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#### CHAPTER 2

#### QUESTIONS

- 1. The two major objectives of materials control are (1) physical control or safeguarding the materials and (2) control of the investment in materials.
- 2. The controls established for safeguarding materials include limiting access to the materials area, segregating the duties of employees involved with materials, and assuring that materials records are being maintained accurately.

Limiting access involves placing inventories in storage areas that can be entered only by authorized personnel and restricting the release of any materials or finished goods to individuals who have properly authorized documents. Control procedures that limit access to work in process areas should be established within each department or production station.

The segregation of duties involves assigning different people to different functions. Employees assigned to purchasing should not also be assigned to receiving, storage, or recording functions, etc.

The accurate recording of purchases and issuances of materials facilitates comparing the recorded materials on hand to the actual materials on hand. If a substantial difference between the recorded and actual quantities is discovered, it can be quickly determined and investigated.

- 3. Management should consider production and working capital requirements along with alternative uses of available funds that might yield a greater return. Consideration should also be given to the cost of materials handling, storage, and insurance protection against fire, theft, and other casualty losses. In addition, the possibility of loss from damage, spoilage, and obsolescence should not be overlooked.
- **4.** Order point is the time to place an order for additional material because the level of stock has reached a predetermined minimum established by management.
- **5.** In order to determine an order point, the information available should include the:
  - (1) anticipated daily usage of the material,
  - (2) lead-time interval, and
  - (3) required safety stock.

The anticipated usage requirement should be founded upon the number of units expected to be completed daily and the quantity of material each completed unit will require.

The lead time interval involves the typical period of time required between placing the order and receiving the shipment.

The safety stock is the minimum stock on hand needed to prevent running out of stock due to errors in calculations of usage, delivery delays, poor quality of merchandise received, and so on.

- 6. The economic order quantity (EOQ) is the calculated size of an order that minimizes the total cost of ordering and carrying the inventory over a specified period of time. It is a function of the cost of placing an order, the number of units required annually, and the carrying cost per unit of inventory
- **7.** The cost of placing an order, the number of units required annually, and the annual carrying cost per unit in inventory are the items needed to calculate the economic order quantity.
- 8. The cost of an order includes the salaries and wages of employees who purchase, receive, and inspect materials; the expenses incurred for telecommunications, postage, and forms; and the accounting and record keeping associated with inventories.
- **9.** The carrying cost of materials inventory includes the cost of storage and handling; the amount of interest lost on alternative investments; the losses due to obsolescence, spoilage, and theft; the cost of insurance and property taxes; and the cost of maintaining accounting records and controls over the inventory.
- **10.** The supply chain is the system that links a manufacturer with its suppliers. If the system is especially "lean", in an effort to be cost efficient, it is quite possible that parts may not be available when needed due to work stoppages, strikes, or natural disasters.
- **11. a.** Purchasing agent duties include:
  - (1) coordinating materials requirements with production to prevent delays in production due to inadequate materials supply on hand.

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- (2) compiling and maintaining a vendor file from which materials can be promptly obtained at the best available prices. (*Note to Instructor:* You may take this opportunity to explain to the student that the "lowest" price may not always be the "best" price.) The purchasing agent should also consider the quantity to be ordered at one time to get a lower unit price, the quality of the material, the time lapse before delivery, the credit terms, and the reliability of the vendor.
- (3) placing purchase orders for materials needed.
- (4) supervising the purchase order process until materials are received.
- **b.** The receiving clerk is responsible for supervising the receipt of incoming shipments. These duties include checking the quantity and quality of the goods received.
- **c.** The storeroom keeper's usual duties include properly storing all materials received, issuing materials only when proper authorization is presented, and keeping the purchasing agent informed of the quantities on hand.
- **d.** The production supervisor is responsible for maintaining production and for preparing or approving requisitions for the quantities and kinds of materials needed for current production.
- **12.** A purchase requisition is used by the storeroom keeper to provide the purchasing agent with information concerning the materials to be ordered. A *purchase order* is a document completed by the purchasing agent and sent to a vendor to order the materials.
- **13.** An enterprise resource planning (ERP) system is a sophisticated computer system that coordinates the sales and production scheduling functions with the purchase and control of materials.
- 14. Many manufacturing firms use forms somewhat similar to those shown in the text; however, most firms design forms to meet their specific requirements. These specially designed forms usually perform the same functions as those depicted in the text but may

vary in appearance. For example, a purchase order will provide for recording all essential information to obtain materials from selected vendors, regardless of the design or format. Many firms now use enterprise resource planning systems to control materials and electronic data interchange to communicate with suppliers and expedite the receipt of orders which might eliminate the use of some forms.

- **15.** The internal control procedures established for incoming shipments should provide the following safeguards:
  - **a.** A receiving report prepared by the receiving clerk authenticates the quantity of specific items ordered and verifies that they were received in good condition.
  - **b.** A copy of the receiving report should accompany the materials received when they are moved from the receiving area to the storeroom. As materials are placed in location, the storeroom keeper should review and substantiate the quantities received per the receiving report.
  - **c.** The cost and quantity of each item on the approved invoice are independently recorded in the materials ledger.
  - **d.** The total of the invoice is independently recorded in the purchases journal to be subsequently posted to the appropriate general ledger accounts.
  - e. The invoice for materials purchased should not be approved for payment until it is matched to the receiving report and purchase order and the following details are checked:
    - (1) The unit prices and materials descriptions on the invoice are compared with similar data on the purchase order.
    - (2) The extensions of unit prices and totals are verified.
    - (3) The terms of payment and any other charges are verified with the purchase order.
    - (4) The method of shipment and date of delivery are verified.

- **16.** The purpose of a debit-credit memorandum is to inform the vendor that an adjustment has been made to the vendor's account. The information on the memo includes the amount of the adjustment, the reason for the adjustment, and the type and quantity of materials involved.
- **17.** The bill of materials is a file contained in an enterprise resource planning system that lists all of the materials and components that make up a finished product. When orders are received from customers, the bill of material is used to compute the quantities of materials required. This information is used to prepare lists for the storeroom clerk or trigger purchase requisitions.
- **18.** A materials ledger is a subsidiary ledger in which individual accounts are kept for each item of material carried in stock. The materials account in the general ledger is the control account for the materials ledger.
- **19. a.** First-in, first-out: It is assumed that materials issued are from the oldest materials in stock. They were the first purchased and are costed at the prices paid for these earliest purchases. The cost of the ending inventory will reflect the prices paid for the most recent purchases.
  - **b.** Last-in, first-out: It is assumed that materials issued are from the most recent stock. The last purchased will be the first used at the prices paid for these latest purchases. The ending inventory will be costed at the prices paid for the earliest purchases.
  - c. Weighted average: Under this method, no attempt is made to identify the materials issued as to the time of purchase. The average unit price of all materials in stock is maintained; therefore, materials issued are costed on a basis of average prices. Unit cost changes each time unit purchase prices change; therefore, ending inventory will be priced at the latest average cost.
- **20.** In a period of rising prices, the LIFO method estimates the cost of goods sold using the materials purchased at the highest prices. Such costs, when matched to sales for the period are believed to more accurately reflect the gross margin earned. The lower income, resulting from the use of LIFO, means that a smaller amount of taxes will be paid than if some other method were used.

