

INVENTORY

Key Topics to Know

Ownership:

Inventory owned by the purchaser, regardless of location or possession, includes

- Owned inventory at the company's location
- Inventory purchased FOB Shipping Point and still in-transit from the seller
- Inventory sold FOB Destination and still in-transit to the seller
- Owned inventory on consignment to others

Physical Inventory:

- Inventory is physically counted to determine the actual quantity on hand.
- The units of inventory physical counted are then valued at cost to determine the value of inventory that SHOULD be recorded in the general ledger.
- Any difference between the general ledger balance and the value of the physical inventory is recorded as shrinkage.

Inventory Methods:

- Periodic Inventory:
 - A separate general ledger account is used for each type of inventory transaction.
 - Cost of goods sold transactions are ignored during the period and recorded only at the end of the period.
 - Merchandise inventory balance in the general ledger is not updated until the end of the period and does NOT represent the value of inventory on hand.
- Perpetual Inventory:
 - All inventory transactions are recorded in a single merchandise inventory account in the general ledger.
 - Cost of goods sold transactions are recorded as incurred throughout the period.
 - All inventory transactions are recorded as incurred, constantly updating the value of inventory in the general ledger which represents the value of inventory on hand.

Inventory Cost:

- Cost is the total resources given up to acquire inventory and move it to the purchaser's place of business.
- Cost may be assigned to units of inventory in one of four ways:
 - Specific identification
 - First-In, First Out (FIFO)
 - Last-In, First-Out (LIFO)
 - Weighted Average Cost
- The actual application of these methods will vary depending on whether a perpetual or periodic inventory system is used.

Lower of Cost or Market:

- Over time, however, the cost of replacing the inventory with the same type of inventory (market cost) may fall below purchase cost.
- This decline in inventory value must be recorded when it is known.

Inventory Turnover and Days in Inventory Ratios

- All turnover ratios have the same format:
$$\frac{\text{Income statement account balance}}{\text{Average balance sheet account balance}}$$
- Therefore Inventory Turnover ratio is:
$$\frac{\text{Cost of Goods Sold}}{\text{Average inventory}}$$
- Days in Inventory is:
$$\frac{365}{\text{Inventory Turnover}}$$

Practice Problems

Problem #1 - Perpetual inventory using FIFO

S Company uses a perpetual inventory system. Inventory, purchases, and sales data were as follows for the first 10 months of the year.

January 1	Inventory	45 units	\$10.00
February 15	Sale	25 units	
March 10	Purchase	50 units	\$9.00
May 30	Sale	50 units	
July 31	Purchase	25 units	\$8.00
October 1	Sale	15 units	

Required: Determine the cost of the merchandise sold and the value of the ending inventory using the first-in, first-out method.

Problem #2 - Perpetual inventory using LIFO

K Company uses a perpetual inventory system. Inventory, purchases, and sales data were as follows for the first 10 months of the year.

January 1	Inventory	45 units	\$10.00
February 15	Sale	25 units	
March 10	Purchase	50 units	\$9.00
May 30	Sale	50 units	
July 31	Purchase	25 units	\$8.00
October 1	Sale	15 units	

Required: Determine the cost of the merchandise sold and the value of the ending inventory using the last-in, first-out method.

Problem #3 - Periodic inventory by three methods

There are 50 units of the item in the physical inventory for T Company at December 31. The company uses the periodic inventory system. The units of one product available for sale during the year were as follows:

January 1	Inventory	50 units	\$9.06
March 10	Purchase	45 units	\$10.00
July 31	Purchase	35 units	\$11.00
November 5	Purchase	40 units	\$12.00

- Required:
- Determine the cost of ending inventory by the FIFO method.
 - Determine the cost of ending inventory by the LIFO method.
 - Determine the cost of ending inventory by the average cost method.

Problem #4 - Lower of cost or market inventory

S Company purchases and resells the crops for a number of small farmers. The inventory of crops at year-end was:

<u>Commodity</u>	<u>Inventory Quantity</u>	<u>Unit Cost Price</u>	<u>Unit Market Price</u>
Corn	15,000	\$2.75	\$3.00
Wheat	10,000	4.25	4.00
Soybeans	20,000	6.50	6.75
Oats	5,000	4.45	4.35

- Required: Determine the value of the inventory at the lower of cost or market applied to each crop in inventory.

Problem #5 - Compute inventory turnover and the number of days' sales in inventory

The cost of merchandise sold for the N Company was \$4,380,000 for the year. The beginning and ending inventories were \$525,000 and 615,000 respectively.

- Required:
- Compute inventory turnover ratio.
 - Compute the number of days' sales in year-end inventory.

Multiple Choice Questions

1. The lower of cost or market rule may be applied by comparing the market value of the inventory to the cost of the inventory based on:
 - a) Individual inventory items.
 - b) Major inventory categories.
 - c) The entire inventory.
 - d) Any of the three: individual inventory items, major inventory categories, or the entire inventory.

2. When prices are increasing, which inventory method will produce the highest cost of goods sold?
 - a) FIFO
 - b) LIFO
 - c) Average
 - d) Cost of goods sold will not change.

