

## Review Questions: Chapter 4 - Job Costing

### True/False

1. The computation of the budgeted indirect manufacturing cost rate is identical to the budgeted indirect cost rate for service organizations.
  2. Similar jobs can be recorded on the same job cost record in the job costing system.
  3. The consumption of direct materials, direct manufacturing labor, and allocated manufacturing overhead are credited against work-in-process for the applicable period.
  4. Indirect materials, indirect manufacturing labor, and utilities are classified as manufacturing overhead because it is not cost-effective to trace them directly to products or services.
  5. The budgeted manufacturing overhead rate is the budgeted dollar amount of manufacturing overhead divided by the budgeted quantity of the cost driver.
  6. There should seldom be under/over allocated manufacturing overhead in actual costing.
  7. Inaccurate product costs can lead to information which does not accurately reflect the way various products use an organization's resources differently.
  8. Non-traditional, non-financial variables are not important and, therefore, do not need to be considered during the cost-benefit test.
  9. The traditional approach often accounts for indirect cost allocation bases as non-financial variables.
  11. Costs incurred in other business functions (shipping, for example) associated with the product cannot be built-up and added to the manufacturing cost at a later date.
- 1 A. Cost assignment includes cost allocation for direct costs and cost tracing for indirect costs.
- 2 A. A cost allocation base is only financial in nature, and is usually the cost driver of the particular costs being measured.
- 3 A. The difference between the actual costing and normal costing methods is that actual costing uses a budgeted indirect cost rate while normal costing uses an actual indirect cost rate.
- 4 A. A cost allocation base should be a cost driver, and the information necessary to trace the quantity of the allocation base to the cost object should be readily available.
- 5 A. Budgeted indirect cost rates are often computed on a weekly or monthly basis because the shorter time periods allow for a greater influence of fluctuating cost levels, thereby keeping the difference between budget and actual to a minimum.
- 6 A. Actual costing traces direct costs to a cost object by multiplying the budgeted direct cost rate and the actual quantity.
- 7 A. Managers and accountants gather the information that goes into their cost systems through source documents, which are the original records that support journal entries in an accounting system.
- 8 A. It is not a requirement to identify the indirect costs associated with each job when assigning costs to individual jobs.
- 9 A. Product undercosting occurs when a product consumes a relatively low level of resources but is reported to have a relatively high total cost.
- 10 A. The three guidelines for refining a cost system are: (1) direct cost tracing; (2) indirect cost pools; and (3) cost allocation bases.
- 12 A. Which of the following includes both traced direct costs and allocated indirect costs?
- a. cost tracing
  - b. cost pools
  - c. costs assigned
  - d. cost allocation
- 13 A, 14 A. A local financial consulting firm employs 30 full-time professionals. The budgeted compensation per employee is \$50,000. The annual maximum chargeable time to each client is 1,000 hours. Clients always receive their full amount of time. All professional labor costs are included in a single direct-cost category and are traced to jobs on a per-hour basis.

Any other costs are included in a single indirect-cost pool, allocated according to professional labor-hours. Budgeted indirect costs for the year are \$1,050,000, and the firm expects to have 60 clients during the coming year.