Since LIFO leaves the earlier costs of purchases in inventory, the overall value of the materials on hand at the end of a period will be more conservatively stated than if FIFO were used. This lower valuation of materials inventory, which affects both the income statement and the balance sheet, may be an advantage or a disadvantage depending on the use made of the balance sheet. The lower valuation is an advantage when property taxes are assessed on the dollar amount of inventory on hand.

Many companies, when prices are rising, adopt LIFO to minimize the income tax effects and believe that in such economic trends the costs charged against sales more accurately depict reality.

21.	Entries	Source of Data
а.	Debits in materials	Receiving
	ledger to record	report

- materials purchased
   b. Credits in materials Materials ledger to record requisition materials requisitioned form
- c. Debits in job cost Materials ledger to record requisition materials placed in form process
- 22. In a just-in-time manufacturing system, materials are not received from suppliers until they are ready to be put into process. The work is not done in one department until the subsequent department is ready to work on it. This approach differs from a traditional manufacturing system where materials are ordered and stored well in advance of production, and departments stockpile partially completed units until the next department is ready for them.
- **23**. A traditional "push" manufacturing system produces goods for inventory in the hope that the demand for these goods will then be created. In a JIT "pull" manufacturing system, the credo is "Don't make anything for anybody until they ask for it".

- 24. Disadvantages of a "push" manufacturing system include: having too many dollars invested in inventory; defects not being detected because partially completed goods are inventoried rather than completed immediately; obsolete products due to the long lead time from start to finish.
- **25.** The throughput time is the time that it takes a unit to make it through the production system, and it is computed by dividing the number of units in work in process by the number of units completed each day to obtain a measure in days. Velocity also measures the speed with which units are produced in the system, but in percentage terms relative to past production; for example, velocity increased by 50%.
- **26.** Advantages of producing all units in a single cell include: fewer and shorter movements of materials; production in smaller lot sizes because other products do not have to be made in the same cell; more worker motivation and satisfaction due to the teamwork approach within the cell.
- 27. Critics of "backflush" costing argue that it is not consistent with GAAP because it does not accurately account for inventories. Proponents of "backflush" costing argue that Work in Process and Finished Goods are immaterial in a lean production environment and, therefore, their omission does not materially misstate the financial statements.

- **28.** Six Sigma is a process improvement method that uses data gathering, analytical techniques, and customer feedback, and whose aim is to have no more than 3.4 defects per one million process occurrences. It is an important goal because the manufacture and sale of defective items is costly and tends to damage a company's reputation.
- **29.** If the value of the scrap is high, an inventory file should be prepared showing the quantity and market value. If both quantity and market value are known, an inventory account should be debited while an account such as Scrap Revenue is credited. If the market value of the scrap is unknown, a journal entry cannot be made until the scrap is sold, at which time Cash (or Accounts Receivable) is debited and Scrap Revenue is credited.
- **30.** Spoiled work represents products that are not first quality by the company's standards and have imperfections that will not be corrected. They are sold as irregular units, called *seconds*. *Defective work* also includes goods that are not first quality by the established standard but have imperfections that will be corrected, making them first-quality products.

#### **EXERCISES**

#### E2-1

<b>a.</b> 500 lbs. × 7 days	3,500 lbs.
Safety stock required	<u>2,500</u>
Order point	<u>6,000</u> lbs.

**b.** 500 lbs.  $\times$  4 days ..... <u>2,000</u> lbs.

#### E2-2

a. EOQ = 
$$\sqrt{\frac{2 \text{ CN}}{\text{K}}}$$
  
=  $\sqrt{\frac{2 \times \$72 \times 360,000}{\$4}}$   
=  $\sqrt{\frac{\$51,840,000}{\$4}}$   
=  $\sqrt{12,960,000}$ 

= 3,600 gallons

b.	360,000 gals. (annual usage) ÷ 3,600 gals. (per order) = 100 orders	
	Ordering cost: 100 orders @ \$72 per order	\$ 7,200
	Carrying cost: (3,600 gals. ÷ 2) @ \$4.00 per gals	7,200
	Total order and carrying cost	<u>\$14,400</u>

a. EOQ = 
$$\sqrt{\frac{2 \text{ CN}}{\kappa}}$$
  
=  $\sqrt{\frac{2 \times \$40 \times 225,000}{\$2}}$   
=  $\sqrt{\frac{\$18,000,000}{\$2}}$   
=  $\sqrt{\$9,000,000}$   
= 3,000 gallons

#### E2-3 Concluded

b.	225,000 gals. (annual usage) ÷ 3,000 gals. (per order) = 75 orders	
	Ordering cost: 75 orders @ \$40 per order	\$3,000
	Carrying cost: (3,000 gals. ÷ 2) @ \$2.00 per gals	3,000
	Total order and carrying cost	<u>\$6,000</u>

#### E2-4

Work in Process	68,000*	
Factory Overhead	4,800**	
Materials		72,800
To record materials used during the month of June.		

\* \$20,000 + \$18,000 + \$16,000 + \$3,000 + \$9,000 + \$2,000

\*\* \$1,800 + \$1,300 + \$1,700

а.	Materials Accounts Payable	200,000	200,000
b.	Work in Process Materials	175,000	175,000
C.	Factory Overhead Materials	12,000	12,000
d.	Materials Work in Process	2,500	2,500
e.	Accounts Payable Materials	1,800	1,800
f.	Accounts Payable Cash	165,000	165,000

		RECEIVEL	(		ISSUED			BALANCE	
Date	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount	Quantity	Unit Price	Amount
8/1							1,250	250	312,500
8/8	1,000	275	275,000				1,250	250 }	
							1,000	275	587,500
8/15				1,250	250	312,500			
				550	275	151,250	450	275	123,750
8/24	1,000	285	285,000				450	275	
							1,000	285 }	408,750
8/27				450	275	123,750			
				750	285	213,750	250	285	71,250
Cost of n	naterials us€	∋d (issued): \$	801,250; Co:	st of 8/31 inv	entory: \$71,2	50			

