CHAPTER 2

Job Order Costing

ASSIGNMENT CLASSIFICATION TABLE

Study Objectives	Questions	Brief Exercises	Do It!	Exercises	A Problems	B Problems
1. Explain the characteristics and purposes of cost accounting.	1, 2, 3, 4					
2. Describe the flow of costs in a job order costing system.	5, 6, 7, 8	1, 2, 3, 4	1	1, 2, 3, 4, 6, 7, 8, 9, 11	1A, 2A, 3A, 5A	1B, 2B, 3B, 5B
3. Explain the nature and importance of a job cost sheet.	9, 10, 11, 12	5	2	1, 2, 3, 6, 7, 8, 10, 12	1A, 2A, 3A, 5A	1B, 2B, 3B, 5B
4. Indicate how the predetermined overhead rate is determined and used.	13, 14, 15	6, 7	2	2, 3, 5, 6, 7, 8, 11, 12, 13	1A, 2A, 3A, 4A, 5A	1B, 2B, 3B, 4B, 5B
5. Prepare entries for jobs completed and sold.	16	8	3	2, 3, 4, 6, 7, 8, 9, 10, 11	1A, 2A, 3A, 5A	1B, 2B, 3B, 5B
6. Distinguish between under- and overapplied manufacturing overhead.	17, 18	9	4	5, 12, 13	1A, 2A, 4A, 5A	1B, 2B, 4B, 5B

ASSIGNMENT CHARACTERISTICS TABLE

Problem Number	Description	Difficulty Level	Time Allotted (min.)
1A	Prepare entries in a job order cost system and job cost sheets.	Simple	30–40
2A	Prepare entries in a job order cost system and partial income statement.	Moderate	30–40
3A	Prepare entries in a job order cost system and cost of goods manufactured schedule.	Simple	30–40
4A	Compute predetermined overhead rates, apply overhead, and calculate under- or overapplied overhead.	Simple	20–30
5A	Analyze manufacturing accounts and determine missing amounts.	Complex	30–40
1B	Prepare entries in a job order cost system and job cost sheets.	Simple	30–40
2B	Prepare entries in a job order cost system and partial income statement.	Moderate	30–40
3B	Prepare entries in a job order cost system and cost of goods manufactured schedule.	Simple	30–40
4B	Compute predetermined overhead rates, apply overhead, and calculate under- or overapplied overhead.	Simple	20–30
5B	Analyze manufacturing accounts and determine missing amounts.	Complex	30–40

Correlation Chart between Bloom's Taxonomy, Study Objectives and End-of-Chapter Exercises and Problems

Study Objective	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
1. Explain the characteristics and purposes of cost accounting.		Q2-1 Q2-3 Q2-2 Q2-4				
2. Describe the flow of costs in a job order costing system.	Q2-5 Q2-7 Q2-8	Q2-6 BE2-1	BE2-2 E2-3 E2-11 BE2-3 E2-6 P2-1A BE2-4 E2-7 P2-3A DI2-1 E2-8 P2-1B E2-1 E2-9 P2-3B E2-2	E2-4 P2-2A P2-5A P2-2B P2-5B		
3. Explain the nature and importance of a job cost sheet.	Q2-11 Q2-12	Q2-9 Q2-10	BE2-5 E2-6 P2-1A DI2-2 E2-7 P2-3A E2-1 E2-8 P2-1B E2-2 E2-10 P2-3B E2-3 E2-12	P2-2A P2-5A P2-2B P2-5B		
4. Indicate how the predetermined overhead rate is determined and used.	Q2-15	Q2-13 Q2-14	BE2-6 E2-7 P2-3A BE2-7 E2-8 P2-4A DI2-2 E2-11 P2-1B E2-2 E2-12 P2-3B E2-3 E2-13 P2-4B E2-6 P2-1A	E2-5 P2-2A P2-5A P2-2B P2-5B		
5. Prepare entries for jobs completed and sold.		Q2-16	BE2-8 E2-7 P2-1A DI2-3 E2-8 P2-3A E2-2 E2-9 P2-1B E2-3 E2-10 P2-3B E2-6 E2-11	E2-4 P2-5B P2-2A P2-5A P2-2B		
6. Distinguish between under- and overapplied manufacturing overhead.		Q2-17 Q2-18 BE2-9	E2-12 P2-4A E2-13 P2-1B P2-1A P2-4B	DI2-4 P2-5A E2-5 P2-2B P2-2A P2-5B		
Broadening Your Perspective		Communication Real-World Focus Exploring the Web		Managerial Analysis		All About You Decision Making Across the Organization Ethics Case

ANSWERS TO QUESTIONS

1. (a) Cost accounting involves the measuring, recording, and reporting of product costs. A cost accounting system consists of manufacturing cost accounts that are fully integrated into the general ledger of a company.
(b) An important feature of a cost accounting system is the use of a perpetual inventory system that provides immediate, up-to-date information on the cost of a product.

2. (a) The two principal types of cost accounting systems are: (1) job order cost system and (2) process cost system. Under a job order cost system, costs are assigned to each job or batch of goods; at all times each job or batch of goods can be separately identified. A job order cost system measures costs for each completed job, rather than for set time periods. Under a process cost system, product-related costs are accumulated by or assigned to departments or processes for a set period of time. Job order costing lends itself to specific, special-order manufacturing or servicing while process costing is better suited to similar, large-volume products and continuous process manufacturing.
(b) A company may use both types of systems. For example, General Motors uses process costing for standard model cars and job order costing for custom-made vehicles.

3. A job order cost system is most likely to be used by a company that receives special orders, or custom builds, or produces heterogeneous items or products; that is, the product manufactured or the service rendered is tailored to the customer or client's requests, needs, or situation. Examples of industries that use job order systems are custom home builders, commercial printing companies, motion picture companies, construction contractors, repair shops, accounting and law firms, hospitals, shipbuilders, and architects.

4. A process cost system is most likely to be used by manufacturing firms with continuous production flows usually found in mass production, assembly line, large-volume, uniform, or relatively similar product industries. Companies producing appliances, chemicals, pharmaceuticals, rubber and tires, plastics, cement, petroleum, and automobiles utilize process cost systems.

5. The major steps in the flow of costs in a job order cost system are: (1) accumulating the manufacturing costs incurred and (2) assigning the accumulated costs to work done.

6. The three inventory control accounts and their subsidiary ledgers are:
Raw materials inventory—materials inventory records.
Work in process inventory—job cost sheets.
Finished goods inventory—finished goods records.

7. The source documents used in accumulating direct labor costs are time tickets and time cards.

8. Disagree. Entries to Manufacturing Overhead are also made at the end of an accounting period. For example, there will be adjusting entries for factory depreciation, property taxes, and insurance.