- 13 A. What is the direct-labor cost rate per hour?
- a. \$ 25.00 per hour
  - b. \$ 50.00 per hour
  - c. \$ 62.50 per hour
  - d. \$100.00 per hour
- 14 A. What is the indirect-cost rate per hour?
- a. \$1,050.00 per hour
  - b. \$ 50.00 per hour
  - c. \$ 35.00 per hour
  - d. \$ 17.50 per hour
- 15 A. Peters and Company currently have 30 full-time professionals on staff. Each professional is allotted the following number of hours per year:
- |   |             |
|---|-------------|
| Budgeted billable time for clients:             | 2,000 hours |
| Budgeted vacation time:                         | 200 hours   |
| Budgeted professional development:              | 175 hours   |
| Budgeted unbillable time due to lack of demand: | 0 hours     |
| Budgeted sick leave:                            | 125 hours   |
- Consumer demand for the company's services is at 100 percent of time available. Each professional receives a salary of \$35,000 per year and fringe benefits of \$10,000 per year.
- 15 A. What is the total budgeted direct-cost rate if management believes that clients should be charged for the employees' benefits that Peters and Company has to pay?
- a. \$17.50
  - b. \$18.00
  - c. \$22.50
  - d. \$ 5.00
- 16 A. What is the budgeted direct-cost rate if the company does not want to charge clients directly for employee vacation, sick leave, and professional development?
- a. \$14.00
  - b. \$ 4.00
  - c. \$22.50
  - d. \$18.00
- 17 A. Cactus Jacks employs 25 professional cleaners. Budgeted costs total \$600,000, of which \$250,000 are indirect costs and the budgeted professional labor-hours are 500,000. Actual indirect costs were \$264,600 and actual hours were 504,000. What are the budgeted direct costs and actual indirect-cost allocation rates, respectively?
- a. \$1.20 per hour and \$0.50 per hour
  - b. \$1.19 per hour and \$0.53 per hour
  - c. \$0.50 per hour and \$0.525 per hour
  - d. \$0.70 per hour and \$0.525 per hour
- 18 A. Which of the following is NOT one of the reasons that companies use an annual time period to compute the budgeted indirect-cost rate?
- a. The shorter the time period, the greater the seasonal influence.
  - b. The variable indirect-cost rate is too high.
  - c. The budgeted quantity of the allocation base may fluctuate too much in periods shorter than one year.
  - d. The benefits of shorter periods do not outweigh the costs.
- 19 A. Fixed costs remain constant at \$150,000 per month. During high-output months variable costs are \$120,000, and during low-output months variable costs are \$60,000. What are the respective high and low indirect-cost rates if budgeted professional labor-hours are 6,000 for high-output months and 2,000 for low-output months?
- a. \$31.25 per hour, \$87.50 per hour
  - b. \$45.00 per hour, \$95.00 per hour
  - c. \$45.00 per hour, \$105.00 per hour
  - d. \$56.20 per hour, \$105.00 per hour
- 20 A. Budgeted cost rates are preferred over actual cost rates for all of the following reasons EXCEPT
- a. budgeted costs allow managers to have cost information on a timely basis.
  - b. budgeted costs may be subject to short-run fluctuations.
  - c. budgeted indirect-cost rates are known prior to the inception of a new job.

d. actual indirect-cost rates are affected by work done on other jobs.

21 A. Which of the following statements about normal costing is TRUE?

- a. Direct costs and indirect costs are allocated using an actual rate.
- b. Direct costs and indirect costs are traced using budgeted rates.
- c. Direct costs are traced using a budgeted rate, and indirect costs are allocated using an actual rate.
- d. Direct costs are traced using an actual rate, and indirect costs are allocated using a budgeted rate.

22A, 23A, 45A-47A. Hassel and Carpenter Law Office employs six full-time attorneys and five paraprofessionals. Budgeted salaries include \$75,000 for each attorney and \$20,000 per paraprofessional. For 19x1, indirect costs were budgeted at \$125,000, but actually amounted to \$150,000. Actual salaries were \$80,000 for each attorney and \$22,500 for each paraprofessional.

Direct and indirect costs are applied on a professional labor-hour basis which includes both attorney and paraprofessional hours. Total budgeted labor-hours were 25,000; however, actual labor-hours were 30,000.

22 A. What is the actual direct-cost rate and the actual indirect-cost rate, respectively, if a client used 5,000 professional labor-hours?

- a. \$13.00; \$7.50
- b. \$13.00; \$5.00
- c. \$12.03; \$5.00
- d. \$11.75; \$5.00

23 A. What are the budgeted direct-cost rate and the budgeted indirect cost rate, respectively, if a client used 4,000 professional labor-hours?

- a. \$13.00; \$7.50
- b. \$13.00; \$5.00
- c. \$12.03; \$5.00
- d. \$11.75; \$5.00

45 A. How much should the client be billed in a normal costing system when 1,000 professional labor-hours were used?

- a. \$20,025
- b. \$18,000
- c. \$16,750
- d. \$13,625

46 A. How much should the client be billed in a budgeting costing system if 500 professional labor-hours were used?

- a. \$13,625
- b. \$11,025
- c. \$9,000
- d. \$6,500

47 A. How much should the client be billed in an actual costing system if 200 professional labor-hours were used?

- a. \$6,425
- b. \$5,250
- c. \$4,200
- d. \$3,350

24 A. Which of the following is NOT one of the steps used in assigning costs to individual jobs?

- a. Identify the job that is the chosen cost object.
- b. Identify the indirect-cost pools associated with the job.
- c. Identify the direct-cost pools associated with the job.
- d. Develop the rate per unit of the cost allocation base used to allocate indirect costs to the job.