### LIFO method

		RECEIVED			ISSUED			BALANCE	
Date	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount
8/1							1,250	250	312,500
8/8	1,000	275	275,000				1,250	250 }	
							1,000	275	587,500
8/15				800	250	200,000			
				1,000	275	275,000	450	250	112,500
8/24	1,000	285	285,000				450	250 J	
							1,000	285 }	397,500
8/27				200	250	50,000			
				1,000	285	285,000	250	250	62,500
Cost of n	naterials use	ed (issued): \$	810,000; Cot	st of 8/31 inv	entory: \$62,5	00			

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### E2-6

FIFO method

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## Weighted average method

		RECEIVED	•		ISSUED			BALANCE	
Date	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount
8/1							1,250	250	312,500
8/8	1,000	275	275,000				2,250	261.111 <sup>1</sup>	587,500
8/15				1,800	261.111	470,000	450	261.111	117,500
8/24	1,000	285	285,000				1,450	277.586 2	402,500
8/27				1,200	277.586	333,103	250	277.586	69,397
	antale lee	A /iec.iod/. C	803 103 Dae	1 of 8/31 inv	antony. CGO 3	07			

(

First-in, f	irst-out meth	por							
		RECEIVED	•		ISSUED			BALANCE	
Date	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount
7/1							1,000	4.00	4,000.00
7/3				250	4.00	1,000.00	750	4.00	3,000.00
7/5	500	4.50	2,250.00				750	4.00 J	
							500	4.50 <sup>J</sup>	5,250.00
7/6				150	4.00	600.00	600	4.00 ]	
							500	4.50	4,650.00
7/10				110	4.00	440.00	490	4.00 J	
							500	4.50 }	4,210.00
7/11				(10)	4.00	(40.00)	500	4.00 J	
							500	4.50 J	4,250.00
7/15	500	2.00	2,500.00				500	4.00 J	
							500	4.50 }	
							500	5.00	6,750.00
7/20	(300)	2.00	(1,500.00)				500	4.00 J	
							500	4.50 }	
							200	2.00	5,250.00
7/26				200	4.00	2,000.00	400	4.50 J	
				100	4.50	450.00	200	5.00 J	2,800.00
Cost of n Cost of 7	naterials use /31 inventor	ed (issued): \$ y: \$2,800	4,450						

E2-7

Chapter 02

Last-in, f	irst-out meth	por							
		RECEIVED			ISSUED			BALANCE	
Date	Quantity	Unit Price	Amount	Quantity	<b>Unit Price</b>	Amount	Quantity	<b>Unit Price</b>	Amount
7/1							1,000	4.00	4,000.00
7/3				250	4.00	1,000.00	750	4.00	3,000.00
7/5	500	4.50	2,250.00				750	4.00 l	
							500	4.50 <sup>J</sup>	5,250.00
2/6				150	4.50	675.00	750	4.00	
							350	4.50 }	4,575.00
7/10				110	4.50	495.00	750	4.00	
							240	4.50 }	4,080.00
7/11				(10)	4.50	(45.00)	750	4.00 J	
							250	4.50 J	4,125.00
7/15	500	5.00	2,500.00				750	4.00 J	
							250	4.50 }	
							500	5.00	6,625.00
7/20	(300)	5.00	(1,500.00)				750	4.00	
							250	4.50	
							200	2.00	5,125.00
7/26				200	5.00	1,000.00			
				250	4.50	1,125.00			
				150	4.00	600.00	600	4.00	2,400.00
Cost of n Cost of 7	naterials us∈ ∕/31 inventor	ed (issued): \$ y: \$2,400	4,850						

E2-8

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		mount	,000.000	,000.000	,250.00	,620.00	,158.00	,200.00	,700.00	,200.00	,600.00				
	BALANCE	Unit Price A	4.00 4	4.00 3	<sup>2</sup> 4.20 1 5	4.20 J 4	4.20 J 4	4.20 } 4	<sup>3</sup> 4.4667 6	<sup>4</sup> 4.3333 5	4.3333 2				
		Quantity	1,000	750	1,250	1,100	066	1,000	1,500	1,200	600				
		Amount		1,000.00		630.00	462.00	(42.00)			2,600.00				
	ISSUED	<b>Unit Price</b>		4.00		4.20	4.20	4.20			4.3333				
		Quantity		250		150	110	(10)			600				
		Amount			2,250.00				2,500.00	(1,500.00)					
ethod	RECEIVED	<b>Unit Price</b>			4.50				5.00	$5.00^{1}$					•
l average me		Quantity			500				500	(300)					-
Weightec		Date	7/1	7/3	7/5	2/6	7/10	7/11	7/15	7/20	7/26				

Cost of materials used (issued): \$4,650 Cost of 7/31 inventory: \$2,600 1. Material will be returned to vendor at its original purchase cost

 $\frac{(1.500)}{5,200/1,200} = 4.3333$  $1,500 \times 4.4667 = 6,700$ П <u>(300</u>) × 5.00 1,200 units 4.  $750 \times 4.00 = 3,000$   $500 \times 4.50 = 2.250$ ,250 units 5,250/1,250 = 4.20 с.

3.  $1,000 \times 4.20 = 4,200$   $500 \times 5.00 = 2,500$ 1,500 units 6,700/1,500 = 4.4667

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E2-9

#### E2-10

Inventory Method	Cost Transferred to Work in Process	Cost of Ending Inventory
FIFO	\$4,450	\$2,800
LIFO	4,850	2,400
Weighted average	4,650	2,600

In a period of constantly rising prices as illustrated in the problem, the LIFO method of inventory pricing will result in the highest cost being charged to cost of goods sold; the FIFO method will result in the lowest cost being charged to cost of goods sold; and the weighted average method will result in a cost between the other two. Theoretically, LIFO provides a better "matching of costs with revenue" because the inventory sold will have to be replaced at current prices. In a period of falling prices, the reverse will be true, with the weighted average method again falling in between the other two.

- **a.** The FIFO method, which results in the most recent purchases being costed in ending inventory, indicates that materials costs have continued to increase over the three-year period, given that the number of units in inventory did not change.
- **b.** FIFO would show the highest net income for 2017. The information given indicates that prices rose during the year. Using FIFO, the cost of goods sold would be charged with the oldest materials costs, which during a time of rising prices would be the lowest materials costs.
- **c.** LIFO would show the lowest net income for 2018, because it would continue to charge the latest and highest costs to cost of goods sold while the other two methods would be less affected by the rising cost of the more recent purchases.
- **d.** FIFO would show the highest net income for the three years combined, because it consistently charges the earliest, lower costs to the product, thereby increasing the yearly net income.

