**CHAPTER 7**

**Answers to EOC Questions, Mini-Exercises, Multiple Choice Questions,**

**and Assigned Exercises and Problems.**

ANSWERS TO QUESTIONS

1. Inventory often is one of the largest amounts listed under assets on the balance sheet which means that it represents a significant amount of the resources available to the business. The inventory may be excessive in amount, which is a needless waste of resources; alternatively it may be too low, which may result in lost sales. Therefore, for internal users inventory control is very important. On the income statement, inventory exerts a direct impact on the amount of income. Therefore, statement users are interested particularly in the amount of this effect and the way in which inventory is measured. Because of its impact on both the balance sheet and the income statement, it is of particular interest to all statement users.

2. Fundamentally, inventory should include those items, and only those items, legally owned by the business. That is, inventory should include all goods that the company owns, regardless of their particular location at the time.

3. The cost principle governs the measurement of the ending inventory amount. The ending inventory is determined in units and the cost of each unit is applied to that number. Under the cost principle, the unit cost is the sum of all costs incurred in obtaining one unit of the inventory item in its present state.

4. Goods available for sale is the sum of the beginning inventory and the amount of goods purchased during the period. Cost of goods sold is the amount of goods available for sale less the ending inventory.

5. Beginning inventory is the stock of goods on hand (in inventory) at the start of the accounting period. Ending inventory is the stock of goods on hand (in inventory) at the end of the accounting period. The ending inventory of one period automatically becomes the beginning inventory of the next period.

6. (a) **Average cost**–This inventory costing method in a periodic inventory system is based on a weighted-average cost for the entire period. At the **end** of the accounting period the average cost is computed by dividing the goods available for sale **in units** into the cost of goods available for sale **in dollars**. The computed unit cost then is used to determine the cost of goods sold for the period by multiplying the units sold by this average unit cost. Similarly, the ending inventory for the period is determined by multiplying this average unit cost by the number of units on hand.

(b) **FIFO**–This inventory costing method views the first units purchased as the first units sold. Under this method cost of goods sold is costed at the oldest unit costs, and the ending inventory is costed at the newest unit costs.

(c) **LIFO**–This inventory costing method assumes that the last units purchased are the first units sold. Under this method cost of goods sold is costed at the newest unit costs and the ending inventory is costed at the oldest unit costs.

(d) **Specific identification**–This inventory costing method requires that each item in the beginning inventory and each item purchased during the period be identified specifically so that its unit cost can be determined by identifying the specific item sold. This method usually requires that each item be marked, often with a code that indicates its cost. When it is sold, that unit cost is the cost of goods sold amount. It often is characterized as a pick-and-choose method. When the ending inventory is taken, the specific items on hand, valued at the cost indicated on each of them, is the ending inventory amount.

7. The specific identification method of inventory costing is subject to manipulation. Manipulation is possible because one can, at the time of each sale, select (pick and choose) from the shelf the item that has the highest or the lowest (or some other) unit cost with no particular rationale for the choice. The rationale may be that it is desired to influence, by arbitrary choice, both the amount of income and the amount of ending inventory to be reported on the financial statements. To illustrate, assume item A is stocked and three are on the shelf. One cost $100; the second one cost $115; and the third cost $125. Now assume that one unit is sold for $200. If it is assumed arbitrarily that the first unit is sold, the gross profit will be $100; if the second unit is selected, the gross profit will be $85; or alternatively, if the third unit is selected, the gross profit will be $75. Thus, the amount of gross profit (and income) will vary significantly depending upon which one of the three is selected arbitrarily from the shelf for this particular sale. This assumes that all three items are identical in every respect except for their unit costs. Of course, the selection of a different unit cost, in this case, also will influence the ending inventory for the two remaining items.

8. **LIFO and FIFO** have opposite effects on the inventory amount reported under assets on the balance sheet. The ending inventory is based upon either the oldest unit cost or the newest unit cost, depending upon which method is used. Under **FIFO**, the ending inventory is costed at the newest unit costs, and under **LIFO**, the ending inventory is costed at the oldest unit costs. Therefore, when prices are rising, the ending inventory reported on the balance sheet will be higher under **FIFO** than under **LIFO**. Conversely, when prices are falling the ending inventory on the balance sheet will be higher under **LIFO** than under **FIFO**.

9. **LIFO** versus **FIFO** will affect the income statement in two ways: (1) the amount of cost of goods sold and (2) income. When the prices are rising, **FIFO** will give a lower cost of goods sold amount and hence a higher income amount than will **LIFO**. In contrast, when prices are falling, **FIFO** will give a higher cost of goods sold amount and, as a result, a lower income amount.

