INVENTORIES: ALTERNATIVES FOR INVENTORY VALUATION

I. **Review of Key Concepts and Terms:**

A. **Inventory** is defined by ARB-43 as items of tangible personal property which are **owned by the business** and are:

1. **He**ld for resale in the normal course of business;
2. In the process of production for sale; or
3. Goods that will soon be used in the production process.

Note: Ownership is determined by possession of title, rather than physical possession and include goods in transit if shipped **FOB shipping point** and **exclude goods held on consignment**.

B. The process of **inventory valuation** is one of the most important processes in producing the financial statements. **The process involves sometimes conflicting goals**: the accurate valuation of inventories on the balance sheet and the proper matching of inventory costs against revenues on the income statement. In addition, the **cost of goods sold**, a major component on the income statement is affected by the proper valuation of inventories.

1. Effects of Inventory Errors:

   a. Selection of an inventory system such as:
      i. Periodic Inventory System
      ii. Perpetual Inventory System
   b. Selection of a cost flow assumption such as:
      i. specific identification
      ii. FIFO (First In First Out)
      iii. LIFO (Last In First Out)
      iv. Average Cost (Weighted or Moving Average Cost)

2. Determination of physical quantities on hand by taking a physical count or determination from the accounting records.

3. Computing the value of ending inventory by multiplying the physical quantity on hand by the value of the inventory based on historical cost.

4. Application of Lower of Cost or Market rule to insure that inventory is not overvalued on the books.

Note: Refer to 21A for a complete discussion and illustration of periodic and perpetual inventory systems

Note: The **cost of inventory** includes all cost normal and necessary to prepare the inventory for sale such as invoice cost, transportation-in, dealer preparation etc.

C. Selection of the periodic or perpetual inventory system is becoming increasingly academic as the cost of computer based inventory systems declines. The existence of low cost computer based inventory systems coupled wish laser bar code readers has virtually eliminated periodic inventory systems in all but the smallest operations.

1. Advantages of Perpetual inventory systems:
   a. Inventory quantities are maintained on a constant basis, normally on a per product basis;
   b. Internal control is enhanced by allowing spot checks of inventory quantities on a random basis at any time;
   c. knowledge of inventory trends is produced in a timely manner so that management can react to changing trends to avoid stock outs of fast moving items and unnecessary orders of slow moving items;
   d. due to timely knowledge of inventory trends it may be possible to reduce inventory costs through better inventory control procedures.

2. Advantages of the Periodic Inventory System:
   a. Allows firms to determine inventory and cost of goods sold at end of year without recording the effect (on inventory) of every sale and purchase made throughout the year.
   b. Requires no computer system and relatively simple record keeping

D. Selection of a cost flow assumption is dependent upon which financial statement (income statement or balance sheet) that the firm wants to emphasize. All the methods discussed below are acceptable under GAAP but:

1. Whichever method is selected must be used consistently and must be disclosed in the financial statements;
2. A firm can use different cost flow assumptions for different components of inventory as long as they are consistently applied;
3. If a firm elects to change one cost flow assumption for another, the change in inventory cost flow assumptions must also be disclosed in the financial statements.

NOTE: the physical **flow of goods** through any company is **unrelated to the flow of costs.** In almost all cases the physical flow will be FIFO because the firm does not want older goods on hand irrespective of the nature of the inventory. The cost flow assumption (flow of costs) is only related to the valuation of inventory.