25 A. John wants to identify the total cost for computing the corporate tax return he prepared for his client. Labor is the only direct cost at \$50 per hour. Indirect costs are \$60 per labor hour. What is the total direct cost, indirect cost, and job cost, respectively, if 15 hours are spent preparing the tax return?

- a. \$700, \$850, \$1,550
- b. \$750, \$800, \$1,550
- c. \$750, \$900, \$1,650
- d. \$800, \$640, \$1,440

26 A. Professional labor costs in a CPA firm are traced directly to the cost object of a given

job. Generally, other operating costs are

- a. first traced to a cost pool and then allocated to the final cost object, the given job.
- b. allocated directly to the final cost object, the given job.
- c. allocated to an intermediate cost object, assigned to a given auditor, and then traced to a cost pool which is then allocated to the final cost object, the given job.
- d. indirect costs which are allocated to a given job via an allocation base.

27 A. Which of the following is not part of the step-by-step approach to computing the budgeted indirect cost allocation rate?

- a. Identify the costs which are not part of the direct-cost pool.
- b. Identify costs associated with the direct-cost pool.
- c. Estimate the cost items for the budgeted period.
- d. Select the cost allocation base.

28 A. A competitor plans to underbid a company's current financial consultants in order to obtain a new client and increase future revenues. All of the following reasons explain why the competitor may underbid EXCEPT

- a. the competitor is willing to break even or lose money to obtain a new client.
- b. the current consultants are less efficient than their competitors.
- c. the current consultants' costing system is overstating the cost of the work.
- d. the competitor plans to do additional work for a smaller fee.

29 A. A service that consumes a relatively low level of resources but is reported to have a relatively high cost may result in

- a. product-cost cross-subsidization.
- b. product marketing.
- c. product overcosting.
- d. product undercosting.

30 A. Which of the following is NOT a sign that a "smoothing out" costing system exists?

- a. Managers don't rely on data originated by the cost system.
- b. The company wins bids they thought were priced "low".
- c. The cost system has not been upgraded with the company.
- d. The company loses bids they believed were priced competitively.

38 A. Customer John James currently has two job orders being processed at Midwest Company. Job 101 will generate revenues of \$1,000, while Job 102 will generate revenues of \$2,000. The respective operating costs are \$810 and \$1,650. What is the percentage of operating income to revenue for the order from John James?

- a. 22%
- b. 18%
- c. 15%
- d. 10%

40 A. How can managers react to a customer who is NOT profitable in the current accounting period?

- a. by implementing a customer-costing system
- b. by making sure that the interest of these customers is given a high priority
- c. replace the customer with another customer that may be profitable
- d. by giving high priority to long-term, ongoing relationships to such customers

44 A. A local financial consulting firm employs 30 full-time professionals. The budgeted compensation per employee is \$50,000. The annual maximum chargeable time to each client is 1,000 hours. Clients always receive their full amount of time. All professional labor costs are included in a single direct-cost category and are traced to jobs on a per-hour basis.

Any other costs are included in a single indirect-cost pool, allocated according to professional labor-hours. Budgeted indirect costs for the year are \$1,050,000, and the firm expects to have 60 clients during the coming year.

What will be the direct-labor cost rate per hour if six clients are lost and 30 employees are hired?

- a. \$25.00 per hour
- b. \$27.78 per hour
- c. \$50.00 per hour
- d. \$55.56 per hour

48 A. Gary Jons, CPA, has two clients. Client 1 requires 15 partner hours and 50 staff hours, while Client 2 requires 30 partner hours and 35 staff hours. Client 1 requires significantly more travel and communication time than Client 2. A single direct-cost category for direct labor is used and budgets labor at \$75 per direct labor hour. A single indirect-cost pool is used with a rate of \$50 per direct labor hour. Which engagement costs the auditor more?

- a. Client X
- b. Client Y
- c. They both cost the same amount
- d. Client Y because work hours are more expensive than travel hours.