10. When prices are rising, **LIFO** causes a lower taxable income than does **FIFO**. Therefore, when prices are rising, income tax is less under **LIFO** than **FIFO**. A lower tax bill saves cash (reduces cash outflow for income tax). The total amount of cash saved is the difference between **LIFO** and **FIFO** inventory amounts multiplied by the income tax rate.

11. LCM is applied when market (defined as current replacement cost) is lower than the cost of units on hand. The ending inventory is valued at market (lower), which (a) reduces net income and (b) reduces the inventory amount reported on the balance sheet. The effect of applying LCM is to include the **holding loss** on the income statement (as a part of CGS) in the period in which the replacement cost drops below cost rather than in the period of actual sale.

12. When a perpetual inventory system is used, the unit cost must be known for each item sold at the date of each sale because at that time two things happen: (a) the units sold and their costs are removed from the perpetual inventory record and the new inventory balance is determined; (b) the cost of goods sold is determined from the perpetual inventory record and an entry in the accounts is made as a debit to Cost of Goods Sold and a credit to Inventory. In contrast, when a periodic inventory system is used the unit cost need not be known at the date of each sale. In fact, the periodic system is designed so that cost of goods sold for each sale is not known at the time of sale. At the end of the period, under the periodic inventory system, cost of goods sold is determined by adding the beginning inventory to the total goods purchased for the period and subtracting from that total the ending inventory amount. The ending inventory amount is determined by means of a physical inventory count of the goods remaining on hand and with the units valued on a unit cost basis in accordance with the cost principle (by applying an appropriate inventory costing method).

ANSWERS TO MULTIPLE CHOICE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 1. c) | 1. d) | 1. a) | 1. a) | 1. c) |
| 1. c) | 1. a) | 1. c) | 1. c) | 1. a) |

MINI-EXERCISES

**M7–1.**

***Type of Business***

***Type of Inventory Merchandising Manufacturing***

Work in process X

Finished goods X

Merchandise X

Raw materials X

**M7–2.**

To record the purchase of 90 new shirts in accordance with the cost principle (perpetual inventory system):

Inventory (­+A) 2,150

Cash (−A) 2,150

Cost: $1,800 + $185 + $165 = $2,150.

The $108 interest expense is not a proper cost of the merchandise; it is recorded as prepaid interest expense and later as interest expense.

**M7–3.**

|  |  |  |
| --- | --- | --- |
|  | **(1) Part of inventory** | **(2) Expense as incurred** |
| a. Wages of factory workers | X |  |
| b. Costs of raw materials purchased | X |  |
| c. Sales salaries |  | X |
| d. Heat, light, and power for the factory building | X |  |
| e. Heat, light, and power for the headquarters office building |  | X |

**M7–4.**

*Computation*: Simply rearrange the basic inventory model (BI + P – EI = CGS):

Cost of goods sold $11,042 million

+ Ending inventory 2,916 million

– Beginning inventory (3,213) million Purchases $10,745 million

**M7–5.**

|  |  |  |
| --- | --- | --- |
| (a) | Declining costs |  |
|  | Highest net income | LIFO |
|  | Highest inventory | LIFO |
| (b) | Rising costs |  |
|  | Highest net income | FIFO |
|  | Highest inventory | FIFO |

**M7–6.**

LIFO is often selected when costs are rising because it reduces the company’s tax liability which increases cash and benefits shareholders. However, it also reduces reported net income.

**M7–7.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Quantity** | **Cost per  Item** | **Replacement Cost per Item** | **Lower of Cost or Market** | **Reported on Balance Sheet** |
| Item A | 70 | $ 110 | $100 | $100 | 70 x $100 = $7,000 |
| Item B | 30 | 60 | 85 | 60 | 30 x $60 = $1,800 |
| Total |  |  |  |  | $8,800 |

**M7–8.**

|  |  |  |
| --- | --- | --- |
| + | (*a*) | Parts inventory delivered daily by suppliers instead of weekly. |
| NE | (*b*) | Extend payments for inventory purchases from 15 days to 30 days. |
| + | (*c*) | Shorten production process from 10 days to 8 days. |

**M7–9.**

Understatement of the 2014 ending inventory by $50,000 caused 2014 pretax income to be understated and 2015 pretax income to be overstated by the same amount. Overstatement of the 2014 ending inventory would have the opposite effect; that is, 2014 pretax income would be overstated by $50,000 and 2015 pretax income understated by $50,000. Total pretax income for the two years combined would be correct.