E. Summary of Cost Flow Assumptions:

Cost Flow Assumption	Statement Emphasized	Reason	Potential Problem
Specific Identification	Neither	Based on actual physical flow of goods	1. Inventory must be separately identifiable (i.e. by serial # etc.); 2. Allows management to manipulate cost of goods sold by determining which items are charged to COS. 3. Due to this potential manipulation, this approach is usually reserved for items of high unit value that can be separately identified 4. Not considered GAAP for items that fail test 3 above
FIFO (First In First Out)	Balance Sheet (Emphasis is on the accuracy of Ending Inventory)	1. The most recent goods purchased are included in ending inventory; 2. This means that the most recent costs are reflected in the value of Ending Inventory (EOY) on the balance sheet	1. The COS is understated in periods of rising prices (because the flow of costs matches the FOFO costs against current revenues). 2. Net Income is overstated in periods of rising costs (part of profit must be utilized to replace higher cost inventory). 3. This overstatement of inventory is sometimes referred to as "***Phantom Profits"***. 4. **NOTE:** In FIFO, phantom profits are primarily on the Income Statement while the Balance Sheet reflects the most recent (accurate) costs.
LIFO (Last In First Out)	Income Statement (Emphasis is on the accuracy of COS)	1. The most recent costs are charged against revenue in computing the COS. 2. LIFO has the affect of ***matching*** the most recent costs with sales thereby producing a more accurate and relevant net income	1. ***Inventory layers*** are produced and over time may be produce an inventory carried on the books (balance sheet) at an amount significantly below replacement costs. 2. When these undervalued inventory layers are charged against revenues, the result is a potentially serious overstatement of net income. 3. This overstatement of net income is referred to as "***inventory profits"*** and are produces as the result of current revenues being compared to old (and lower) cost inventory values. 4. LIFO retains the ***"Phantom Profit"*** on the balance sheet (in the undervalued ending inventory). 5. These lover value inventory layers are not moved to the income statement until the inventory is used to compute COS. 5. In periods of rising prices reported income is less under LIFO than under FIFO
Weighted Average Cost	Neither	1. A weighted average cost is computed after each purchase of inventory. 2. This average is "***weighted"*** by multiplying the number purchased by the purchase price. 3. This approach produces an average cost that favors neither statement	1. The Weighted average cost approach is a compromise method that produces neither and accurate balance sheet (ending inventory valuation) nor an accurate income statement (an accurate COS valuation)

F. **Cost Flow Assumption Examples**

1. **Specific Identification**: This method requires the ability to identify each unit of inventory. The cost of goods sold is the cost of specific items of inventory sold. This method is appropriate when inventory is few in number, have individually high cost and can be specifically identified.
   - --Assume an automobile dealer has three trucks in stock. Every detail about the trucks is identical with the exception on the serial numbers which are 1001,1002 and 1003 respectively.
   - --The dealer incurred the following cost for each truck:

Date of Purchase	Serial Number	Dealer Cost
1/1/19x0	1001	$30,000
6/1/19x0	1002	32,000
11/1/19x0	1003	35,000

   - --On 12/1/19x0 a customer enters the dealership and offers $34,000 for one of the trucks.
   - --Depending on which truck the dealer sells, the dealer could recognize net income of $4,000, $2,000 or a loss of $1,000. The ability to manipulate net income is a theoretical fault of the specific identification approach.

2. **FIFO (First In First Out)**: This method assumes that the first goods acquired are the first goods sold. This results in cost of goods sold being charged with the earliest cost and ending inventory stated in terms of the most recent cost. Computation of the cost of ending inventory involves two steps:
   a. determine the numerical quantity of ending inventory (in this example, assume it is given as 250 units);
   b. multiply the number of units on hand by the cost of inventory starting with the most recent cost.

-Assume the following:

	Units	Unit Cost	Total	
Beginning inventory	100	$ 5	$ 500	
Purchased 1/1/x1	100	6	600	
Purchased 3/1/x1	200	7	1,400	
Purchased 6/1/x1	300	8	2,400	
Purchased 9/1/x1	300	9	2,700	
Purchased 12/1/x1	200	10	2,000	
Goods available:	1,200		$ 9,600	
Ending Inventory	250		2,450	(200 @ $10 + 50 @ $9)
Cost of Goods Sold	950		$ 7,150	

Note: In periods of rising prices each sale of inventory results in a "**phantom profit"** in that revenue is reduced by the cost of the old, less expensive inventory. When the firm goes to the market place to replace the inventory just sold, the increased price of inventory will immediately reduce the profit computed using FIFO by the increase in inventory cost. On the other hand, the value of inventory as reported on the balance sheet contains less inventory profit than LIFO, as explained below. In summary, FIFO has inventory profits in cost of goods sold and a more accurate ending inventory amount on the balance sheet. LIFO, as explained below, reduces the inventory profit in cost of goods sold by postponing the recognition of the "phantom profits" be carrying them in ending inventory.