9. The source document for materials is the materials requisition slip and the source document for labor is the time ticket. The entries are:

Materials			Labor		
Work in Process Inventory	XX		Work in Process Inventory	XX	
Manufacturing Overhead	XX		Manufacturing Overhead	XX	
Raw Materials Inventory		XX	Factory Labor		XX

10. The purpose of a job cost sheet is to record the costs chargeable to a specific job and to determine the total and unit costs of the completed job.

11. The source documents for charging costs to specific jobs are materials requisition slips for direct materials, time tickets for direct labor, and the predetermined overhead rate for manufacturing overhead.

12. The materials requisition slip is a business document used as an authorization to issue materials from inventory to production. It is approved and signed by authorized personnel so that materials may be removed from inventory and charged to production, to specific jobs, departments, or processes. The materials requisition slip is the basis for posting to the materials inventory records and to the job cost sheet.

13. Disagree. Actual manufacturing overhead cannot be determined until the end of a period of time. Consequently, there could be a significant delay in assigning overhead and in determining the total cost of the completed job.

14. The relationships for computing the predetermined overhead rate are the estimated annual overhead costs and an expected activity base such as direct labor hours. The rate is computed by dividing the estimated annual overhead costs by the expected annual operating activity.

15. At any point in time, the balance in Work in Process Inventory should equal the sum of the costs shown on the job cost sheets of unfinished jobs. Alternatively, posting to Work in Process Inventory may be compared with the sum of the postings to the job cost sheets for each of the manufacturing cost elements.

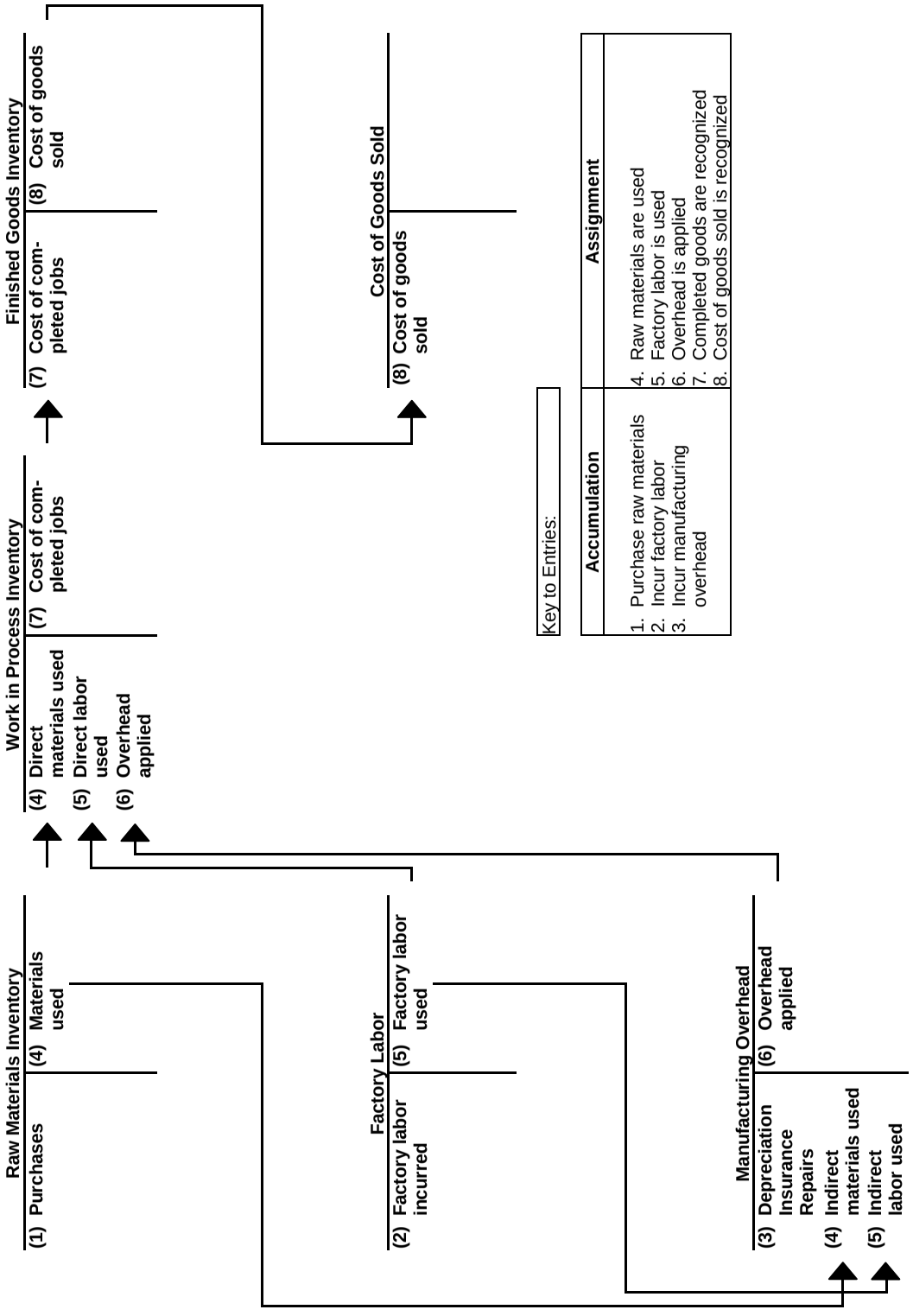
16. Tina is incorrect. There is a difference in computing total manufacturing costs. In job order costing, manufacturing overhead applied is used, whereas in Chapter 1, actual manufacturing overhead is used.

17. Underapplied overhead means that the overhead assigned to work in process is less than the overhead incurred. Overapplied overhead means that the overhead assigned to work in process is greater than the overhead incurred. Manufacturing Overhead will have a debit balance when overhead is underapplied and a credit balance when overhead is overapplied.

18. Under- or overapplied overhead is not closed to Income Summary. The balance in Manufacturing Overhead is eliminated through an adjusting entry. Under- or overapplied overhead generally is considered to be an adjustment of Cost of Goods Sold.

