purchase	110 @ \$32	<u>3,520</u>	
	Average cost	(\$17,320 ÷ 570 units)	\$17,320	\$30.39
25	Sale	(216 @ \$30.39)	<u>(6,564)</u>	
	Remaining inventory	354 @ \$30.39	\$10,756	
Feb. 16	Purchase	105 @ \$36	<u>3,780</u>	
		(\$14,536 ÷ 459 units)	\$14,536	\$31.67
27	Sale	(307 @ \$31.67)	<u>(9,723)</u>	
	Remaining inventory	152 @ \$31.67	\$ 4,813	
Mar. 10	Purchase	150 @ \$28	<u>4,200</u>	
		(\$9,013 ÷ 302 units)	\$ 9,013	\$29.84
30	Sale	(190 @ \$29.84)	<u>(5,670)</u>	
	Remaining inventory	112 @ \$29.84	\$ 3,343	

<sup>†</sup>Differences due to rounding.

## Chapter 7

**P 7–16 (LO8) (Continued)**

Sales.....	\$31,500
Cost of goods available for sale .....	<u>\$25,300</u>
Ending inventory .....	<u>3,343</u>
Cost of goods sold.....	<u>21,957</u>
Gross margin.....	<u><u>\$ 9,543</u></u>

2. LIFO results in the highest gross margin because it includes the full amount of the lowest cost (\$28) in Cost of Goods Sold.

**P 7–17 (LO9) Unifying Concepts: Inventory Estimation Methods**

## 1. Gross Margin Method:

Sales revenue .....	\$410,000
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## Cost of goods sold:

Beginning inventory .....	\$ 60,000
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Net purchases .....	<u>215,000</u>
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Cost of goods available for sale.....	<u>\$275,000</u>
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Ending inventory (\$275,000 – \$221,400) .....	<u>53,600</u>
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Cost of goods sold (\$410,000 – \$188,600).....	<u>221,400</u>
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Gross margin (\$410,000 × 0.46).....	<u><u>\$188,600</u></u>
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The cost of the ending inventory using the gross margin method is \$53,600.

## 2. Goods available for sale at cost = \$60,000 + \$215,000 = \$275,000

$$\begin{aligned} \text{Goods available for sale at retailing price} &= \$95,000 + \$400,000 \\ &= \$495,000 \end{aligned}$$

$$\text{Cost-to-retail percentage} = \$275,000 / \$495,000 = 55.6\%$$

$$\text{Cost of goods sold} = \$410,000 \times 55.6\% = \$227,960$$

$$\text{Cost of ending inventory} = \$275,000 - \$227,960 = \$47,040$$

## ANALYTICAL ASSIGNMENTS

### AA 7-7 General Electric

#### Real Company Analysis

1. a. Number of days' sales in inventory using FIFO  
$$\$59,905/[(\$17,751 + \$22,309)/2] = 2.99 \text{ times}$$
$$365 \text{ days}/2.99 = 122.07 \text{ days}$$
- b. Number of days' sales in inventory using LIFO  
$$\$59,905/[(\$17,689 + \$22,515)/2] = 2.98 \text{ times}$$
$$365 \text{ days}/2.98 = 122.48 \text{ days}$$

In periods of low inflation, the differences between LIFO and FIFO may not result in large differences in inventory computations. However, in periods of sharply rising prices, the differences can be dramatic.

2. If it takes GE between 89 and 93 days to sell its inventory while vendors expect payment in 30 days, then GE is going to have to finance the remaining 59 to 63 days out of its own pocket or by borrowing. If GE sells inventory on account, then the firm must wait even longer before it receives money to pay for the inventory, thereby making the problem even more severe.

## Chapter 7

## SOLUTIONS TO "STOP & THINK"

**Stop & Think (p. 264):** Should the returned inventory be recorded at its original cost of \$10 per shirt?

The original cost of the shirts was \$10. However, the fact that customers have returned them may mean that something is wrong with the shirts. If the shirts are damaged and can be sold for, say, \$6, then they should be recorded at no more than this \$6 amount. Recording inventory at less than its original cost is discussed in the expanded material section of this chapter.