3. **LIFO (Last In First Out)**: This method assumes that the last goods purchased are the first sold. This approach charges cost of goods sold with the latest acquisition costs and ending inventory is valued at the cost of the first goods purchased. In periods in increasing prices, LIFO produces a better measure of net income than FIFO because the most recent (and accurate) inventory prices are charged against current revenues in cost of goods sold. On the other hand, the value of ending inventory as reported on the balance sheet may be seriously understated.

- Assume the following:

	Units	Unit Cost	Total	
Beginning inventory	100	$5	$ 500	
Purchased 1/1/x1	100	6	600	
Purchased 3/1/x1	200	7	1,400	
Purchased 6/1/x1	300	8	2,400	
Purchased 9/1/x1	300	9	2,700	
Purchased 12/1/x1	200	10	2,000	
Goods available:	1,200		$9,600	
Ending Inventory	250		1,450	(100@$5 + 100@$6 + 50@$7)
Cost of Goods Sold	950		$8,150	

Note: The $1,000 inventory profit **(phantom profit)** that was included in cost of goods sold, is eliminated by LIFO. However, that $1,000 phantom profit has been transferred from the income statement to the balance sheet (ending inventory is $1,450 under LIFO, $2,450 under FIFO). In addition, **the elimination of the phantom profit from the income statement under LIFO is only temporary**. When inventory levels fall below 250 units, cost of goods sold will be charged against the old, now very low priced inventory, and the effect will be even greater than under FIFO.

As a result of the high rates of inflation in recent years, many companies have adopted the LIFO method in attempt to mitigate the effects of inflation. When inflation rates are high, LIFO matches the most recent cost of goods with current prices and results in a more accurate net income. **HOWEVER**, it is essential to understand the nature of inventory profits (phantom profits) and how the use of LIFO can induce these profits when layers of inventory carried at older and lower historical costs are deducted against current sales prices. Many retailers find that the **RETAIL LIFO** method is a practical means of realizing LIFO's costing benefits. Although the method appears complex, its use can produce substantial clerical savings.

4. **Average Cost Approaches**: These methods assume that inventory valuation should be based on the average cost of all inventory available for sale during the period. A **weighted average is used with periodic inventory systems** and a **moving average is used with perpetual systems.**

- --Assume the following:

	Units	Cost	Unit Total	Weighted Moving Average Cost
Beginning inventory	100	$ 5	$ 500	$ 500/ 100 = $ 5.00
Purchased 1/1/x1	100	6	600	1,100/ 200 = 5.50
Purchased 3/1/x1	200	7	1,400	2,500/ 400 = 6.25
Purchased 6/1/x1	300	8	2,400	4,900/ 700 = 7.00
Purchased 9/1/x1	300	9	2,700	7,600/1,000 = 7.60
Purchased 12/1/x1	200	10	2,000	9,600/1,200 = 8.00
Goods available:	1,200		$ 9,600	
Ending Inventory	250		2,000	(250 @ $8)
Cost of Goods Sold	950		$ 7,600	

G. **The "Lower of Cost or Market Rule"**:

1. Inventory, like all current assets, should be carried on the books at its net realizable value. In order to insure that inventory that has been damaged or otherwise reduced in value is not overvalued on the balance sheet, ARB 43, chapter 4, paragraph 8 requires that all inventory be valued at "cost or market, whichever is lower". Although this rule is applicable to all inventories, in actual practice it will be applied rarely. In order to apply the lower of cost or market rule it is necessary to understand the following terms:

- **Replacement Cost:** the full cost of preparing inventory for sale; this value is defined as market value in those cases that replacement cost does not exceed the ceiling value of or fall below the floor value;
- **Ceiling Value:** The Net Realizable Value i.e. the estimated selling price in the normal course of business less reasonably predictable selling expenses; this value is defined as the market value in those cases that replacement cost exceeds the ceiling value;
- **Floor Value:** The Net Realizable Value less Normal Profit; this value is defined as market value in those cases that the replacement cost is less than the floor value;
- Market Value: the replacement cost except:
  a. where replacement cost is greater than the ceiling, use the ceiling value (market is defined as ceiling value)
  b. where replacement cost is less than the floor, use the floor value (market is defined as the floor value)
- **Cost:** The historical cost of the inventory, including all normal and necessary cost to prepare the inventory for sale

Note: The lower of cost or market rule can be applied to individual items, groups of items, or total inventory.