12. The six-step approach to job costing includes all of the following EXCEPT

- a. choosing the cost object.
- b. identifying the direct costs.
- c. identifying the indirect cost pools.
- d. selecting the cost allocation base to use in assigning direct costs.

13. Direct manufacturing costs total \$140,000, conversion costs total \$100,000, and indirect manufacturing costs total \$90 per machine hour. What is the total manufacturing job cost, assuming 600 machine hours were used?

- a. \$ 54,000
- b. \$100,000
- c. \$140,000
- d. \$194,000

14. A-1 Forklifts manufactures forklifts. It has budgeted \$800,000 for indirect manufacturing costs for next year. It also predicts that manufacturing will use 20,000 maintenance hours in the plant and that \$4,000,000 in direct manufacturing payroll costs will be incurred. The best budgeted indirect cost allocation rate for next year will be

- a. \$0.20 per direct manufacturing labor dollar.
- b. \$5.00 per direct manufacturing labor dollar.
- c. \$4 per maintenance hour.
- d. \$40 per maintenance hour.

15. The budgeted indirect cost allocation rate can be determined by

- a. budgeted manufacturing overhead times budgeted quantity of the cost driver.
- b. budgeted manufacturing overhead divided by the actual quantity of the cost driver.
- c. budgeted manufacturing overhead times (1 divided by the budgeted quantity of the cost driver).
- d. budgeted manufacturing overhead plus budgeted quantity of the cost driver.

19. What is the appropriate journal entry if direct materials of \$100,000 and indirect materials of \$6,000 were sent to the manufacturing plant floor?

- a. Work-in-process Control           \$100,000  
Materials Control                         \$100,000
- b. Work-in-process Control           \$106,000  
Materials Control                         \$100,000
- c. Manufacturing Overhead Control   \$ 6,000  
Materials Control                         100,000  
Work-in-process Control                 \$106,000
- d. Work-in-process Control           \$100,000  
Manufacturing Overhead Control       6,000  
Materials Control                         \$106,000

20. All of the following items are debited to the Work-in-process account EXCEPT

- a. allocated manufacturing overhead.
- b. completed goods being transferred out of the plant.
- c. direct labor consumed.
- d. direct materials consumed.

21. What would be the appropriate journal entry if the following labor wages were incurred in a furniture manufacturing company?

Assembly workers	\$60,000	
Janitors	\$40,000	
Cafeteria workers	\$20,000	
a. Materials Control	\$120,000	
Wages Payable Control		\$120,000
b. Work-in-process Control	\$ 60,000	
Manufacturing Overhead Control	60,000	
Wages Payable Control		\$120,000
c. Manufacturing Overhead Control	\$120,000	
Wages Payable Control		\$120,000
d. Wages Payable Control	\$120,000	
Work-in-process Control		\$120,000

22. Manufacturing overhead costs incurred for the month were \$85,000. Utilities were \$25,000, and depreciation on the equipment was \$50,000. Repairs were \$10,000. Which is the correct journal entry?

a. Manufacturing Overhead Control	\$ 85,000	
Accounts Payable Control		\$ 35,000
Accumulated Depreciation Control		50,000
b. Manufacturing Overhead Control	\$ 85,000	
Accounts Payable Control		\$ 85,000
c. Manufacturing Overhead Control	\$ 50,000	
Accumulated Depreciation Control		\$ 50,000
d. Accumulated Depreciation Control	\$ 50,000	
Accounts Payable Control		35,000
Manufacturing Overhead Control		\$ 85,000

23. Which of the following statements related to manufacturing overhead allocated is FALSE?

- a. It is comprised of all manufacturing costs which cannot be directly traced to a product or service.
- b. The costs can be grouped in either a single indirect-cost pool or multiple indirect-cost pools.
- c. These costs are allocated because the products could be made without them.
- d. The costs are debited to a work-in-process account.

24. Which of the following statements related to manufacturing overhead is TRUE?

- a. Credits to subsidiary manufacturing overhead records occur at the time the manufacturing overhead costs are incurred.
- b. Both debits and credits to subsidiary manufacturing overhead records occur at the time manufacturing overhead costs are incurred.
- c. Credits to Manufacturing Overhead Allocated occur as the allocation base is consumed.
- d. Manufacturing overhead costs incurred are dependent upon the allocation method used.