**EXERCISES**

**E7–9.**

Req. 1

**Average**

**Units FIFO LIFO Cost**

**Cost of goods sold**:

Beginning inventory 2,000 $ 76,000 $ 76,000 $ 76,000

Purchases 8,000 320,000 320,000 320,000

Goods available for sale 10,000 396,000 396,000 396,000

Ending inventory\* 1,800 72,000 68,400 71,280

Cost of goods sold\*\* 8,200 $324,000 $327,600 $324,720

**Average**

**Income statement FIFO LIFO Cost**

Sales revenue $615,000 $615,000 $615,000

Cost of goods sold 324,000 327,600 324,720

Gross profit 291,000 287,400 290,280

Expenses 194,500 194,500 194,500

Pretax income 96,500 92,900 95,780

Income tax expense (30%) 28,950 27,870 28,734

Net income $ 67,550 $ 65,030 $ 67,046

\*Ending inventory computations:

FIFO: 1,800 units @ $40 = $72,000.

LIFO: 1,800 units @ $38 = $68,400.

Average: [(2,000 units @ $38) + (8,000 units @ $40)] ÷ 10,000 units =

$396,000 ÷ 10,000 units = $39.60 per unit.

$39.60 x 1,800 units = $71,280.

\*\*Cost of goods sold computations:

FIFO: (2,000 units @ $38) + (6,200 units @ $40) = $324,000.

LIFO: (8,000 units @ $40) + (200 units @ $38) = $327,600.

Average: [(8,000 units @ $38) + (8,000 units @ $40)] =

$396,000 ÷ 10,000 units = $39.60 per unit.

8,200 units @ $39.60 = $324,720.

Req. 2

FIFO produces a more favorable (higher) net income because when prices are rising it gives a lower cost of goods sold amount. FIFO allocates the old (lower) unit costs to cost of goods sold.

LIFO produces a more favorable cash flow than FIFO because, when prices are rising, it produces a higher cost of goods sold amount and lower taxable income and, therefore, lower income tax expense for the period. Cash outflow is less under LIFO by

**E7–9. (continued)**

the amount of income tax reduction. LIFO causes these comparative effects because it allocates the new (higher) unit costs to cost of goods sold.

Req. 3

When prices are falling, the opposite effect occurs–LIFO produces higher net income and less favorable cash flow than does FIFO.

**E7–12.**

Req. 1

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Quantity** | **Total Cost** | | | | **Total Market** | | | | **LCM Valuation** |
| A | 30 | x | $20 | = | $ 600 | x | $15 | = | $ 450 | $ 450 |
| B | 55 | x | 40 | = | 2,200 | x | 44 | = | 2,420 | 2,200 |
| C | 35 | x | 52 | = | 1,820 | x | 55 | = | 1,925 | 1,820 |
| D | 15 | x | 27 | = | 405 | x | 32 | = | 480 | 405 |
|  | Total |  |  |  | $5,025 |  |  |  | $5,275 | $4,875 |

Inventory valuation that should be used (LCM) $4,875

Req. 2

The write-down to lower of cost or market will increase cost of goods sold expense by the amount of the write-down, $150:

Total Cost − LCM Valuation = Write-down

$5,025 − $4,875 = $150 Write-down

**E7–13.**

Req. 1

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Inventory turnover | = | Cost of Goods Sold | = | $48,260 | = | 35.68 |
|  |  | Average Inventory |  | ($1,301+$1,404)/2 |  |  |

Average days to sell inventory = 365 / inventory turnover = 365 / 35.68 = 10.2 days

Req. 2

The inventory turnover ratio reflects how many times average inventory was produced and sold during the period. Thus, Dell produced and sold its average inventory nearly 36 times during the year.

The average days to sell inventory indicates the average time it takes the company to produce and deliver inventory to customers. Thus, Dell takes an average of about 10.2 days to produce and deliver its computer inventory to its customers.

**E7–16.**

Req. 1 Net Income for 2014 will be Overstated. An understatement of purchases produces an understatement of cost of goods sold which produces an overstatement of the current period’s income.

BI + P - EI = CGS

Understate Understate

Req. 2 Net Income for 2015 will be Understated. An overstatement of purchases produces an overstatement of cost of goods sold which produces an understatement of the current period’s income.