#### E2-12

a.	1.	Materials	23,750	
		Accounts Payable		23,750
	2.	Work in Process Materials	19,250	19,250
	3.	Materials Work in Process	1,200	1,200
	4.	Factory Overhead Materials	2,975	2,975
	5.	Materials Factory Overhead	385	385

b.							
	Mate	erials		Factory Overhead			
Bal.	5,000	(2)	19,250	(4)	2,975	(5)	385
(1)	23,750	(4)	2,975				
(3)	1,200		22,225		2,590		
(5)	385						
	30,335						
	8,110						
	Work in	Proce	SS		Accounts	Payable	
(2)	19,250	(3)	1,200			(1)	23,750
	18,050						

#### **c.** \$8,110

a.	1.	Materials	35,750	
		Accounts Payable		35,750
	2.	Work in Process Materials	29,250	29,250
	3.	Materials Work in Process	2,200	2,200
	4.	Factory Overhead Materials	3,975	3,975
	5.	Materials	585	
		Factory Overhead		585

#### E2-13 Concluded

I	h	
	U	

Materials					Factory Overhead				
Bal.	10,000	(2)	29,250	(4)	3,975	(5)	585		
(1)	35,750	(4)	3,975						
(3)	2,200		33,225		3,390				
(5)	585								
	48,535								
15,	310								

	Work in	Proces	SS	A	ccounts Payable	
(2)	29,250 27,050	(3)	2,200		(1)	35,750

#### **c.** \$15,310

#### E2-14

- **1.** 25,000/5,000 = 5 days
- **2.**  $25,000 (25,000 \times 0.50) = 12,500$ 12,500/5,000 = 2.5 days
- **3. a.** 0.15 × \$500,000 = \$75,000 **b**. 0.15 × (0.5 × \$500,000) = \$37,500

a.	Raw and In-Process Accounts Payable	80,000	80,000
b.	No entry.		
C.	Conversion Costs Payroll	10,000	10,000
d.	Conversion Costs Various Credits	60,000	60,000
e.	Finished Goods Raw and In-Process Conversion Costs	150,000	80,000 70,000

#### E2-15 Concluded

f.	Accounts Receivable Sales	225,000	225,000
	Cost of Goods Sold Finished Goods	150,000	150,000
E2	-16		
e.	No entry		
f.	Cost of Goods Sold Raw and In-Process Conversion Costs	150,000	80,000 70,000
E2	-17		
a.	Raw and In-Process Accounts Payable	70,000	70,000
b.	No entry.		
C.	Conversion Costs Payroll	15,000	15,000
d.	Conversion Costs Various Credits	45,000	45,000
e.	Finished Goods Raw and In-Process Conversion Costs	130,000	70,000 60,000
f.	Accounts Receivable Sales	195,000	195,000
	Cost of Goods Sold Finished Goods	130,000	130,000

#### E2-18

#### e. No entry

f.	Cost of Goods Sold	130,000	
	Raw and In-Process		70,000
	Conversion Costs		60,000

#### E2-19

a.	Scrap Materials Factory Overhead (Scrap)	125	125
	Cash Scrap Materials	125	125
b.	No entry at the time scrap is identified At the time of sale: Cash Factory Overhead (Scrap)	75	75
C.	No entry at the time scrap is identified At the time of sale: Accounts Receivable Work in Process	85	85
d.	No entry at the time scrap is identified At the time of sale: Cash Scrap Revenue	40	40

a.	Work in Process Materials Payroll Factory Overhead	108,000	36,000 48,000 24.000
	Spoiled Goods Inventory Factory Overhead (Loss Due to Spoiled Work) Work in Process	995 355*	1,350
	*Unit cost of completed work: \$108,000 ÷ 8,000 skirts		

#### E2-20 Concluded

b.	Work in Process	108,000	
	Materials		36,000
	Payroll		48,000
	Factory Overhead		24,000
	Spoiled Goods Inventory	995	
	Work in Process		995

a.	Factory Overhead (Loss Due to Defective Work) Materials Payroll Factory Overhead	300	150 100 50
b.	Work in Process Materials Payroll Factory Overhead	300	150 100 50

#### PROBLEMS

#### P2-1

1.	Order Point	<ul> <li>Expected Usage Dur</li> </ul>	ing Lead Time	+ (	Safety Stock
		= (200 units per day $\times$	5 days)	+ {	500 units
		= 1,500 units			
2.	EOQ =	$\sqrt{\frac{2 \text{ CN}}{\text{K}}}$			
	=	$\sqrt{\frac{2 \times \$50 \times 25,000}{\$.10}}$			
	=	√25,000,000			
	=	5,000 units			
3.	25,000 units Ordering cos	(annual usage) ÷ 5,000 u st: 5 orders @ \$50 per or	units (per order) = der = <u>\$250</u>	5 orders	
	Average nur	nber of units in inventory	= $(1/2 \times EOQ)$ = $(1/2 \times 5,000)$ = 3,000	+ Safety + 500	<sup>y</sup> Stock
	Carrying Co	st = Average Inventor	$y \times Carrying C$	ost per U	nit
	Total Cost	= 3,000 = Order Costs	× \$.10 + Carrying C	osts	= <u>\$300</u>
		= \$250	+ \$300		= <u>\$550</u>
(No	ote that wher cost a	n there is safety stock, t t the EOQ.)	he carrying cost	does no	t equal the order

#### P2-2

1.	Order Point	=	Expected Usage During Lead Time	+	Safety Stock
		=	(500 units per day $ imes$ 5 days)	+	1,500 units
		=	4,000 units		

#### P2-2 Concluded

2. EOQ = 
$$\sqrt{\frac{2 \text{ CN}}{\text{K}}}$$
  
=  $\sqrt{\frac{2 \times \$194.45 \times 63,000}{\$.50}}$   
=  $\sqrt{49,001,400}$   
= 7,000 units (rounded)

63,000 units (annual usage) ÷ 7,000 units (per order) = 9 orders
 Ordering cost: 9 orders @ \$194.45 per order = <u>\$1,750</u> (rounded)

Average numbe	r of	f units in inventory	= (	$1/2 \times EOQ)$ + Safety Ste	ock	
			= (	1/2×7,000) + 1,500		
			= {	5,000		
Carrying Cost	=	Average Inventory	×	Carrying Cost per Unit		
	=	5,000	×	\$.50	=	<u>\$2,500</u>
Total Cost	=	Order Costs	+	Carrying Costs		
	=	\$1,750	+	\$2,500	=	<u>\$4,250</u>

(Note that when there is safety stock, the carrying cost does not equal the order cost at the EOQ.)