SOLUTIONS TO BRIEF EXERCISES

BRIEF EXERCISE 2-1



BRIEF EXERCISE 2-2

Jan. 31	Raw Materials Inventory	4,000	
	Accounts Payable		4,000
31	Factory Labor	5,000	
	Factory Wages Payable		4,200
	Employer Payroll Taxes Payable		800
31	Manufacturing Overhead	2,000	
	Utilities Payable		2,000

BRIEF EXERCISE 2-3

Jan. 31	Work in Process Inventory	2,800	
	Manufacturing Overhead	600	
	Raw Materials Inventory		3,400

BRIEF EXERCISE 2-4

Jan. 31	Work in Process Inventory	4,200	
	Manufacturing Overhead	800	
	Factory Labor		5,000

BRIEF EXERCISE 2-5

Job 1		
Date	Direct Materials	Direct Labor
1/31	900	
1/31		1,200

Job 2		
Date	Direct Materials	Direct Labor
1/31	1,200	
1/31		1,600

Job 3		
Date	Direct Materials	Direct Labor
1/31	700	
1/31		1,400

BRIEF EXERCISE 2-6

Overhead rate per direct labor cost is 160%, or ($800,000 ÷ $500,000).
Overhead rate per direct labor hour is $16, or ($800,000 ÷ 50,000).
Overhead rate per machine hour is $8, or ($800,000 ÷ 100,000).

BRIEF EXERCISE 2-7

Jan. 31	Work in Process Inventory	36,000	
	Manufacturing Overhead		
	($40,000 X 90%)		36,000
Feb. 28	Work in Process Inventory	27,000	
	Manufacturing Overhead		
	($30,000 X 90%)		27,000
Mar. 31	Work in Process Inventory	45,000	
	Manufacturing Overhead		
	($50,000 X 90%)		45,000

BRIEF EXERCISE 2-8

Mar. 31	Finished Goods Inventory	55,000	
	Work in Process Inventory.....		55,000
31	Cash.....	35,000	
	Sales		35,000
31	Cost of Goods Sold.....	25,000	
	Finished Goods Inventory.....		25,000

BRIEF EXERCISE 2-9

	Caroline Company		
Dec. 31	Cost of Goods Sold.....	1,500	
	Manufacturing Overhead.....		1,500
	Criqui Company		
Dec. 31	Manufacturing Overhead	900	
	Cost of Goods Sold.....		900

SOLUTIONS FOR DO IT! REVIEW EXERCISES

DO IT! 2-1

(a)	Raw Materials Inventory	13,000	
	Accounts Payable		13,000
	(Purchases of raw materials on account)		
(b)	Factory Labor	40,000	
	Factory Wages Payable		31,000
	Employer Payroll Taxes Payable		9,000
	(To record factory labor costs)		
(c)	Manufacturing Overhead	15,000	
	Accumulated Depreciation		9,500
	Utilities Payable		3,100
	Prepaid Property Taxes		2,400
	(To record overhead costs)		

DO IT! 2-2

The three summary entries are:

Work in Process Inventory ($7,200 + $9,000)	16,200	
Raw Materials Inventory		16,200
(To assign materials to jobs)		
Work Process Inventory ($4,000 + $6,000)	10,000	
Factory Labor		10,000
(To assign labor to jobs)		
Work in Process Inventory ($5,200 + $7,800)	13,000	
Manufacturing Overhead		13,000
(To assign overhead to jobs)		

DO IT! 2-3

Finished Goods Inventory	**100,000**	
Work in Process Inventory		**100,000**
(To record completion of Job 310, costing $60,000 and Job 312, costing $40,000)		
Accounts Receivable	**90,000**	
Sales		**90,000**
(To record sale of Job 312)		
Cost of Goods Sold	**40,000**	
Finished Goods Inventory		**40,000**
(To record cost of goods sold for Job 312)		

DO IT! 2-4

Manufacturing overhead applied = 150% X $85,000 = $127,500
Overapplied manufacturing overhead = $120,000 – $127,500 = $7,500

SOLUTIONS TO EXERCISES

EXERCISE 2-1

(a)	Factory Labor	72,000	
	Factory Wages Payable		60,000
	Employer Payroll Taxes Payable		8,000
	Employer Fringe Benefits Payable		4,000
(b)	Work in Process Inventory ($72,000 X 85%)	61,200	
	Manufacturing Overhead	10,800	
	Factory Labor		72,000

EXERCISE 2-2

(a)	May 31	Work in Process Inventory	10,400	
		Manufacturing Overhead	800	
		Raw Materials Inventory		11,200
	31	Work in Process Inventory	12,500	
		Manufacturing Overhead	1,200	
		Factory Labor		13,700
	31	Work in Process Inventory ($12,500 X 80%)	10,000	
		Manufacturing Overhead		10,000
	31	Finished Goods Inventory	7,920	
		Work in Process Inventory ($2,000 + $2,500 + $1,900 + $1,520*)		7,920

*$1,900 X 80%

(b)

Work in Process Inventory

May	1	Balance	3,200	May 31	7,920
	31		10,400		
	31		12,500		
	31		10,000		
May	31	Balance	28,180		

EXERCISE 2-2 (Continued)

Job Cost Sheets

Job No.	Beginning Work in Process	Direct Material	Direct Labor	Manufacturing* Overhead	Total
430	$1,200	$3,500	$ 3,000	$2,400	$10,100
431	0	4,400	7,600	6,080	18,080
	$1,200	$7,900	$10,600	$8,480	$28,180

*Direct labor X .80

EXERCISE 2-3

(a) 1. $15,500, or ($5,000 + $6,000 + $4,500).

2. Last year 75%, or ($4,500 ÷ $6,000); this year 80% (either $6,400 ÷ $8,000 or $3,200 ÷ $4,000).

(b)	Jan. 31	Work in Process Inventory.....	8,000	
		Raw Materials Inventory.....		8,000
	31	Work in Process Inventory.....	12,000	
		Factory Labor.....		12,000
	31	Work in Process Inventory.....	9,600	
		Manufacturing Overhead.....		9,600
	31	Finished Goods Inventory.....	45,100	
		Work in Process Inventory.....		45,100

EXERCISE 2-4

(a) + $50,000 + $42,500 = $155,650
(a) = $63,150

$155,650 + (b) = $201,500
(b) = $45,850

$201,500 – (c) = $192,300
(c) = $9,200

EXERCISE 2-4 (Continued)

[Note: The instructions indicate that manufacturing overhead is applied on the basis of direct labor cost, and the rate is the same in all cases. From Case A, a student should note the overhead rate to be 85%, or ($42,500 ÷ $50,000).]

(d) = .85 X $120,000
(d) = $102,000

$83,000 + $120,000 + $102,000 = (e)
(e) = $305,000

$305,000 + $15,500 = (f)
(f) = $320,500

$320,500 – $11,800 = (g)
(g) = $308,700

[Note: (h) and (i) are solved together.]