BI + P - EI = CGS

Overstate Overstate

Req. 3 Retained Earnings for December 31, 2014, will be Overstated because of the overstatement of Net Income for 2014.

Req. 4 Retained Earnings for December 31, 2015, will be Correct because the overstatement of Net Income for 2014 and understatement of Net Income for 2015 will offset one another.

**E7–18.**

Req. 1

The $600 understatement of ending inventory produced pretax income amounts that were incorrect by the amount of $600 for each quarter. However, the effect on pretax income for each quarter was opposite (i.e., the first quarter pretax income was understated by $600, and in the second quarter it was overstated by $600). This self-correcting produces a correct combined income for the two quarters.

Req. 2

The error caused the pretax income for each quarter to be incorrect [see (1) above]; therefore, it produced incorrect EPS amounts for each quarter.

Req. 3

**First Quarter Second Quarter**

Sales revenue $11,000 $18,000

Cost of goods sold:

Beginning inventory $4,000 $ 4,400

Purchases 3,000 13,000

Goods available for sale 7,000 17,400

Ending inventory 4,400 9,000

Cost of goods sold 2,600 8,400

Gross profit 8,400 9,600

Expenses 5,000 6,000

Pretax income $3,400 $3,600

Req. 4

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1st Quarter** | | | **2nd Quarter** | | |
|  | **Incorrect** | **Correct** | **Error** | **Incorrect** | **Correct** | **Error** |
| Beginning inventory | $4,000 | $4,000 | No error | $3,800 | $4,400 | $600 under |
| Ending inventory | 3,800 | 4,400 | $600 under | 9,000 | 9,000 | No error |
| Cost of goods sold | 3,200 | 2,600 | 600 over | 7,800 | 8,400 | 600 under |
| Gross profit | 7,800 | 8,400 | 600 under | 10,200 | 9,600 | 600 over |
| Pretax income | 2,800 | 3,400 | 600 under | 4,200 | 3,600 | 600 over |

CASES AND PROJECTS

### ANNUAL REPORT CASES

**CP7–1**

Req. 1

The company held $378,426 thousand of merchandise inventory at the end of the current year. This is disclosed on the balance sheet.

Req. 2

The company purchased $2,108,695 thousand during the current year. The beginning and ending inventory balances are disclosed on the balance sheet and cost of goods sold is disclosed on the income statement. Purchases during the year can be computed by rearranging the basic inventory equation (BI + P – EI = CGS) or using a T-account:

Cost of goods sold $2,031,477 thousand

+ Ending inventory 378,426 thousand

– Beginning inventory (301,208) thousand

Purchases $2,108,695 thousand

|  |  |  |  |
| --- | --- | --- | --- |
| **Inventory** | | | |
| Beg. Balance | 301,208 |  |  |
| Purchases | 2,108,695 | 2,031,477 | Cost of goods sold |
| End. Balance | 378,426 |  |  |

Req. 3

The company uses the average cost method to determine the cost of its inventory. This is disclosed in Note 2 under “Merchandise Inventory.” It indicates that inventory is valued at the lower of average cost or market.

Req. 4

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | **American Eagle Outfitters** | | | | |
|  | Inventory | = | Cost of Goods Sold |  |  | $2,031,477 | = | 5.98 |  |
|  | Turnover |  | Average Inventory |  |  | 339,817\* |  |  |  |

\*(301,208 + $378,426) / 2

It indicates how many times the average inventory was purchased and sold during the year.

**CP7–7.**

To: The Files

From: The New Staff Member

Re: Effect of restatement

1. The Company understated purchases by $47.3 million. This causes cost of goods sold to be understated and pre-tax income to be overstated by $47.3 million. Net income is overstated by that amount times 1 – tax rate:

$47.3 x (1 – .404) = $28.2 million overstatement

2. The restatement of the purchases caused the board to rescind management’s bonuses. Accordingly, pre-tax income will increase by $2.2 million, and net income will increase by that amount times 1 – tax rate.

$2.2 x (1 – .404) = $1.3 million increase

3. If it is assumed that bonuses are a fixed portion of net income, the bonus rate can be roughly estimated using the amounts computed in parts 1 and 2.

Change in bonus = Bonus rate per dollar of net income

Change in net income

$2.2 million = $.078 per dollar of net income (or 7.8%)

$28.2 million

4. The Board likely tied management compensation to net income to align the interests of management with that of shareholders. Typically, increases in net income will fuel a rise in the stock price. This type of compensation scheme does create the possibility that unethical management may alter the financial results to receive higher bonuses.