	0.0.
\$ 750	\$2,090
1,000	2,000
1,250	2,050
1,500	2,180
1,750	2,330
2,000	2,500
	\$ 750 <b>1,000</b> 1,250 1,500 1,750 2,000

#### P2-3 Concluded

- 2. Annual requirement of 20,000 gallons divided by order size in column 1.
- 3. Number of orders  $\times$  \$20 cost per order.
- 4. Order size in column 1 divided by 2.
- 5. Average inventory in column  $4 \times$ \$5 per gallon carrying cost.
- 6. Total order cost in column 3 + total carrying cost in column 5.

#### P2-4

**1.** Average number of gals. In inventory =  $(1/2 \times EOQ)$  + Safety Stock

 $= (1/2 \times 400) + 500 = 700$  gals.

**2.** Carrying costs = Average inventory × Carrying Cost per Unit

= 700 gals. × \$5 = \$3,500

3. Since the EOQ does not change, the number of orders (50) does not change; therefore, the total order cost is still \$1,000 (or  $50 \times $20$ ).

		16	ш		Amount	90,000.00		121,000.00	31,000.00		196,000.00		132,000.00		219,500.00		120,500.00
		Ledger No. <u>112</u>	BALANC		Unit Price	3.00	3.00 J	3.10 J	3.10	3.10 J	3.30 J		3.30	3.30 J	3.50 J	3.30 J	3.50 J
		Materials Account N			Quantity	30,000	30,000	10,000	10,000	10,000	50,000		40,000	40,000	25,000	10,000	25,000
					Amount				90,000.00				64,000.00			99,000.00	
			SUED		Unit Price				3.00			3.10 J	3.30 <b>}</b>			3.30	
	MATERIALS LEDGER		5		Quantity				30,000			10,000	10,000			30,000	
		MATI		Mat.	Req. No.				49			50				51	
					Amount		31,000.00			165,000.00				87,500.00			
		bber gaskets	ECEIVED		Unit Price		3.10			3.30				3.50			
sting		:ription <u>Ru</u>	R		Quantity		10,000			50,000				25,000			
=IFO co		Desc		Rec.	Rep. No.		112			113				114			
1. a.					Date	11/1	11/4		11/5	11/8		11/15		11/22		11/28	

P 2-5

b. LIFC	) costin	b									
					MA	TERIALS EDGER					
	Desc	cription <u>R</u>	ubber ga	skets					Materials Account I	Ledger Vo. <u>11216</u>	
		RE	CEIVED				SSUED			BALANCE	
	Rec.				Mat.						
Date	Rep. No.	Quantity	Unit Price	Amount	Req. No.	Quantity	Unit Price	Amount	Quantity	Unit Price	Amount
11/1									30,000	3.00	90,000,00
11/4	112	10,000	3.10	31,000.00					30,000	3.00 <b>)</b>	
									10,000	3.10 J	121,000.00
11/5					49	10,000	3.10 J				
						20,000	3.00 J	91,000.00	10,000	3.00	30,000.00
11/8	113	50,000	3.30	165,000.00					10,000	3.00	
									50,000	3.30 J	195,000.00
11/15					50	20,000	3.30	66,000.00	10,000	3.00 J	
									30,000	3.30 J	129,000.00
11/22	114	25,000	3.50	87,500.00					10,000	3.00	
									30,000	3.30	
									25,000	3.50	216,500.00
11/28					51	25,000	3.50 J				
						5,000	3.30 J	104,000.00	10,000	3.00	
									25,000	3.30 J	112,500.00

P2-5 Continued

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		Q			Amount	90,000.00	121,000.00	30,250.00	195,250.00	130,166.60	217,666.60	117,205.00	
		s Ledger t No. <u>1121</u>	BALANCE		Unit Price	3.00	3.025 <sup>1</sup>	3.025	3.25417 <sup>2</sup>	3.25417	3.34872 <sup>3</sup>	3.34872	
		Material Account			Quantity	30,000	40,000	10,000	60,000	40,000	65,000	35,000	
					Amount			90,750.00		65,083.40		100,461.60	
			SSUED		Unit Price			3.025		3.25417		3.34872	
	I ENIALS EDGER				Quantity			30,000		20,000		30,000	
	M H	1		Mat. Pog	No.			49		50		51	
		skets			Amount		31,000.00		165,000.00		87,500.00		
		ubber gas	ECEIVED	nit	Price		3.10		3.30		3.50		
		:ription <u>R</u>	R		Quantity		10,000		50,000		25,000		
		Desc		Rec.	No.		112		113		114		
					Date	11/1	11/4	11/5	11/8	11/15	11/22	11/28	

 $40,000 \times 3.25417 = 130,166.80$   $\underline{25,000} \times 3.50000 = \underline{87,500.00}$   $\underline{65,000} \text{ units} \qquad \underline{217,666.80/65,000} = 3.34872$  $\frac{165,000}{195,250/60,000} = 3.25417$ ю.  $30,000 \times 3.00 = 90,000$  $10,000 \times 3.10 = 31,000$ 40,000 units 121,000/40,000 = 3.025 30,250  $10,000 \times 3.025 =$ <u>50,000</u> × 3.300 = 60,000 units <del>.</del> -

с.

#### P2-5 Concluded

#### 2.

Inventory Method	Cost Transferred to Work in Process	Cost of Ending Inventory
FIFO	\$253,000	\$120,500
LIFO	261,000	112,500
Weighted average	256,295	117,205

- 3. Probably LIFO because it will come closer to matching current costs with current revenues. When costs are rising, revenues are usually increasing; therefore, the resulting gross profit under LIFO will reflect the company's product profitability more accurately. Other inventory factors that should be given consideration in selecting any method are: the dollar amount of the inventories; the magnitude of the price changes; the direction of the price changes, whether rising or falling; and the length of the inventory cycle. Also, adopting LIFO in periods of rising prices will result in the minimization of income taxes.
- 4. In a period of rising prices, the balance sheet inventory under either method will most likely be less than the current market prices. However, as shown by the problem, the lowest figure for ending inventory will be reported when LIFO is used. LIFO charges the higher materials cost to Cost of Goods Sold whereas FIFO defers more of the higher cost to the inventory on hand.