(i) = .85(h)
$63,150 + (h) + .85(h) = $213,000
1.85(h) = $149,850
(h) = $81,000
(i) = $68,850

(j) = $213,000 + $18,000
(j) = $231,000

$231,000 – (k) = $222,000
(k) = $9,000

EXERCISE 2-5

(a) $2.44 per machine hour ($305,000 ÷ 125,000).

(b) ($322,000) – ($2.44 x 130,000 Machine Hours)
$322,000 – $317,200 = $4,800 underapplied

(c)	**Cost of Goods Sold .....**	**4,800**	
	Manufacturing Overhead		**4,800**

EXERCISE 2-6

(a) (1) The source documents are:

Direct materials—Materials requisition slips.
Direct labor—Time tickets.
Manufacturing overhead—Predetermined overhead rate.

(2) The predetermined overhead rate is 125% of direct labor cost. For example, on July 15, the computation is $550 ÷ $440 = 125%. The same result is obtained on July 22 and 31.

(3) The total cost is:

Direct materials	$4,825
Direct labor	1,360
Manufacturing overhead	1,700
	$7,885

The unit cost is $3.94 ($7,885 ÷ 2,000).

(b)

July 31	Finished Goods Inventory		7,885	
	Work in Process Inventory			7,885

EXERCISE 2-7

1.	Raw Materials Inventory	46,300	
	Accounts Payable		46,300
2.	Work in Process Inventory	29,200	
	Manufacturing Overhead	6,800	
	Raw Materials Inventory		36,000
3.	Factory Labor	53,900	
	Factory Wages Payable		49,000
	Employer Payroll Taxes Payable		4,900
4.	Work in Process Inventory	48,000	
	Manufacturing Overhead	5,900	
	Factory Labor		53,900

EXERCISE 2-7 (Continued)

5.	Manufacturing Overhead	80,500	
	Accounts Payable		80,500
6.	Work in Process Inventory ($48,000 X 150%)	72,000	
	Manufacturing Overhead		72,000
7.	Finished Goods Inventory	88,000	
	Work in Process Inventory		88,000
8.	Accounts Receivable.....	103,000	
	Sales		103,000
	Cost of Goods Sold	75,000	
	Finished Goods Inventory		75,000

EXERCISE 2-8

1.	Raw Materials Inventory.....	192,000	
	Accounts Payable		192,000
	Factory Labor	87,300	
	Factory Wages Payable.....		87,300
2.	Work in Process Inventory	153,530	
	Manufacturing Overhead	4,470	
	Raw Materials Inventory.....		158,000
	Work in Process Inventory	80,000	
	Manufacturing Overhead	7,300	
	Factory Labor		87,300
3.	Manufacturing Overhead	39,500	
	Accounts Payable		39,500
4.	Manufacturing Overhead	14,550	
	Accumulated Depreciation—Machinery and Equipment		14,550

EXERCISE 2-8 (Continued)

5.	Work in Process Inventory	64,000	
	Manufacturing Overhead (80% X $80,000)		64,000
6.	Finished Goods Inventory	234,430	
	Work in Process Inventory.....		234,430

Computation of cost of jobs finished:

Job	Direct Materials	Direct Labor	Manufacturing Overhead	Total
A20	$35,240	$18,000	$14,400	$ 67,640
A21	42,920	22,000	17,600	82,520
A23	39,270	25,000	20,000	84,270
				$234,430

EXERCISE 2-9

(a)

STELLAR MANUFACTURING COMPANY
Cost of Goods Manufactured Schedule
For the Month Ended May 31, 2011

Work in process, May 1		$ 14,700
Direct materials used.....	$62,400	
Direct labor	32,000	
Manufacturing overhead applied	40,000	
Total manufacturing costs		134,400
Total cost of work in process		149,100
Less: Work in process, May 31		17,900
Cost of goods manufactured.....		$131,200

EXERCISE 2-9 (Continued)

(b)

STELLAR MANUFACTURING COMPANY
(Partial) Income Statement
For the Month Ended May 31, 2011

Sales		$200,000
Cost of goods sold		
Finished goods, May 1	$ 12,600	
Cost of goods manufactured	131,200	
Cost of goods available for sale	143,800	
Less: Finished goods, May 31	9,500	
Cost of goods sold		134,300
Gross profit		$ 65,700

(c) In the May 31 balance sheet, the manufacturing inventories will be reported in current assets as follows: Finished goods $9,500, Work in Process $17,900, and Raw Materials $7,100.

EXERCISE 2-10

(a) Work in Process Inventory

April 30	$9,300	(#10, $5,200 + #11, $4,100)
May 31	$17,600	(#11, $8,000 + #13, $4,700 + #14, $4,900)
June 30	$8,500	(#14, $4,900 + $3,600)

(b) Finished Goods Inventory

April 30	$1,200	(#12)
May 31	$9,600	(#10)
June 30	$20,200	(#11, $11,000 + #13, $9,200)

(c) Gross Profit

Month	Job Number	Sales	Cost of Goods Sold	Gross Profit
May	12	$ 1,500	$ 1,200	$ 300
June	10	12,000	9,600	2,400
July	11/13	25,250	20,200	5,050

EXERCISE 2-11

(a)

1	Supplies	1,500	
	Accounts Payable		1,500
2	Work in Process	720	
	Operating Overhead	480	
	Supplies		1,200
3	Work in Process	40,000	
	Operating Overhead	10,000	
	Salaries Payable		50,000
4	Operating Overhead	40,000	
	Cash		40,000
5	Work in Process ($40,000 X 90%)	36,000	
	Operating Overhead		36,000
6	Cost of Completed Work	70,000	
	Work in Process		70,000

(b)

Work in Process

2.	720	70,000	(6)
3.	40,000		
5.	36,000		
	6,720		

EXERCISE 2-12

(a)	Sara	Brian	Nick
Direct materials	$ 600	$ 400	$ 200
Auditor labor costs	5,400	6,600	3,375
Applied overhead	3,960	4,840	2,475
Total cost	$9,960	$11,840	$6,050

(b) The Sara job is the only incomplete job, therefore, $9,960.