25. When goods are completed,

- the Work-in-process Control is increased.
- the total cost of each job will consist of actual direct materials and actual indirect manufacturing labor.
- the total cost of each job is computed in the general ledger.
- actual direct materials, actual direct manufacturing labor, and budgeted manufacturing overhead will comprise the total cost of each job.

26, 27, 46. Bill's Electronics manufactures mouses for computers. In April, the two production departments had budgeted allocation bases of 5,000 machine hours in Department 1 and 2,500 direct manufacturing labor hours in Department 2. The budgeted manufacturing overheads for the month were \$23,000 and \$25,000, respectively. For Job 100, the actual costs incurred in the two departments were as follows:

	Department 1	Department 2
Direct materials purchased on account	\$44,000	\$71,000
Direct materials used	13,000	5,400
Direct manufacturing labor	21,000	21,400
Indirect manufacturing labor	4,400	3,600
Indirect materials used	3,000	1,900
Lease on equipment	6,500	1,500
Utilities	400	500

Job 100 incurred 500 machine hours in Department 1 and 150 manufacturing labor hours in Department 2. The company uses a budgeted departmental overhead rate for applying overhead to production.

What is the budgeted manufacturing overhead rate for Department 1?

- \$ 4.60 per hour
- \$ 5.00 per hour
- \$ 9.20 per hour
- \$10.00 per hour

What is the budgeted manufacturing overhead rate for Department 2?

- \$ 4.60
- \$ 5.00
- \$ 9.20
- \$10.00

46. What is the total cost of Job 100?

- \$18,400
- \$60,800
- \$64,600
- \$82,600

28, 47. Everett's Manufacturing Company is a new company that needs to make a decision about the method to use in adjusting cost of goods sold. Because the company used a budgeted indirect-cost rate for its manufacturing operations, the amount that was allocated (\$100,000) was different from the actual amount incurred (\$112,500).

Ending balances in the relevant accounts were:

Work-in-process	\$ 20,000
Finished Goods	40,000
Cost of Goods Sold	340,000

What is the correct journal entry to write off the difference between allocated and actual overhead directly to cost of goods sold?

- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Allocated | \$100,000 |           |
| Cost of Goods Sold               | 12,500    |           |
| Manufacturing Overhead Control   |           | \$112,500 |
- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Control   | \$100,000 |           |
| Cost of Goods Sold               | 12,500    |           |
| Manufacturing Overhead Allocated |           | \$112,500 |
- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Allocated | \$100,000 |           |
| Cost of Goods Sold               | 340,000   |           |
| Manufacturing Overhead Control   |           | \$440,000 |
- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Allocated | \$100,000 |           |
| Work-in-process                  | 12,500    |           |
| Manufacturing Overhead Control   |           | \$112,500 |

47. What is the correct journal entry to prorate the write off of the difference between

allocated and actual overhead using the ending balance approach?

- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Allocated | \$100,000 |           |
| Work-in-process                  | 20,000    |           |
| Finished Goods                   | 40,000    |           |
| Manufacturing Overhead Control   |           | \$160,000 |

- |                                  |           |         |
|----------------------------------|-----------|---------|
| Manufacturing Overhead Allocated | \$112,500 |         |
| Work-in-process                  |           | \$ 625  |
| Finished Goods                   |           | 1,250   |
| Cost of Goods Sold               |           | 10,625  |
| Manufacturing Overhead Control   |           | 100,000 |

- |                                  |           |         |
|----------------------------------|-----------|---------|
| Manufacturing Overhead Control   | \$112,500 |         |
| Work-in-process                  |           | \$ 625  |
| Finished Goods                   |           | 1,250   |
| Cost of Goods Sold               |           | 10,625  |
| Manufacturing Overhead Allocated |           | 100,000 |

- |                                  |           |           |
|----------------------------------|-----------|-----------|
| Manufacturing Overhead Allocated | \$100,000 |           |
| Work-in-process                  |           | 625       |
| Finished Goods                   |           | 1,250     |
| Cost of Goods Sold               |           | 10,625    |
| Manufacturing Overhead Control   |           | \$112,500 |

29. Over-allocated manufacturing costs arise for two reasons: (1) when budgeted manufacturing overhead exceeds actual manufacturing overhead and (2)

- when the actual quantity of the allocation base equals the budgeted quantity.
- when the actual quantity of the allocation base is deducted from the budgeted quantity.
- when the actual quantity of the allocation base is multiplied by the budgeted quantity.
- when the budgeted quantity of the allocation base consumed is less than the actual quantity on which overhead is assigned.