					1		3 146 40	2 594 40	2,001.10	4,834.40		3,730.40		3,478.40			6,308.40			4,538.00	
		-edger lo. 906	BALANCE		Lott Duice		2.10 2.76	2.76	2.76	2.80	2.76 J	2.80	2.76 J	2.80 J	2.76	2.80	2.83		2.80 l	2.83 J	
		Materials I Account N			tit.		1 1 1 0	040	940	800	540	800	540	710	540	710	1,000		610	1,000	
					1000 V	AIIIOUIIL	165 60	552.00	00:000		1,104.00							1,490.40	280.00		
					Lott Duice		0 7G	2.76	2.3		2.76							2.76 J	2.80 J		
EPIALS	DGER	1		-		Qualitity	60	200	2002		400							540	100		
MAT				Mat.	Req.	.02	108	210	2		274							318			
		(ft. )	(ft. ) Amount 2,240.00 (252.00)	2,830.00																	
		astic tubing ( ECEIVED Unit Price 2.80				2.80		2.83													
		ription <u>Pl</u> ह			Quantity 800 800 (90) (1,000 1																
		Desc		Rec.	Rep.	.0N			634				Ret.		712						
							2/F	2/11	2/14		2/15		2/16		2/18			2/21			

1. FIFO method

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Continued	method
မှ	LIFO
<b>P2</b>	Ň

method	
LIFO	

					Σ	ATERIALS LEDGER					
	Des	cription F	Plastic tub	ing ( ft. )					Materia Accoun	ls Ledger It No. 9	06
		RE	ECEIVED				SSUED			BALANCE	
	Rec. Rep.				Mat. Reg.						
Date	No.	Quantity	Unit Price	Amount	No.	Quantity	Unit Price	Amount	Quantity	Unit Price	Amount
2/1									1,200	2.76	3,312.00
2/5					108	60	2.76	165.60	1,140	2.76	3,146.40
2/11					210	200	2.76	552.00	940	2.76	2,594.40
2/14	634	800	2.80	2,240.00					940	2.76	
									800	2.80 J	4,834.40
2/15					274	400	2.80	1,120.00	940	2.76 }	
									400	2.80	3,714.40
2/16	Ret.	(06)	2.80	(252.00)					940	2.76 }	
									310	2.80	3,462.40
2/18	712	1,000	2.83	2,830.00					940	2.76	
									310	2.80	
									1,000	2.83	6,292.40
2/21					318	640	2.83	1,811.20	940	2.76	
									310	2.80	
									360	2.83	4,481.20

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# 3. Weighted average method

					MAT	ERIALS DGER					
	Dest	cription <u>Pl</u>	astic tubin	g ( ft. )					Materials Account I	Ledger No. 90	-co
		R	ECEIVED				ISSUED			BALANCE	
	Rec. Rep.				Mat. Req.						
Date	No.	Quantity	Unit Price	Amount	No.	Quantity	Unit Price	Amount	Quantity	Unit Price	Amount
2/1									1,200	2.76	3,312.00
2/5					108	60	2.76	165.60	1,140	2.76	3,146.40
2/11					210	200	2.76	552.00	940	2.76	2,594.40
2/14	634	800	2.80	2,240.00					1,740	2.7784 <sup>1</sup>	4,834.40
2/15					274	400	2.7784	1,111.36	1,340	2.7784	3,723.04
2/16	Ret.	(06)	2.80	(252.00)					1,250	2.7768 <sup>2</sup>	3,471.04
2/18	712	1,000	2.83	2,830.00					2,250	2.8005 <sup>3</sup>	6,301.04
2/21					318	640	2.8005	1,792.32	1,610	2.8005	4,508.72
1 940	× 2 76	i = 2 594 40	C		C.	1 250 × 2 7	768 = 3 47	1 04			

1.  $940 \times 2.70 = 2,394.40$   $800 \times 2.80 = 2,240.00$ 1,740 units 4,834.40/1,740 = 2.7784 2. 1,340 × 2.7784 = 3,723.04  $(90) \times 2.8000 = (252.00)$ 1,250 units 3,471.04/1,250 = 2.7768

3.  $1,250 \times 2.7768 = 3,471.04$  $1,000 \times 2.8300 = 2,830.00$ 2,250 units 6,301.04/2,250 = 2.8005 Chapter 02

4	

(a)

(C)

a.	Materials Accounts F	Payable				74,000	74,000
b.	Work in Proce Factory Overh Materials	ess lead				57,000 11,000	68,000
C.	Materials Work in Pr	ocess .				1,100	1,100
d.	Accounts Pay Materials	able				2,500	2,500
e.	Accounts Pay Cash	able				68,500	68,500
2.	Ca	ash			Accounts	Payable	
Bal.	82,250 <i>13,750</i>	(e)	68,500	(d) (e)	2,500 68,500 71,000	Bal. (a) 24,000	21,000 74,000 <i>95,000</i>
	Mate	erials			Factory	Overhead	
Bal.	29,500	(b)	68,000	(b)	11,000		

	34,100		
	Work in	Process	
Bal.	27,000	(C)	1,100
(b)	57,000		
	84,000		
	82,900		

74,000

1,100

104,600

(d)

2,500

70,500

3.	a.	Cash	\$13,750
	b.	Materials	34,100
	C.	Accounts payable	24,000

1.							
a.	Materials Accounts F	Payable				58,000	58,000
b.	Work in Proce Factory Overh Materials	ss ead				45,000 8,000	53,000
C.	Materials Work in Pre	ocess				900	900
d.	Accounts Paya Materials	able				1,500	1,500
e.	Accounts Paya Cash	able				51,500	51,500
2.							
	Cash A				Accounts	Payable	
Bal.	64,250	(e)	51,500	(d)	1,500	Bal.	29,000
	12,750			(e)	51,500	(a)	58,000
					53 000		97 000

					53,000		87,000
						34,000	
	Mate	erials			Factory C	verhead	
Bal.	23,500	(b)	53,000	(b)	8,000		
(a)	58,000	(d)	1,500				
(C)	900		54,500				
	82,400						
2	7,900						
	Work in	Proces	SS				
Bal.	31,000	(C)	900	-			
(b)	45,000						
	76,000						
7	5,100						
3. a.	Cash						\$12.750
b.	Materials						27,900
C.	Accounts pa	ayable					34,000

1. and 2.