(c)		
Actual overhead	$12,000	(DR)
Applied overhead	11,275	(CR)
Balance	$ 725	(DR)

EXERCISE 2-13

(a) Predetermined overhead rate = Estimated overhead ÷ Estimated decorator hours
= $960,000 ÷ 40,000 decorator hours
= $24 per decorator hour

(b)		
Work in Process (40,500 hrs X $24)	972,000	
Operating Overhead		972,000

(c)		
Actual overhead	$982,800	
Applied overhead	972,000	
Balance	$ 10,800	underapplied

SOLUTIONS TO PROBLEMS

PROBLEM 2-1A

(a) $1,050,000 ÷ $700,000 direct labor costs = 150% of direct labor costs

(b) See solution to part (e) for job cost sheets

(c)	**Raw Materials Inventory**	**90,000**	
	Accounts Payable		**90,000**
	Factory Labor	**65,000**	
	Factory Wages Payable		**49,000**
	Employer Payroll Taxes Payable		**16,000**
	Manufacturing Overhead	**71,000**	
	Accounts Payable		**20,000**
	Accumulated Depreciation		**19,000**
	Raw Materials Inventory		**17,000**
	Factory Labor		**15,000**
(d)	**Work in Process Inventory**	**79,000**	
	Raw Materials Inventory ($10,000 + $39,000 + $30,000)		**79,000**
	Work in Process Inventory	**50,000**	
	Factory Labor ($5,000 + $25,000 + $20,000)		**50,000**
	Work in Process Inventory	**75,000**	
	Manufacturing Overhead ($50,000 X 150% of direct labor costs)		**75,000**

See solution to part (e) for postings to job cost sheets.

PROBLEM 2-1A (Continued)

(b)&(e) Job Cost Sheets

Job No. 50			
Date	**Direct Materials**	**Direct Labor**	**Manufacturing Overhead**
Beg.	$20,000	$12,000	$16,000
Jan.	10,000	5,000	7,500*
	$30,000	$17,000	$23,500

Cost of completed job	
Direct materials	$30,000
Direct labor	17,000
Manufacturing overhead	23,500
Total cost	$70,500

*$5,000 X 150%

Job No. 51			
Date	**Direct Materials**	**Direct Labor**	**Manufacturing Overhead**
Jan.	$39,000	$25,000	$37,500**
	$39,000	$25,000	$37,500

Cost of completed job	
Direct materials	$ 39,000
Direct labor	25,000
Manufacturing overhead	37,500
Total cost	$101,500

**$25,000 X 150%

Job No. 52			
Date	**Direct Materials**	**Direct Labor**	**Manufacturing Overhead**
Jan.	$30,000	$20,000	$30,000***

***$20,000 X 150%

PROBLEM 2-1A (Continued)

	Finished Goods Inventory	172,000	
	Work in Process Inventory ($70,500 + $101,500).....		172,000
(f)	Cost of Goods Sold.....	160,500	
	Finished Goods Inventory ($90,000 + $70,500).....		160,500
	Accounts Receivable.....	280,000	
	Sales ($122,000 + $158,000).....		280,000

(g)

Finished Goods Inventory			
Beginning balance	90,000	160,500	Cost of jobs 49 and 50 sold
Cost of completed jobs 50 and 51	172,000		
Ending balance	101,500		

The balance in this account consists of the cost of completed Job No. 51 which has not yet been sold.

(h)

Manufacturing Overhead	
Actual	Applied
71,000	75,000
	4,000

The balance in the Manufacturing Overhead account is overapplied.

PROBLEM 2-2A

(a)

Work in Process Inventory

1/1	Balance (1)	128,400	Completed work (5) (c)	386,200
	Direct materials (2)	121,000		
	Direct labor (3)	139,000		
	Manufacturing overhead (4)	166,800		
12/31	Balance	169,000		

(1)	Job 7640	$ 77,800	(3)	Job 7640	$ 36,000
	Job 7641	50,600		Job 7641	48,000
		$128,400		Job 7642	55,000
					$139,000
(2)	Job 7640	$ 30,000	(4)	Job 7640	$ 43,200
	Job 7641	43,000		Job 7641	57,600
	Job 7642	48,000		Job 7642	66,000
		$121,000			$166,800

(5) (a) Job 7640

Beginning balance	$ 77,800
Direct materials	30,000
Direct labor	36,000
Manufacturing overhead	43,200
	$187,000

(b) Job 7641

Beginning balance	$ 50,600
Direct materials	43,000
Direct labor	48,000
Manufacturing overhead	57,600
	$199,200

(c) Total cost of completed work

Job 7640	$187,000
Job 7641	199,200
	$386,200

PROBLEM 2-2A (Continued)

Work in process balance		**$169,000**
Unfinished job No. 7642		**$169,000** (a)

(a) Current year's cost

Direct materials	**$ 48,000**
Direct labor	**55,000**
Manufacturing overhead	**66,000**
	$169,000

(b) Actual overhead costs

Incurred on account	**$120,000**
Indirect materials	**14,000**
Indirect labor	**20,000**
Depreciation	**8,000**
	$162,000

Applied overhead costs

Job 7640	**$ 43,200**
Job 7641	**57,600**
Job 7642	**66,000**
	$166,800

Actual overhead	**$162,000**
Applied overhead	**166,800**
Overapplied overhead	**$ 4,800**

Manufacturing Overhead	**4,800**	
Cost of Goods Sold		**4,800**

(c)

Sales (given)		**$530,000**
Cost of goods sold		
Add: Job 7638	**$ 87,000**	
Job 7639	**92,000**	
Job 7641	**199,200**	
	378,200	
Less: Overapplied overhead	**4,800**	**373,400**
Gross profit		**$156,600**

PROBLEM 2-3A

(a)

(i)	**Raw Materials Inventory**	**3,900**	
	Accounts Payable		**3,900**
	Factory Labor	**4,800**	
	Cash		**4,800**
	Manufacturing Overhead	**1,100**	
	Accumulated Depreciation—Equipment		**700**
	Accounts Payable		**400**
(ii)	**Work in Process Inventory**	**4,900**	
	Manufacturing Overhead	**1,500**	
	Raw Materials Inventory		**6,400**
	Work in Process Inventory	**3,600**	
	Manufacturing Overhead	**1,200**	
	Factory Labor		**4,800**
	Work in Process Inventory ($3,600 X 1.25)	**4,500**	
	Manufacturing Overhead		**4,500**
(iii)	**Finished Goods Inventory**	**14,740**	
	Work in Process Inventory		**14,740**

Job	Direct Materials	Direct Labor	Manufacturing Overhead*	Total Costs
Hokans	$1,700	$1,160	$1,450	$ 4,310
Sonnenberg	1,300	900	1,125	3,325
Kolsky	2,200	2,180	2,725	7,105
				$14,740

***125% X direct labor amount**

Cash		**18,900**	
Sales			**18,900**
Cost of Goods Sold		**14,740**	
Finished Goods Inventory			**14,740**

PROBLEM 2-3A (Continued)

(b)

Work in Process Inventory

6/1	Balance	5,540	June	Completed work	14,740
	Direct materials	4,900			
	Direct labor	3,600			
	Overhead applied	4,500			
6/30	Balance	3,800			

(c) Work in Process Inventory $3,800

Job: Koss (Direct materials $2,000 + Direct labor $800 + Manufacturing overhead $1,000)..... $3,800

(d)

CLARKSON INC.
Cost of Goods Manufactured Schedule
For the Month Ended June 30, 2011

Work in process, June 1.....		$ 5,540
Direct materials used.....	$4,900	
Direct labor	3,600	
Manufacturing overhead applied	4,500	
Total manufacturing costs.....		13,000
Total cost of work in process.....		18,540
Less: Work in process, June 30.....		3,800
Cost of goods manufactured.....		$14,740

PROBLEM 2-4A

(a) **Department D:** $1,050,000 ÷ $1,500,000 = 70% of direct labor cost.
Department E: $1,500,000 ÷ 125,000 = $12.00 per direct labor hour.
Department K: $840,000 ÷ 120,000 = $7.00 per machine hour.