1. Application of the Lower of Cost or Market Rule: Consider the following four (A, B, C and D) independent examples:

Inventory Item	(1) Historical Cost	(2) Replacement Cost	(3) Normal Selling Price	(4) Normal Selling Expense	(5) Normal Profit	(6) Net Realizable (Ceiling) Value (3)-(4)	(7) Floor Value (3)-(4)-(5)	(8) Selected Market Value (2),(6),or (7)	Lower of Cost (1) or Market (6)
A	$ 22.00	$ 20.00	$ 25.00	$ 1.00	$ 2.50	$24.00	$ 21.50	$ 21.50	$ 21.50
B	27.00	26.00	28.00	2.50	3.00	25.50	22.50	25.50	25.50
C	5.00	7.00	9.00	.50	1.00	8.50	7.50	7.50	5.00
D	26.00	25.00	30.00	4.00	3.00	26.00	23.00	25.00	25.00

2. Recording the write-down: When the historical cost of inventory exceeds market valuation computed under the lower of cost or market rule, inventories must be reduced valuation must be reduced (written down) using either the **direct write-down method** or the **valuation account method.** Assume that a physical count of goods on hand shows 200 units of inventory in ending inventory. Using the information in part 1 above the required journal entries would be:

Item	Direct Charge Method		Valuation Account Method	
A	Cost of Goods Sold (200 x $22.00 - $21.50)...	100	Inventory holding loss (200 x $22.00 - $ 21.50)...	100
	Inventory.....	100	A llowance to reduce inventory to LCM.....	100
B	Cost of Goods Sold (200 x $26.00 - $25.50)..	100	Inventory holding loss (200 x $26.00 - $ 25.50)...	100
	Inventory.....	100	Allowance to reduce inventory to LCM.....	100
C	Cost of Goods Sold (200 x $ 5.00 - $ 5.00)...	no entry	Inventory holding loss (200 x $ 5.00 - $ 5.00)....	no entry
	Inventory.....	no entry	Allowance to reduce inventory to LCM.....	no entry
D	Cost of Goods Sold (200 x $26.00 - $25.00)...	200	Inventory holding loss (200 x $26.00 - $ 25.00)...	200
	Inventory.....	200	Allowance to reduce inventory to LCM.....	200

H. **Inventory Estimation Methods:** In many cases there are times that a company needs to know (or estimate) the dollar amount of ending inventory when taking a physical inventory is either impossible or impractical. For instance, the inventory may have been destroyed and an estimate is needed for insurance purposes, or the expense of taking a physical inventory may be prohibitive. Two methods are commonly used to estimate inventory when a physical count is deemed impractical:

1. Gross Margin Method: Used primarily for estimations by management and auditors to check the reasonableness of amounts computed from other sources. This approach **is not GAAP for financial reporting purposes.** This approach simply examines the income statement and computes a ratio of gross margin to sales. By examining the accounting records with respect to beginning inventory, purchases (and related returns and allowances) ending inventory can be estimated by working backward. To illustrate, consider the income statement on the following page. If one assumes that the gross profit percentage is historically fairly constant and that the numbers (other than ending inventory) in cost of goods sold are known (by an examination of the accounting records), it is a straightforward process to work backward and compute the value of ending inventory.

Sales				$ 102,000	
Less: Sales returns and allowances	$ 5,000				
Sales discounts	1,000			6,000	
Net Sales				$ 96,000	(100%)
Cost of Goods Sold:					
Beginning Inventory		$ 78,000			
Add: Purchases	$ 63,000				
Transportation In	1,000		(Note: Transportation In is part of COGS)		
Less: Purchase Returns and allowances	(2,000)				
Purchases discounts	(700)				
Net Purchases		61,300			
Cost of goods available for sale		$ 139,300			
Less: Ending Inventory		? ←	Note: the correct amount is (75,300)work backwards to compute		
Cost of Goods Sold				64,000	(.677) ratio of COS/Sales
Gross Profit on Sales				$ 32,000	(.333) ratio of GP/Sales

NOTE: The presentation above assumes the use of the periodic inventory system. The differences between the periodic and perpetual inventory systems are discussed in part C below.