30. All of the following statements about the restated allocation rate approach are correct, EXCEPT

- an actual indirect-cost rate must be computed at the end of each period.
- every cost object is recomputed.
- end-of-period closing entries are made.
- each cost record, finally, represents only actual manufacturing overhead cost incurred.

31. The Manufacturing Overhead Control account is the record of the

- actual costs in the conversion accounts.
- actual costs in all of the separate overhead categories such as indirect manufacturing labor.
- normal costs in the conversion accounts.
- normal costs in the manufacturing accounts.

32. Proration of manufacturing overhead based on the total ending balance yields different results than proration based on allocated manufacturing overhead embedded in the ending balance for all of the following reasons EXCEPT

- jobs still in progress have disproportionately high direct materials.
- proration to work-in-process arises from the high levels of direct materials.
- too much overhead may have been allocated to work-in-process.
- direct labor is allocated to work-in-process before any other costs.

33. A cost accounting system should be revised when

- the existing cost accounting system provides information that is representative of operations.
- the existing cost accounting system could be updated, just to keep ahead.
- the existing cost accounting system does not produce information that reflects the way various products use scarce resources.
- management wants to change the system, even though the information is relevant and correct.

36. Litzel, Inc., produces a special spray product. The budgeted indirect total cost of inserting the spray nozzle is \$150,000. The budgeted number of nozzles to be inserted is 200,000. What is the budgeted indirect cost allocation rate for this activity?

- a. \$1.33 b. \$1.00 c. \$0.75 d. \$0.50

43, 48. Barney Manufacturing Company produces puppets. The cost objects are the manufacture of puppets and the manufacturing department. In a typical month, the following costs are recorded.

Computer time used by manufacturing operations	\$12,000
Depreciation on manufacturing equipment	8,000
Depreciation of manufacturing plant	4,500
Direct materials	23,700
Direct manufacturing labor	44,400
Indirect manufacturing labor	14,300
Manufacturing supplies	3,200
Utilities for plant	1,700

43. What are the total costs of the manufacturing department cost object?

- a. \$ 23,700 b. \$ 68,100 c. \$ 43,700 d. \$111,800

48. What are the total costs of the product cost object?

- a. \$ 23,700 b. \$ 68,100 c. \$ 43,700 d. \$111,800

50. Boucher Masonry has just finished its first year of operations and must decide which method to use for adjusting cost of goods sold. Because the company used a budgeted indirect-cost rate for its manufacturing operations, the amount that was allocated (\$870,000) to cost of goods sold was different from the actual amount incurred (\$850,000).

Ending balances in the relevant accounts were:

Work-in-process	\$ 80,000
Finished Goods	160,000
Cost of Goods Sold	1,360,000

*Required:*

- Prepare a journal entry to write off the difference between allocated and actual overhead directly to cost of goods sold. Be sure your journal entry closes the related overhead accounts.
- Prepare a journal entry that prorates the write-off of the difference between allocated and actual overhead using ending account balances. Be sure your journal entry closes the related overhead accounts.

51. Bottle Company operates many bottling plants around the world. At its Toronto plant, where nine different brands are bottled, the following costs are incurred in 19x1 to produce 10,000,000 cans of soft drink:

- New-product development costs - costs of adding new products to those being produced. "Soda Plus" was added in 19x1 at a cost of \$614,000.
- Incoming material handling costs - costs of inspecting and handling concentrate, bottles, packages, and so on. Driver is hours of materials handling time, which is highly correlated with hours of bottling time (\$433,500).

3. Incoming materials purchase costs - can be directly traced to individual products being bottled and packaged. Costs are purely variable with output level (\$2,213,000).

4. Energy costs - the cost driver is hours of bottling time (\$171,500).

5. Plant supervision and safety costs - these costs are for plant infrastructure management, land rates, and plant insurance (\$623,000).