(b)

	Department		
Manufacturing Costs	**D**	**E**	**K**
Direct materials	$140,000	$126,000	$ 78,000
Direct labor	120,000	110,000	37,500
Overhead applied	84,000*	132,000**	72,800***
Total	$344,000	$368,000	$188,300

*$120,000 X 70%
**11,000 X $12.00
***10,400 X $7.00

(c)

	Department		
Manufacturing Overhead	**D**	**E**	**K**
Incurred	$89,000	$124,000	$74,000
Applied	84,000	132,000	72,800
Under (over) applied	$ 5,000	$ (8,000)	$ 1,200

PROBLEM 2-5A

(a) $7,600 ($18,850 + $7,975 – $19,225).

(b) $36,750 [$9,750 + $15,000 + (80% X $15,000)]. (Given in other data).

(c) $16,950 ($18,850 – $1,900).

(d) $7,040 ($8,800 X 80%).

(e) $12,440 [Given in other data—$3,800 + $4,800 + (80% + $4,800)].

(f) $57,100 ($36,750 + $16,950 + $8,800 + $7,040 – $12,440).

(g) $5,000 (Given in other data).

(h) $57,100 (See (f) above).

(i) $58,100 ($5,000 + $57,100 – $4,000).

(j) $4,000 (Given in other data).

(k) $12,465 (Equal to factory labor incurred).

(l) $3,665 ($12,465 – $8,800).

(m) $7,040 ($6,810* + $230) or (Same as (d)).

***$1,900 + $3,665 + $1,245**

PROBLEM 2-1B

(a) $480,000 ÷ 20,000 direct labor hours = $24 per direct labor hour

(b) See solution to part (e) for job cost sheets

(c)	**Raw Materials Inventory**	**40,000**	
	Accounts Payable		**40,000**
	Factory Labor	**31,500**	
	Employer Payroll Taxes Payable		**7,500**
	Factory Wages Payable		**24,000**
	Manufacturing Overhead	**40,500**	
	Accumulated Depreciation		**12,000**
	Accounts Payable		**11,000**
	Raw Materials Inventory		**10,000**
	Factory Labor		**7,500**
(d)	**Work in Process Inventory**	**35,000**	
	Raw Materials Inventory ($5,000 + $17,000 + $13,000)		**35,000**
	Work in Process Inventory	**24,000**	
	Factory Labor ($3,000 + $12,000 + $9,000)		**24,000**
	Work in Process Inventory	**38,400**	
	Manufacturing Overhead (200 + 800 + 600) X $24 per hour		**38,400**

See solution to part (e) for postings to job cost sheets.

PROBLEM 2-1B (Continued)

(e) **Job Cost Sheets**

Job No. 25

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Beg.	$10,000	$6,000	$ 9,000
Jan.	5,000	3,000	4,800*
	$15,000	$9,000	$13,800

Cost of completed job	
Direct materials	$15,000
Direct labor	9,000
Manufacturing overhead	13,800
Total cost	$37,800

***$24 X 200 direct labor hours**

Job No. 26

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Jan.	$17,000	$12,000	$19,200**
	$17,000	$12,000	$19,200

Cost of completed job	
Direct materials	$17,000
Direct labor	12,000
Manufacturing overhead	19,200
Total cost	$48,200

****$24 X 800 direct labor hours**

Job No. 27

Date	Direct Materials	Direct Labor	Manufacturing Overhead
Jan.	$13,000	$9,000	$14,400***

*****$24 X 600 direct labor hours**

PROBLEM 2-1B (Continued)

	Finished Goods Inventory	86,000	
	Work in Process Inventory ($37,800 + $48,200)		86,000
(f)	Accounts Receivable	137,000	
	Sales ($63,000 + $74,000)		137,000
	Cost of Goods Sold	79,800	
	Finished Goods Inventory ($42,000 + $37,800)		79,800

(g)

Work in Process

Beginning balance	25,000	86,000	Cost of completed jobs 25 and 26
Direct materials	35,000		
Direct labor	24,000		
Manufacturing overhead	38,400		
Ending balance	36,400		

The balance in this account consists of the current costs assigned to Job No. 27:

Direct Materials	$13,000
Direct Labor	9,000
Manufacturing Overhead	14,400
Total costs assigned	$36,400

(h)

Manufacturing Overhead

Actual	Applied
40,500	38,400
2,100	

The balance in the Manufacturing Overhead account is underapplied.

PROBLEM 2-2B

(a)

Work in Process Inventory

1/1	Balance (1)	111,000	Completed work (5) (c)	344,000
	Direct materials (2)	107,000		
	Direct labor (3)	144,000		
	Manufacturing overhead (4)	180,000		
12/31	Balance	198,000		

(1)	Job 7650	$ 63,000	(3)	Job 7650	$ 36,000
	Job 7651	48,000		Job 7651	40,000
		$111,000		Job 7652	68,000
					$144,000
(2)	Job 7650	$ 32,000	(4)	Job 7650	$ 45,000
	Job 7651	30,000		Job 7651	50,000
	Job 7652	45,000		Job 7652	85,000
		$107,000			$180,000

(5) (a) Job 7650

Beginning balance	$ 63,000
Direct materials	32,000
Direct labor	36,000
Manufacturing overhead	45,000
	$176,000

(b) Job 7651

Beginning balance	$ 48,000
Direct materials	30,000
Direct labor	40,000
Manufacturing overhead	50,000
	$168,000

(c) Total cost of completed work

Job 7650	$176,000
Job 7651	168,000
	$344,000

PROBLEM 2-2B (Continued)

Work in process balance		**$198,000**
Unfinished job No. 7652		**$198,000 (a)**

(a) Current year's cost

Direct materials	**$ 45,000**
Direct labor	**68,000**
Manufacturing overhead	**85,000**
	$198,000