3. Decisions management must make in accounting for inventory cost include all of the following *except*:
 - a) Costing method
 - b) Perpetual or periodic inventory system.
 - c) Customer demand for inventory
 - d) Items included in inventory and their costs.

4. During periods of inflation, when comparing LIFO with FIFO:
 - a) LIFO inventory and cost of sales would be higher.
 - b) LIFO inventory and cost of sales would be lower.
 - c) LIFO inventory would be lower and cost of sales would be higher.
 - d) LIFO inventory would be higher and cost of sales would be lower.

5. Which method results in inventory being stated at current acquisition costs?
 - a) Specific identification.
 - b) LIFO
 - c) FIFO
 - d) Average cost.

6. The write-down of inventory to market:
 - a) Only affects the balance sheet and not the income statement.
 - b) Only affects the income statement and not the balance sheet.
 - c) Affects both the income statement and the balance sheet.
 - d) Affects neither the income statement nor the balance sheet.

7. Which of the following inventory cost flow assumptions is not in accord with the physical flow of merchandise in most businesses?
 - a) LIFO
 - b) FIFO
 - c) Specific identification.
 - d) Average.

8. The inventory turnover rate provides an indication of how quickly the average quantity of inventory on hand:
 - a) Spoils
 - b) Sells
 - c) Increases
 - d) Converts into cash.

9. Under the FIFO cost flow assumption during a period of rising costs, which of the following is false?
 - a) Ending inventory will be lower under FIFO than under LIFO.
 - b) Income tax expense will be higher under FIFO than under LIFO.
 - c) Net income will be higher under FIFO than under LIFO.
 - d) Cost of goods sold will be lower under FIFO than under LIFO.

10. Which of the following statements is correct?
 - a) The choice of an inventory costing method is dependent upon the actual physical flow of the goods in inventory.
 - b) LIFO should be used during a period of increasing unit costs when the objective is to maximize the ending inventory value on the balance sheet.
 - c) FIFO should be used during a period of decreasing unit costs when the objective is to maximize the gross profit reported on the balance sheet.
 - d) The average cost method will result in an ending inventory balance which is somewhere between LIFO and FIFO when inventory unit costs are changing.

Solutions to Practice Problems

Problem #1 - Perpetual inventory using FIFO

Date	Purchases	Cost of Merchandise Sold	Inventory
January 1			45 units at \$ 10
February 15		25 units at \$10 = 250	20 units at \$ 10
March 10	50 units at \$9		20 units at \$ 10 50 units at \$ 9
May 30		20 units at \$10 = 200 30 units at \$ 9 = 270	20 units at \$ 9
July 31	25 units at \$8		20 units at \$ 9 25 units at \$ 8
October 1		15 units at \$ 9 = 135	5 units at \$ 9 = 45 25 units at \$ 8 = 200
		Total cost of merchandise sold = \$855	Ending inventory = \$245

Problem #2 - Perpetual inventory using LIFO

Date	Purchases	Cost of Merchandise Sold	Inventory
January 1			45 units at \$ 10
February 15		25 units at \$10 = 250	20 units at \$ 10
March 10	50 units at \$9		20 units at \$ 10 50 units at \$ 9
May 30		50 units at \$ 9 = 450	20 units at \$10
July 31	25 units at \$8		20 units at \$10 25 units at \$ 8
October 1		15 units at \$ 8 = 120	20 units at \$10 = 200 10 units at \$ 8 = 80
		Total cost of merchandise sold = \$820	Ending inventory = \$280

Problem #3 - Periodic inventory by three methods

- a) The inventory cost by the first-in, first-out (FIFO) method is:
\$590: (40 at \$12 + 10 at \$11)
- b) The inventory cost by the last-in, first-out (LIFO) method is:
\$453: (50 at \$9.06)
- c) The inventory cost by the average cost method is \$520; (50 at \$10.40)

January 1	Inventory	50 units at \$ 9.06	453.00
March 10	Purchase	45 units at \$10.00	450.00
July 31	Purchase	35 units at \$11.00	385.00
November 5	Purchase	40 units at \$12.00	480.00
	Total Units	170	Total Cost 1,768.00

(Average cost \$1,768 / 170 units = \$10.40)

Problem #4 - Lower of cost or market inventory

<u>Commodity</u>	<u>Quantity</u>	<u>Unit Cost</u>	<u>Unit Market Price</u>	<u>LCM</u>	<u>Total</u>
Corn	15,000	\$2.75	\$3.00	\$2.75	\$41,250
Wheat	10,000	4.25	4.00	4.00	40,000
Soybeans	20,000	6.50	6.75	6.50	130,000
Oats	5,000	4.45	4.35	4.35	21,750
					\$233,000

Problem #5 - Compute inventory turnover and the number of days' sales in inventory

- a) The inventory turnover was 7.7
 $4,380,000 / (525,000 + 615,000) / 2 = 7.68$
- b) The number of days' sales in year end inventory was 51.3 days
 $615,000 / (4,380,000 / 365) = 51.25$

Solutions to Multiple Choice Questions

- | | |
|-----|---|
| 1. | D |
| 2. | B |
| 3. | C |
| 4. | C |
| 5. | C |
| 6. | C |
| 7. | A |
| 8. | B |
| 9. | A |
| 10. | D |