2. Retail Inventory Method: Used by department stores and retailers to estimate inventories marked at retail values. Prior to computerized perpetual inventory systems the advantage of the retail system was that it was a cost effective method of estimating ending inventories. Application of this method requires that records at both cost and retail amounts be kept for beginning inventory and purchases. The cost of ending inventory is estimated by multiplying the cost/retail ratio of goods available for sale by the ending inventory carried at retail value.

Assume that the accounting records show that sales for the period are $80,000. An examination of the records reveals the following facts:

	At Cost	At Retail	
Beginning inventory	$ 10,000	$ 16,000	
Net purchases	65,000	84,000	
Goods available for sale	$ 75,000	$ 100,000	Cost percentage ($75,000/$100,000) = 75%
Less: Sales to date (at retail)		(80,000)	
Ending inventory at retail:		$ 20,000	
Compute ending inventory at cost.	$ 15,000	(Inventory @ retail x ratio = $20,000 x .75)	
Computed cost of goods sold:			

($10,000 + $65,000 - $15,000 = $60,000, or $80,000 x 75% = $60,000)

--A limitation of the retail method is that the cost percentage is simply an average of all goods bought and sold. This average only results in accurate estimates if the same relationship between cost and selling price exists for all goods or if the mix of goods in ending inventory is the same as that in the goods available for sale. Consequently, the retail method produces accounting values of ending inventory and cost of goods sold that are loose approximations. In addition, when the relationship between cost and selling price varies substantially between departments, the retail method must be applied separately to each department.

--When computing net purchases (in the cost column) add transportation-in and subtracts purchase discounts. These two items are not added or subtracted in the retail column because the original retail price of the inventory is ordinarily set in a manner that reflects them. Purchase returns and purchase allowances are subtracted in the cost and retail columns because these items reduce the amount of goods purchased.

--When subtracting sales in the retail column, deduct any sales returns and allowances, employee discounts, normal shrinkage (due to damage, theft, etc.) or other items that represent normal reductions of the original retail value of goods available for sale during the period. **Do not deduct sales discounts**, because the sales price less any available discount is considered to be the actual price of the product (discounts lost would be a financial expense, and not part of the purchase price).

I. Effects of Inventory Errors on Financial Reporting: It is essential to understand the effects of inventory errors on the financial statements of a business because of the relative importance of inventory in the computation of net income and the reporting the assets of many firms. The following equation simplifies the analysis of inventory errors on the financial statements:

Evaluating the Affect of Inventory Errors

Net Income = Sales - Beginning Inventory - Purchases + Ending Inventory.
By noting the effect (plus or minus) of an error, it is possible to analyze the affect of the error on the financial statements.

II. Key Concept Comprehension

Short Answer:

1. The cost of _____ is the total cost of goods purchased during the period plus the opening inventory.

2. Under the _____ method of inventory valuation, the costs of the earlier units are those included in the ending inventory.

3. When a _____ is used, inventory is computed when a physical count is taken of the unsold goods.

4. When the value of inventory items is lower than their cost, the _____ valuation should be used.

5. A _____ system requires the recording of each transaction affecting inventory as it occurs.

6. The _____ inventory appears on the balance sheet as and asset.

7. The _____ _____ method of inventory valuation involves the following computation. Total costs of the opening inventory plus the total value of the purchases during the period are divided by the total number of units available for sale.

8. List five methods of valuing ending inventory under either the periodic or the perpetual inventory systems:

a. d.

b. e.

c.

9. The _____ _____ of inventory **estimation** is based on current period costs and selling prices of the merchandise.

10. When inventory is taken at the selling price, then the _____ _____ of inventory valuation is used.

11. To determine inventory value under the perpetual inventory system, it may not be necessary to take a(n) _____ _____.

12. The _____ cost flow assumption charges the cost of the earlier purchases to cost of sales and the cost of the most recent purchases to ending inventory.

13. The use of the _____ _____ method of inventory valuation results in a value between a FIFO or a LIFO valuation under the periodic inventory system.

14. Lower of cost or market can be applied to _____ items, _____ of items, or _____, when valuing year-end inventories.

15. Under the _____ _____ _____ of inventory **estimation** the gross profit percentage used is based on the historical gross profit.

16. Two methods of inventory estimation are the:

a.

b.