(b) Actual overhead costs

Incurred on account	**$135,000**
Indirect materials	**12,000**
Indirect labor	**18,000**
Depreciation	**19,500**
	$184,500

Applied overhead costs

Job 7650	**$ 45,000**
Job 7651	**50,000**
Job 7652	**85,000**
	$180,000

Actual overhead		**$184,500**
Applied overhead		**180,000**
Underapplied overhead		**$ 4,500**
Cost of Goods Sold	**4,500**	
Manufacturing Overhead		**4,500**

(c)

Sales (given)		**$490,000**
Cost of goods sold		
Add: Job 7648	**$ 93,000**	
Job 7649	**62,000**	
Job 7650	**176,000**	
	331,000	
Add: Underapplied overhead	**4,500**	**335,500**
Gross profit		**$154,500**

PROBLEM 2-3B

(a)

(i)	**Raw Materials Inventory**	**4,000**	
	Accounts Payable		**4,000**
	Factory Labor	**7,600**	
	Cash		**7,600**
	Manufacturing Overhead	**1,400**	
	Cash		**1,400**
(ii)	**Work in Process Inventory**	**5,300**	
	Manufacturing Overhead	**1,500**	
	Raw Materials Inventory		**6,800**
	Work in Process Inventory	**5,600**	
	Manufacturing Overhead	**2,000**	
	Factory Labor		**7,600**
	Work in Process Inventory ($5,600 X .70)	**3,920**	
	Manufacturing Overhead		**3,920**
(iii)	**Finished Goods Inventory**	**20,190**	
	Work in Process Inventory		**20,190**

Job	Direct Materials	Direct Labor	Manufacturing Overhead*	Total Costs
Taylor	$3,000	$2,400	$1,680	$ 7,080
Baker	2,600	2,200	1,540	6,340
Joiner	3,200	2,100	1,470	6,770
				$20,190

***70% of direct labor amount**

	Cash	**36,000**	
	Sales (3 X $12,000)		**36,000**
	Cost of Goods Sold	**20,190**	
	Finished Goods Inventory		**20,190**

PROBLEM 2-3B (Continued)

(b)

Work in Process Inventory

5/1	Balance	12,200	5/31	Completed work	20,190
	Direct materials	5,300			
	Direct labor	5,600			
	Overhead applied	3,920			
5/31	Balance	6,830			

(c) Work in Process Inventory $6,830

Job: Smith (Direct materials $1,900 + Direct labor $2,900 + Manufacturing overhead $2,030)..... $6,830

(d)

MICHAEL ORTIZ COMPANY
Cost of Goods Manufactured Schedule
For the Month Ended May 31, 2011

Work in process, May 1.....		$12,200
Direct materials used	$5,300	
Direct labor	5,600	
Manufacturing overhead applied	3,920	
Total manufacturing costs		14,820
Total cost of work in process		27,020
Less: Work in process, May 31.....		6,830
Cost of goods manufactured		$20,190

PROBLEM 2-4B

(a) **Department A:** $780,000 ÷ $600,000 = 130% of direct labor cost.
Department B: $640,000 ÷ 40,000 = $16.00 per direct labor hour.
Department C: $750,000 ÷ 150,000 = $5.00 per machine hour.

(b)

	Department		
Manufacturing Costs	**A**	**B**	**C**
Direct materials	$ 92,000	$ 86,000	$ 64,000
Direct labor	48,000	35,000	50,400
Overhead applied	62,400 *	56,000 **	63,000 ***
Total	$202,400	$177,000	$177,400

*$48,000 X 130%
**3,500 X $16
***12,600 X $5.00

(c)

	Department		
Manufacturing Overhead	**A**	**B**	**C**
Incurred	$66,000	$60,000	$62,100
Applied	62,400	56,000	63,000
Under (over) applied	$ 3,600	$ 4,000	$ (900)

PROBLEM 2-5B

(a) $83,900 ($75,000 + $8,900).

(b) $25,500 [($19,000 + $90,400) – $83,900 (See (a))].

(c) $32,200 (Given in Other data—$19,000 + $13,200).

(d) $95,000 ($114,000 manufacturing overhead applied ÷ 120%).

(e) $114,000 (Manufacturing overhead applied).

(f) $310,900 [$32,200 + $75,000 + $95,000 + $114,000 – $5,300 (See (g))].

(g) $5,300 [$2,000 + $1,500 + ($1,500 X 120%)].

(h) $145,000 (Given in Other data).

(i) $310,900 (Same as (f)).

(j) $317,900 [$145,000 + $310,900 – $138,000 (Given in Other data)].

(k) $138,000 (Given in Other data).

(l) $111,000 [$95,000 (See (d)) + $16,000].

(m) $111,000 (Same as (l)).

(n) $92,100 [$114,000 + $3,000 (Given in Other data) – $8,900 – $16,000].

BYP 2-1 DECISION MAKING ACROSS THE ORGANIZATION

(a) The manufacturing cost element that is responsible for the fluctuating unit costs is manufacturing overhead. Manufacturing overhead is being included as incurred rather than being applied on a predetermined basis. Direct materials and direct labor are not the cause as they have the same unit cost per batch in each quarter.

(b) The solution is to apply overhead using a predetermined overhead rate based on a relevant basis of production activity. Based on actual overhead incurred and using batches of product TC-1 as the activity base, the overhead rate is $15,000 per batch [($105,000 + $123,000 + $97,000 + $125,000) ÷ 30]. Another approach would be to use direct labor cost as the relevant basis to apply overhead on a predetermined basis. For example, a rate of 125% of direct labor cost ($450,000 ÷ $360,000) could be used. Either approach will provide the same result.

(c) The quarterly results using a predetermined overhead rate based on batches produced are as follows:

	Quarter			
Costs	**1**	**2**	**3**	**4**
Direct materials	$100,000	$220,000	$ 80,000	$200,000
Direct labor	60,000	132,000	48,000	120,000
Manufacturing overhead Applied ($15,000 X batches)	75,000	165,000	60,000	150,000
Total (a)	$235,000	$517,000	$188,000	$470,000
Production in batches (b)	5	11	4	10
Unit cost (per batch) (a) ÷ (b)	$ 47,000	$ 47,000	$ 47,000	$ 47,000

(Note: The unit cost of a batch remains the same in each quarter. Both sales and production should be pleased with this solution to fluctuating unit costs.)

BYP 2-2 MANAGERIAL ANALYSIS

1. (a)

Work in Process Inventory	25,000	
Raw Materials Inventory.....		25,000

(b) If not corrected, the balance sheet is affected. Cash is understated and Raw Materials Inventory is overstated.