- **a.** The company purchased materials costing \$22,000. (Forms used: receiving report and vendor's invoice.)
- **b.** The storeroom issued direct materials to the factory in the amount of \$19,000. (Form used: materials requisitions.)
- c. The direct labor cost was \$17,000.
- d. Factory overhead in the amount of \$12,000 was charged to jobs in process.
- **e.** Jobs having a total cost of \$47,500 were completed in the factory and transferred to the finished goods storeroom.
- f. Total cost of goods sold during the month was \$55,000.
- **3.** Ending Inventories:

Materials	\$10,000
Work in Process	4,100
Finished Goods	4,150

1.				
	a.	b.	c.	d.
Date	Form	Journal Entry	Book of Original Entry	Subsidiary Ledger
Mar. 31	Purchase Requisition (for 1,800 aluminum sheets)	None	None	None
Apr. 1	Purchase Order	None	None	Materials Ledger (if "On Order" column is used)
Apr. 6	Receiving Report Vendor's Invoice	Materials	Purchases Journal	Materials Ledger
Apr. 11	Receiving Report Vendor's Invoice	Materials	Purchases Journal	Materials Ledger
Apr. 16	Approved Invoice	Accounts Payable42,500 Cash41,650 Purchases Discount	Cash Payments Journal	None

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d.	Subsidiary Records Affected	Materials Ledger Job Cost Ledger	Materials Ledger Job Cost Ledger	Stores Ledger Factory Overhead Ledger		
ن	Book of Original Entry Used	General Journal	General Journal	General Journal		
þ.	Journal Entry	Work in Process	Materials	Factory Overhead (Inventory Short and Over) 550 Materials	0 – requisitioned 1,900 + returned 20 = 420	$500 \times $23 = $11,500$ $1,380 \times $25 = 34,500$ $\frac{546,000}{546,000}$
a.	Form Used	Materials Requisition	Returned Materials Report	Inventory Report	500 + purchased 1,80	
	Date	Apr. 30	Apr. 30	Apr. 30	*Beg. Bal. <b>2.</b>	

Chapter 02

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\$46,000 (\$46,500 - \$500) (See above.)

þ.

 $$9,950 (398 \times $25)$ 

a.

- **1.** 200,000/50,000 = 4 days
- **2.** 25% × \$1,000,000 = \$250,000
- **3.**  $[(200,000 \times (1 0.50)]/50,000 = 2 \text{ days}$
- **4.** By reducing the average work in process by 50% while keeping the daily production constant, the velocity of production doubled.
- **5.**  $25\% \times (1/2 \times \$1,000,000) = \$125,000$
- 6. The cost of carrying inventory has been reduced by 50%.

#### P2-12

#### 1.

а.	Raw and In-Process	150,000	150,000
b.	No entry		
C.	Conversion Costs Payroll	25,000	25,000
d.	Conversion Costs Various Credits	100,000	100,000
е.	Finished Goods Raw and In-Process Conversion Costs	275,000	150,000 125,000
f.	Accounts Receivable Sales	400,000	400,000
	Cost of Goods Sold Finished Goods	275,000	275,000
2.			
е.	No entry		
f.	Cost of Goods Sold Raw and In-Process Conversion Costs	275,000	150,000 125,000

1.				
	a.	Raw and In-Process Accounts Payable	135,000	135,000
	b.	No entry		
	C.	Conversion Costs Payroll	20,000	20,000
	d.	Conversion Costs Various Credits	80,000	80,000
	e.	Finished Goods Raw and In-Process Conversion Costs	235,000	135,000 100,000
	f.	Accounts Receivable Sales	355,000	355,000
		Cost of Goods Sold Finished Goods	235,000	235,000
2.				
	e.	No entry		
	f.	Cost of Goods Sold Raw and In-Process Conversion Costs	235,000	135,000 100,000
P2	2-14			
a.	Fa	actory Overhead (Inventory Over and Short) Materials To adjust materials account to physical inventory	26	26
		count: $(10,000 - 9,950) \times $.52 = $26$		
b.	Count: (10,000 – 9,950) × \$.52 = \$26         Materials			
C.	W	ork in Process Factory Overhead (Repairs and Maintenance)	770	770
d.	Ac	ccounts Payable Materials	234	234

#### P 2-14 Concluded

e.	Sales Returns and Allowances Accounts Receivable	5,000	5,000
	Finished Goods Cost of Goods Sold	2,500	2,500
f.	Work in Process Factory Overhead (Supplies) Materials	20,200 2,100	22,300
g.	Materials Accounts Payable	25,685	25,685
h.	Materials Work in Process	950	950
i.	Scrap Materials Factory Overhead	685	685
j.	Spoiled Goods Work in Process	60	60
k.	Cash Scrap Materials	685	685

#### P2-15

#### 1.

	a.	Work in Process Materials Payroll Factory Overhead	7,500	3,500 1,500 2,500
	b.	Spoiled Goods (6 × \$50) Factory Overhead (Loss Due to Spoiled Goods) Work in Process (6 × \$75)	300 150	450
	C.	Cash Spoiled Goods	300	300
2.	a.	Same as <b>1a</b> above		
	b.	Spoiled Goods	300	
		Work in Process		300
	c.	Same as <b>1c</b> above.		

1.	Spoiled Goods Inventory (18 × \$75) Work in Process	1,350	1,350
2.	Work in Process Materials Payroll Factory Overhead	4,350	1,650 1,500 1,200
3.	Work in Process (18 × \$300) Materials (18 × \$117) Payroll (18 × \$100) Factory Overhead (18 × \$83)	5,400	2,106 1,800 1,494
4.	Cash Spoiled Goods Inventory	1,350	1,350

5. NOTE: You may want students to read the Differential Cost Analysis section of Ch. 10 before attempting Part 5 of this problem. Alternatively, you may wish to challenge them with Part 5 to see if they can determine the relevant items to this decision without first teaching them the concept.

The cost of reconditioning the 15 defective motors is \$4,350 or \$290 each. Lloyd would be better off reconditioning the motors and selling them for \$400 for a gain of \$110 per unit versus selling them as is for \$75 each.

#### **REVIEW PROBLEM FOR CHAPTERS 1 & 2**

#### P2-17R

1. and 3.

	Ca	ash			Prepaid Ir	nsurance	
Bal. (e) 6,950	12,000 72,500 <i>84,500</i>	(b) (g) (j) (k) (l) (n)	1,000 32,800 6,000 2,000 33,750 2,000	Bal. 2,600	3,000 Machi	(m) inery	400
	Accounto	Pagaiyak	77,550	Bal.	125,000		
(d)	126 375		72 500		Accum. Depr		10 500
(u) 53,875	120,373	(6)	72,300			(0)	1,200
	Finishe	d Goods					11,700
(a)	98 290	(r)	84 250				
(9) 14.040	00,200	(,)	01,200		Office Eq	uipment	
,				Bal.	30,000		
	Work in	Process					
Bal. (a)	35,000 28,000	(q)	98,290	Acc	um. Depr./Oi	ffice Equi	oment
(f)	54,340					Bal.	4,800
(p)	11,950					(0)	400
	129,290						
31,000							5,200
		.,			Office Fi	urnitura	
Del	Mat	erials	54.040	Bal	20 000		
Bal. (b)		(T) (b)	54,340 650	Dai.	20,000		
(C)	22 000	(11)	54 990			I	
	74.000		07,000	Ac	cum. Depr./C	Office Furi	niture
19,010	,					Bal.	2,500
						(0)	180
							2,680