True of False Questions

1. A perpetual inventory system requires a physical inventory in order to arrive at an inventory figure.

2. A physical count of inventory is not required under the perpetual inventory system.

3. The FIFO inventory valuation method results in historical costs being matched with current selling prices.

4. The gross profit inventory method depends on the gross profit percentage of one or more previous years.

5. When prices are rising, the inventory calculated under the FIFO and the LIFO inventory valuation systems should result in different amounts.

6. The specific identification method of inventory valuation can be used when the items in inventory can are high in value, low in volume and separately identifiable.

7. The overstatement of the value of ending inventory in one accounting period has no effect on the profits in a subsequent accounting period.

8. The FIFO method of inventory valuation can produce different results with perpetual or periodic inventory systems.

9. The LIFO inventory valuation method results in earliest costs being matched with current revenues.

10. The gross profit method of inventory estimation may be used when determining the cost of inventory destroyed in a fire.

11. It is not necessary that the **ending** inventory be accurately determined.

12. The retail method of inventory valuations is based on current gross profit percentages.

13. A physical inventory count is required at least once a year, no matter which inventory system is used.

14. Inventories should be written up if their current replacement value is higher that their original cost.

15. The flow of inventory has no relationship to the method of inventory valuation used.

16. The use of a weighted average (periodic inventory system) or the moving average method (perpetual inventory system) will result in different cost of goods sold for each system.

Problem 1 (Inventory valuation)

Larkin Inc. deals in a single product. The volume of sales in 19x1 was $587,200 at a unit price of $8.

	Date	Units	Unit Price		Value
Beginning Inventory:	1/1/x1	1,100		$	4,564
Purchases:	2/10/x1	29,000	$4.50	$	130,500
	4/15/x1	47,000	5.00		235,000
	11/1/x1	4,100	5.20		21,320
Total Purchases.....				$	386,820

Larkin uses the periodic inventory system.

Required:

1. Compute the December 31, 19x1 periodic inventory using:
   a. Weighted average method (compute average cost to the nearest cent)
   b. FIFO
   c. LIFO

	Date	Units	Total Cost	Unit Cost
a: Weighted Average				
b: FIFO				
c: LIFO				

2. Complete the following partial income statements using each of the three methods of inventory valuation.

	Weighted Average	FIFO	LIFO
SALES:			
COST OF GOODS SOLD a. beginning inventory			
b. purchases			
c. closing inventory			
TOTAL COST OF GOODS SOLD			
GROSS PROFIT			

Problem 2 (Inventory Valuation)

The following information is available from the records of Kahn, Inc. for the month of June. The company sells one product and utilizes a perpetual inventory system.

	Date	Units	Unit Price		Value
Beginning Inventory:	1/1/x1	3,000	$6.00	$	18,000
Purchased:	1/4/x1	2,300	6.20		14,260
Sold:	1/7/x1	2,500			
Purchased:	1/13/x1	2,000	6.40		12,800
Sold:	1/20/x1	1,000			
Purchased:	1/26/x1	1,000	6.50		6.500
Sold:	1/30/x1	1,100			

Required:

1.a. Compute the June 30 inventory using LIFO

b. Compute the June 30 inventory using FIFO

2.Assume that Kahn Inc. uses a periodic inventory system.

a. Compute the June 30 inventory value using LIFO

b. Compute the June 30 inventory value using FIFO

Problem 3 (Lower of Cost or Market Rule)

Unique Stereo Corp. has the following inventory items on hand of December 31:

	Type	Qty	Unit Cost	Market
TVs	Black & White	40	$ 260	$ 250
	Color	20	310	315
	Color-remote	30	380	360
VCRs	Beta	35	420	400
	VHS	30	440	470
	VHS-Deluxe	10	510	530

Required:

1. Using the lower of cost or market rule, calculate the ending inventory:

a. on an item basis

b. by category

c. by entire inventory

Problem 4 (Inventory estimation: Gross profit method)

Hinds Inc. is undergoing an audit in which the auditors wished to test the validity of the accounting system by testing the computed value of the ending inventory with an estimate derived from the gross profit method. The auditors have the following data available:

Beginning Inventory.....$	42,584
Purchases.....	87,320
Purchases returns.....	3,712
Transportation-in.....	2,538
Sales.....	171,846
Sales returns.....	3,396
Delivery Expense.....	5,780

Required:

1. Prepare a schedule showing the estimated value of ending inventory if Hinds Inc. has an average gross profit of 32% on net sales over the past 5 years.