2. (a)

Sales Bonus Expense	12,000	
Cash.....		12,000

(b) Both the income statement and the balance sheet are affected. In the income statement, Sales Bonus Expense is understated, Income Tax Expense is overstated, and net income is overstated. The error causes the underapplied overhead to be overstated or the overapplied overhead to be understated. This affects Cost of Goods Sold, since the over- or underapplied balance is closed out to Cost of Goods Sold. The error in Cost of Goods Sold also has an effect on Retained Earnings. Also, Retained Earnings is overstated because of the overstatement of net income, and Income Taxes Payable is overstated.

3. (a)

Factory Labor	120,000	
Factory Wages Payable.....		105,000
Employer Payroll Taxes Payable		15,000

(b) If not corrected, both the income statement and the balance sheet are affected. On the income statement, Cost of Goods Sold is understated and Wages Expense is overstated. On the balance sheet, Cash, Factory Wages Payable, and Employer Payroll Taxes Payable are understated.

BYP 2-2 (Continued)

4. (a)

Manufacturing Overhead	**3,000**	
Raw Materials Inventory		**3,000**

(b) Both the income statement and balance sheet are affected. If units that were in process during the month have been sold, then in the income statement Cost of Goods Sold is overstated, Income Tax Expense is understated, and net income is understated. This causes the Retained Earnings and Income Taxes Payable in the balance sheet to be understated. Also the error causes underapplied overhead to be understated or overapplied overhead to be overstated. This affects Cost of Goods Sold, since the over- or underapplied balance is closed out to Cost of Goods Sold. The error in Cost of Good Sold also has an affect on Retained Earnings.

BYP 2-3 REAL-WORLD FOCUS

(a) The advantages of job order costing include the following:

1. **Accurate costing results because actual costs of direct materials and direct labor are assigned to each job.**

2. **A comparison of actual costs with costs estimated in the company's bid provides a basis for controlling job costs and improving operating efficiency.**

3. **Cost data on specific jobs may be useful to management in bidding on similar jobs in the future.**

4. **Accurate costs are assigned to work in process and finished goods inventories.**

5. **Job costing enables management to assess the relationship of the cost of goods sold for each job to the sales price of each job. The reciprocal of this relationship is the gross profit on each job. Improving these relationships is an important factor in increasing net income.**

(b) Products in job order costing are usually custom-made to customer specifications so that a sale is assured prior to the start of the manufacturing process. Specific products include cruise ships, presidential limousines, buildings, homes, wedding invitations, and graduation and birth announcements.

Products in process costing are relatively homogeneous such as boxes of cereal, bottles and cans of soda, jars of peanut butter, quarts of motor oil, and automobiles. The manufacture of the product is continuous to ensure that adequate inventories of finished products are available at all times.

BYP 2-4 EXPLORING THE WEB

(a) Candidates for the CMA or CFM Certificate must complete two continuous years of professional experience in management accounting or financial management. This requirement may be completed prior to or within seven years of passing the examination.

(b) CMAs, CFMs, and candidates who have completed the CMA and/or the CFM examination but have not yet met the experience requirement, are required to maintain their proficiency in the fields of management accounting and financial management. This includes knowledge of new concepts and techniques as well as their application in the management accounting and financial management professions. The objective is to maintain the professional competence of the individual and to enhance one's ability to perform job-related requirements. Persons who have retired need not meet continuing education requirements. The continuing requirement is 30 hours per year.

A broad range of subjects may be included in the programs for which hours of credit will be given. The subjects should be related to the topics covered on the CMA/CFM examination and/or to an individual's job responsibilities. Illustrative of the subjects that may qualify are: all aspects of accounting, financial management, business applications of mathematics and statistics, computer science, economics, management, production, marketing, business law, and organizational behavior.

BYP 2-5 COMMUNICATION ACTIVITY

Newberry Manufacturing
Date

Donna Werly
123 Cedar Lane
Altoona, Kansas 66651

Dear Ms. Werly:

Thank you for your prompt payment! I am very glad that you found the cost information helpful.

Thank you also for your questions about our overhead costs. We do try to provide our customers with as much information as possible, but we cannot give detailed information on overhead costs. The cost of providing such information is prohibitive.

You asked why we do not use actual overhead costs when we bill our customers. We estimate overhead costs, rather than use actual costs, for several reasons. One of the most important reasons for you is that we could not prepare bills in a timely manner if we had to use actual overhead. We would have to wait until we were billed for such things as electricity and telephone service. A second reason is that some costs we include in overhead are only payable once or twice a year, such as insurance and taxes. When we use an estimated rate, we are able to allow for those costs. A third reason is that some costs are fixed, which means that they stay the same in dollar amount from month to month. This category includes items such as rent. If we billed you based on our actual costs, you would be billed a higher amount if your work was done during a slow time (because we would have fewer jobs to spread the costs over). An estimated overhead rate allows us to level out these costs.

BYP 2-5 (Continued)

I hope this answers some of your questions. I'm glad you are interested in our company and that you took the time to write. I am sending a copy of our annual report under separate cover. It contains some details on the information you asked about.

Thanks again for your letter and for having Newberry make your new cabinets!

Sincerely,

Student

BYP 2-6 ETHICS CASE

(a) The stakeholders in this situation are:

- **Betty Keiser, controller for SEK Printing.**
- **The president of SEK Printing.**
- **The customers of SEK Printing.**
- **The competitors of SEK Printing.**

(b) Padding cost-plus contracts is both unethical and illegal. Betty is faced with an ethical dilemma. She will be in trouble with the president if she doesn't follow his directive, and she will be committing an unethical act if she does follow his instructions.

(c) Betty should continue to accurately account for cost-plus contracts and, if challenged by the president, she should say that she is doing her very best to charge each and every legitimate cost to the cost-plus contracts. Let the president perform the unethical act if he continues to persist in padding costs.

BYP 2-7 ALL ABOUT YOU ACTIVITY

(a) Your chances of success in small business are increased if you have the following characteristics: You are a self-starter, you get along with many different kinds of people, you are good at making decisions, you have physical and emotional stamina, you are well organized, you have a strong desire to succeed and you will receive family support during the start up phase.

(b) The top ten reasons why businesses fail as cited in the books Small Business Management by Michael Ames, and The Do it Yourself Business Book by Gustav Berle are:

1. **Lack of experience**
2. **Insufficient capital (money)**
3. **Poor location**
4. **Poor inventory management**
5. **Over-investment in fixed assets**
6. **Poor credit arrangements**
7. **Personal use of business funds**
8. **Unexpected growth**
9. **Competition**
10. **Low sales**