Accounts Payable				Payroll				
(I)	33,750	Bal. (c)	30,000 22,000	(g)		32,800	(a)	32,800
		(i)	3,000		Factory Overhead			
		21,250	55,000	(a) (h) (i)		4,800 650 3,000	(p)	11,950
	Capita	al Stock	(	(m	)	300		
		Bal.	182,200	— (n) (o)		2,000 1,200 <i>11,950</i>		
	Retained	l Earnir	ngs					
		Bal.	46,000		S	Selling and Ad	min.	Expense
	Sá	ales		(J) (k)		6,000 2,000		
		(d)	126,375	(m (0)	)	100 580		
Cost of Goods Sold					8,680			
(r)	84,250							

#### 2.

a. Work in Process Factory Overhead	28,000 4.800	
Payroll	,	32,800
<b>b.</b> Materials Cash	1,000	1,000
<b>c.</b> Materials Accounts Payable	22,000	22,000
d. Accounts Receivable Sales	126,375	126,375
e. Cash Accounts Receivable	72,500	72,500

f.	Work in Process Materials					54,340	54,340
	Chain: 12,000 lbs. 2,000 lbs.	@	\$2.00 \$2.20	\$24,000 <u>4,400</u> \$	28,400		
	Pulleys: 4,000 sets 400 sets	0	\$5.00 \$5.10	\$20,000 <u>2,040</u>	22,040		
	Bolts and taps: 4,000 lbs.	@	\$.50		2,000		
	Steel plates: 3,800 units	@	\$ .50		<u>1,900</u> <u>\$ 54,340</u>		
g.	Payroll Cash					32,800	32,800
h.	Factory Overhead Materials					650	650
i.	Factory Overhead Accounts Payable					3,000	3,000
j.	Selling and Administrat Cash	ive Expe	ense (Sa	laries)		6,000	6,000
k.	Selling and Administrat Cash	ive Expe	ense (Ad	vertising)		2,000	2,000
I.	Accounts Payable Cash					33,750	33,750
m.	Selling and Administrat Factory Overhead	ive Expe	ense (Ins	urance)		100 300	400
	Frepaiu insurance						400

n.	Factory Overhead Cash	2,000	2,000
0.	Selling and Administrative Expense (Depreciation of Office Equipment and Office Furniture). Factory Overhead Accumulated Depreciation/Office Equipment Accumulated Depreciation/Office Furniture Accumulated Depreciation/Machinery	580 1,200	400 180 1,200
р.	Work in Process Factory Overhead	11,950	11,950
q.	Finished Goods Work in Process (Beg. Bal. \$35,000 + Dir. Labor \$28,000 + Dir. Materials \$ 11,950 – End. Bal. \$31,000)	98,290 54,340 + Factory	98,290 OH
r.	Cost of Goods Sold Finished Goods	84,250	84,250

4.

#### UltraLift Corp. Statement of Cost of Goods Manufactured For the Month Ended October 31, 20—

Materials: Inventory, October 1 Purchases	\$51,000 23.000	
Total cost of available materials Less inventory, October 31 Cost of materials used Less indirect materials used	\$74,000 <u>19,010</u> \$54,990 <u>650</u>	
Cost of materials used in production Direct labor Factory overhead		\$ 54,340 28,000 <u>11,950</u>
Total manufacturing costs Add work in process inventory, October 1		\$ 94,290 <u>35,000</u> \$ 129,290
Less work in process inventory, October 31		31,000
Cost of goods manufactured		<u>\$ 98,290</u>
5. UltraLift Corp.		
Income Statement		
For the Month Ended October 31, 20—		
Net sales Cost of goods sold:		\$ 126,375
Finished goods inventory, October 1 Add cost of goods manufactured (see statement)	0 <u>\$98,290</u>	
Goods available for sale Less finished goods inventory, October 31	\$98,290 <u>14,040</u>	
Cost of goods sold		84,250
Gross profit on sales Selling and administrative expenses		\$ 42,125 <u>8,680</u>
Net income		<u>\$ 33,445</u>

#### P2-17R Concluded

6.

#### UltraLift Corp. Balance Sheet October 31, 20—

Assets			
Current assets: Cash Accounts receivable Inventories:			\$    6,950 53,875
Finished goods Work in process Materials		\$ 14,040 31,000 <u>19,010</u>	64,050
Prepaid insurance			2,600
Total current assets			\$127,475
Plant and equipment: Machinery Less accumulated depreciation	\$ 125,000 <u>11,700</u>	\$113,300	
Office equipment Less accumulated depreciation	\$ 30,000 <u>5,200</u>	24,800	
Office furniture Less accumulated depreciation Total plant and equipment Total assets	\$ 20,000 2,680	17,320	<u>155,420</u> <u>\$282,895</u>
Liabilities Current liabilities: Accounts payable			\$ 21,250
Stockholders' Equity Capital stock Retained earnings, October 1 Net income for October	\$ 46,000 <u>33,445</u>	\$182,200	
Retained earnings, October 31		79,445	
Total stockholders' equity			261,645
Total liabilities and stockholders' equity			<u>\$282,895</u>

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Chapter 02

#### MINI-CASE 1

1. Savings from implementing JIT:

Reduction in rework costs (\$300,000 × 25%)	\$ 75,000
Reduction in storage and handling $($250,000 \times 40\%)$	100,000
Savings in carrying costs (300,000 × \$.35)	105,000
Total savings	\$280,000
Less: Increase in changeover costs	200,000
Net advantage of JIT	<u>\$ 80,000</u>

- 2. Non-financial advantages:
  - Anticipated improvement in product quality
  - Frees up factory space for other uses.

Non-financial disadvantages:

- Interruptions in materials supply or strike by their own workers resulting in lost sales.
- Difficulty of workers to master JIT processes.

#### MINI-CASE 2

- Inventory carrying costs such as storage space for raw materials, security, insurance, and spoilage and obsolesence should be reduced by a JIT system. Also, a JIT system can reduce nonvalue-added production activities such as moving materials and work in process, storage of work in process and finished goods, and inspection of work in process.
- 2. Yes, benefits to Phillips' customers would include increased customer satisfaction due to quicker delivery, decreased cost of products due to some of the savings in carrying costs and production costs being passed on to the consumer, and higher quality products due to quality control techniques being practiced at the time an individual unit is produced.
- 3. Yes, inventory should not be accounted for using traditional job costing techniques. Products move through the system so rapidly in a JIT environment that it would not be cost effective to track production costs to them while in process. For example, a Raw and In-Process account may replace the Materials account, and the Work in Process and Finished Goods accounts may disappear in a backflush costing system.