Problem 5 (Inventory estimation: Retail Method)

At the end of year x4 the following information for April Co. Department Store was obtained:

	Cost		Retail
Beginning inventory.....	$ 20,460	$	31,000
Purchases.....	207,735		337,271
Purchases returns.....	7,320		12,021
Sales.....			316,148
Sales Returns.....			3,198

Required:

1.Prepare a schedule computing April Co.'s ending inventory at cost using the retail method.

SOLUTIONS TO KEY CONCEPT COMPREHENSION

Short Answer Solutions:

1.goods available for sale
2.LIFO
3.periodic inventory system
4.lower of cost or market
5.perpetual inventory
6.ending inventory
7.weighted average
8. a. FIFO d. Weighted average
b. LIFO e. Moving average
c. Specific identification
9.retail method
10. retail method
11. physical count
12. FIFO
13. weighted average
14. individual/groups/total inventory
15. gross profit method
16. gross profit method/retail method

Solutions to True of False Questions

1.FA perpetual inventory system allows for the computation of the inventory at any time during the accounting period.

2.FA physical inventory count is required each year, regardless of which inventory system is used.

3.T

4.T

5.T

6.T

7.F The overstatement of the value of ending inventory in one accounting period always has an effect of the profits in a subsequent accounting period because the ending inventory of one period is the beginning inventory of the next.

8. FThe FIFO method of inventory valuation will produce the same results with either the perpetual or period inventory system.

9.FThe LIFO inventory valuation method results in current costs being matched with current revenues.

10. T

11. F It is extremely important that the ending inventory be accurately determined because of the relative importance of inventory on both the Income Statement and the Balance Sheet.

12. T

13. T

14. F Inventories should only be written down if their current market value, as determined by application of the lower of cost or market rule, is less than their historical cost.

15. T

16. T

Solution Problem 1

Part 1:

Step 1: Compute the number of units sold:

Sales in Units = Total sales in dollars/Unit price
= $587,200/$8.00
= 73,400 units

Step 2: Compute the number of units in ending inventory:

Total units available for sale.... 81,200
Less: Number of units sold..... 73,400
Ending inventory..... 7,800

	Date	Units	Total Cost	Unit Cost
a: Weighted Average	Jan 1	1,100	$ 4,564	
	Feb 10	29,000	130,500	$ 4.50
	Apr 15	47,000	235,000	5.00
	Nov 1	4,100	21,320	5.20
		81,200	$391,384	
WTD AVG price: $391,384/81,200=$4.82 7,800 units x $4.82= $37,596				
b: FIFO	Nov 1	4,100	$ 21,320	$ 5.20
	Apr 15	3,700	18,500	5.00
		7,800	$ 39,820	
c: LIFO	Jan 1	1,100	$ 4,564	
	Feb 10	6,700	30,150	$ 4.50
		7,800	$ 34,714	

Part 2:

	Weighted Average	FIFO	LIFO
SALES:	$587,200	$587,200	$587,200
COST OF GOODS SOLD			
a. beginning inventory	4,564	4,564	4,564
b. purchases	386,820	386,820	386,820
c. closing inventory	(37,596)	(39,820)	(34,714)
TOTAL COST OF GOODS SOLD	$353,788	$351,564	$356,670
GROSS PROFIT	$233,412	$235,636	$230,530

Solution Problem 2

Part 1: LIFO

	Purchases			Sales			Balance		
Date	Qty.	Unit Cost	Total Cost	Qty.	Unit Cost	Total Cost	Qty.	Unit Cost	Total Cost
1/1							3,000	6.00	18,000
1/4	2,300	6.20	14,260				3,000 2,300	6.00 6.20	32,260
1/7				2,300 200	6.20 6.00	15,460	2,800	6.00	16,800
1/13	2,000	6.40	12,800				2,800 2,000	6.00 6.40	29,600
1/20				1,000	6.40	6,400	2,800 1,000	6.00 6.40	23,200
1/26	1,000	6.50	6,500				2,800 1,000 1,000	6.00 6.40 6.50	29,700
1/30				1,000 100	6.50 6.40		2,800 900	6.00 6.40	22,560