*Required:*

- Classify each of the preceding costs as output unit-level, batch-level, product-sustaining, or facility-sustaining.
- Compute unit costs for (i) the output-level costs, and (ii) the total manufacturing costs.

52. Brewery, Inc. operates many bottling plants around the world. At its Chicago plant, where six different brands are bottled, the following costs are incurred in 19x1 to produce 5,000,000 cans of beer:

1. New-product development costs - costs of adding new products to those being produced. "Light Beer Plus" was added in 19x1 at a cost of \$307,000.

2. Incoming material handling costs - costs of inspecting and handling concentrate, bottles, packages, and so on. Driver is hours of materials handling time, which is highly correlated with hours of bottling time (\$216,750).

3. Incoming materials purchase costs - can be directly traced to individual products being bottled and packaged. Costs are purely variable with output level (\$1,106,500).

4. Energy costs - the cost driver is hours of bottling time (\$85,750).

5. Plant supervision and safety costs - these costs are for plant infrastructure management, land rates, and plant insurance (\$311,500).

*Required:*

- Classify each of the preceding costs as output unit-level, batch-level, product-sustaining, or facility-sustaining.
- Compute unit costs for (i) the output-level costs, and (ii) the total manufacturing costs.

55. Merry Music Company manufactures drums. In February, the two production departments had budgeted allocation bases of 10,000 machine hours in Department 100 and 5,000 direct manufacturing labor hours in Department 200. The budgeted manufacturing overheads for the month were \$46,000 and \$50,000, respectively. For Job XX, the actual costs incurred in the two departments were as follows:

	Department 100	Department 200
Direct materials purchased on account	\$88,000	\$142,000
Direct materials used	26,000	10,800
Direct manufacturing labor	42,000	42,800
Indirect manufacturing labor	8,800	7,200
Indirect materials used	6,000	3,800
Lease on equipment	13,000	3,000
Utilities	800	1,000

Job XX incurred 1,000 machine hours in Department 100 and 300 manufacturing labor hours in Department 200. The company uses a budgeted overhead rate for applying overhead to production.

*Required:*

- Determine the budgeted manufacturing overhead rate for each department.
- Prepare the necessary journal entries to summarize the February transactions for Department 100.
- What is the total cost of Job XX?

56. Redoak Company manufactures desks. The company uses a budgeted indirect-cost rate

for its manufacturing operations, and in 19x1 allocated the following amounts to the work-in-process inventory, finished-goods inventory, and cost-of-goods-sold categories, respectively: \$50,000; \$150,000; \$1,800,000. The actual overhead incurred was \$2,200,000.

Ending balances in the relevant accounts were:

Work-in-Process	\$ 200,000
Finished Goods	1,500,000
Cost of Goods Sold	8,300,000

**Required:**

- Prepare a journal entry to write off the difference between allocated and actual overhead directly to cost of goods sold. Be sure your journal entry closes the related overhead accounts.
- Prepare a journal entry that prorates the write-off of the difference between allocated and actual overhead using ending account balances. Be sure your journal entry closes the related overhead accounts.
- Prepare a journal entry that prorates the write-off of the difference between allocated and actual overhead using overhead amounts allocated during the year to the respective accounts as the base. Be sure your journal entry closes the related overhead accounts.

59. Eckstein Watch Company manufactures stop watches in a series of four manufacturing operations: case stamping, works assembly, face assembly, and inspection. All watches are produced with identical processes although there are several product variations (such as style). All operations are either labor intensive or labor driven.

All watches are produced for speculative inventory in batches of 60. A job sheet is maintained for each batch. All work on a batch is completed at each operation before the batch is placed in either in-process or finished goods storage. All units of a batch move together.

**Required:**

- For the purpose of obtaining accurate product cost, identify the number of cost centers that should be established. Indicate why this number of cost centers is *Required* and describe how manufacturing labor and overhead costs should be assigned to each job.
- To reduce in-process inventories, management has decided to change from batch to continuous processing. Under continuous production, units will move continuously from one operation to the next without being placed in in-process storage.
  - Is it possible to continue to utilize a job costing system with batches of 60 units?
  - Briefly describe a more efficient approach to product costing under the new manufacturing system.