Part 2: FIFO

	Purchases			Sales			Balance		
Date	Qty.	Unit Cost	Total Cost	Qty.	Unit Cost	Total Cost	Qty.	Unit Cost	Total Cost
1/1							3,000	6.00	18,000
1/4	2,300	6.20	14,260				3,000 2,300	6.00 6.20	32,260
1/7				2,500	6.00	15,000	500 2,300	6.00 6.20	17,260
1/13	2,000	6.40	12,800				500 2,300 2,000	6.00 6.20 6.40	30,060
1/20				500 500	6.00 6.20	6,100	1,800 2,000	6.20 6.40	23,960
1/26	1,000	6.50	6,500				1,800 2,000 1,000	6.20 6.40 6.50	30,460
1/30				1,100	6.20	6,820	700 2,000 1,000	6.20 6.40 6.50	23,640

Part 2:

Step 1: Compute the number of units in ending inventory

Date	Units	Unit Price	Value
1/1 Beginning Inventory....	3,000	$ 6.00	$ 18,000
1/4 Purchase.....	2,300	6.20	14,260
1/13 Purchase.....	2,000	6.40	12,800
1/26 Purchase.....	1,000	6.50	6,500
Goods Available for Sale....	8,300		$ 51,560

Less: Units Sold		
1/7.....	2,500	
1/20.....	1,000	
1/30.....	1,100	4,600
Ending inventory....		3,700 units

Step 2: Compute the ending inventory under LIFO and FIFO

a. LIFO:

2,800 units @ $6.00	$	16,800
900 units @ 6.40		5,760
LIFO Ending Inventory Value .	$	22,560

b. FIFO:

1,000 units @ $6.50.....	$	6,500
2,000 units @ 6.40.....		12,800
700 units @ 6.20.....		4,340
FIFO Ending Inventory Value...	$	23,640

Solution Problem 3

1. Using the lower of cost or market rule, calculate the ending inventory:
   a. on an item basis
   b. by category
   c. by entire inventory

	Type	Qty	Unit Cost	Market Price	Total Cost	Total Market {c}	LCM by item (a)	LCM by category (b)
TVs	Black & White	40	$ 260	$ 250	$ 10,400	$ 10,000	$ 10,000	
	Color	20	310	315	6,200	6,300	6,200	
	Color-remote	30	380	360	11,400	10,800	10,800	
					$ 28,000	$ 27,100	$ 27,000	$ 27,100
VCRs	Beta	35	420	400	$ 14,700	$ 14,000	$ 14,000	
	VHS	30	440	470	13,200	14,100	13,200	
	VHS-Deluxe	10	510	530	5,100	5,300	5,100	
					$ 33,000	$ 33,400	$ 32,300	$ 33,000
Total					$ 61,000	$ 60,500 (c)	$59,300 (a)	$ 60,100 (b)

Problem 4 Solution

1. Prepare a schedule showing the estimated value of ending inventory if Hinds Inc. has an average gross profit of 32% on net sales over the past 5 years.

Sales.....		$ 171,846		
Sales returns.....		(3,396)		
Net Sales.....			$168,450	(100%)
Cost of goods sold:				
Beginning Inventory.....		$ 42,584		
Purchases.....	$ 87,320			
Add: Transportation-in...	2,538			
Less: Purchases returns...	(3,712)			
Net purchases.....		86,146		
Cost of goods available for sale...		128,730		
Less: Ending Inventory.....		(14,184)		(plug:128,730-114,546)
Cost of goods sold.....			114,546	(68%)
Gross profit on sales.....			$ 53,904	(32%)

Solution Problem 5

	Cost	Retail
Beginning inventory.....	$ 20,460	$ 31,000
Purchases.....	207,735	337,271
Purchases returns.....	(7,320)	(12,021)
	$ 220,875	$ 356,250

Cost/retail ratio: 220,875/356,250 = .62

Sales.....	$316,148	
Sales Returns.....	(3,198)	
Net Sales.....		312,950
Ending inventory at retail.....		$ 43,300

Ending inventory at cost: $43,300 x .62: $ 26,846