60. Babcock, Andersen, and Doran (BAD) Attorneys have been partners for three years. During the first few months of their practice, a job cost system was implemented by Jordan. He had some accounting work experience before going to law school. Initially, the system was simple and easy to operate since the partners only had about 20 clients under advisement at any one time. Each client's time was tracked to five-minute intervals, as was the amount of computer time spent on a given case. For the first few years, the attorneys seldom worked on more than one or two cases a day and the tracking process was easy for the office manager to maintain.

At the end of each month, all office costs were summarized and allocated on a per-client basis. Each client was charged with: legal counsel time, administrative assistant time, computer time, and overhead.

A few months ago, BAD moved their office into a new commercial center and business has grown rapidly. The office administrator is having much difficulty tracking and recording the time and cost for every client. Each attorney now consults with numerous clients every day and it is not unusual for more than one attorney to work with the same client at the same time. Also, with the new computer system, multiple jobs can be running at the same time

within the local area network that has been established.

**Required:**

How would you advise Babcock, Andersen, and Doran in regard to improving their cost accounting system under the current operating situation?

51 A. A local attorney employs 10 full-time professionals. The budgeted compensation per employee is \$75,000. The maximum billable hours for each client is 200. Clients always receive their full amount of time. All professional labor costs are included in a single direct-cost category and are traced to jobs on a per-hour basis. Any other costs are included in a single indirect-cost pool, allocated according to professional labor-hours. Budgeted indirect costs for the year are \$1,000,000 and the firm had 20 clients.

**Required:**

- What is the direct-labor cost rate per hour?
- What is the indirect-cost rate per hour?

52 A. Beacon Company does residential real estate appraisals. There are 40 professionals on its staff. Each professional is allotted the following number of hours per year:

Budgeted billable time for clients:	1,800 hours
Budgeted vacation time:	180 hours
Budgeted professional development:	100 hours
Budgeted unbillable time due to lack of demand:	0 hours
Budgeted sick leave:	120 hours

The company receives more jobs than it can handle and, therefore, rejects most out-of-town work. The budgeted salary for each professional is \$44,000 per year with fringe benefits of \$11,000.

During 19x1, the actual salaries were \$46,500, plus fringe benefits of \$11,500.

**Required:**

- What is the total budgeted direct cost rate if the company believes that clients should be charged directly for its employees' benefits?
- What is the budgeted direct cost rate if the company does not want to charge clients directly for employee vacation, sick leave, and professional development?
- What were the actual rates for 19x1 if the clients were charged directly for the employees' benefits?

53 A. General Hospital uses an indirect overhead job costing system for all patients. In March, the critical care and special care facilities had budgeted allocation bases of 4,000 nursing days and 3,000 nursing days, respectively. The budgeted nursing care charges for each department for the month were \$2,106,000 and \$1,500,000, respectively. The general care area had budgeted costs of \$2,700,000 and 7,500 nursing days for the month.

Patient Jim Hanson spent 5 days in critical care and 4 days in special care during April.

**Required:**

- Determine the budgeted overhead rate for each department.
- What are the total charges to Mr. Hanson if he was in the facility the entire month?

54 A. Landscape Architects provides landscape consulting services to clients that range from small businesses to large corporations. The budgeted rate for consulting per hour is \$100. The budgeted overhead charge for customer support costs per hour is \$45 and the direct-cost average is \$25 per hour. Jobs # 200 and # 201 for City College incurred 90 and 240 hours, respectively. Each job included one licensed architect, the supervisor, and two assistants. The architect worked 12 hours on Job 200 and 60 hours on Job 201. The personnel rates charged to jobs are \$30 for the architect and \$15 for the assistants.

**Required:**

Prepare a revenue and cost schedule for each job using budgeted overhead rates.

Training expenses	6,000
Utilities	1,400

55 A. MLB Consulting provides several consulting services to clients that range from systems analysis to actual installation of small computer systems. The standard rate for consulting per hour is \$50. The standard overhead charge per hour is \$32 with personnel charges and \$15 without personnel charges. Clients X and Y each incurred 60 hours of consulting during June. Client X consulting was done by two senior consultants and one trainee, each working 20 hours. Client Y consulting was done by four junior consultants, each working equal time. The actual cost of each consultant level is:

Senior consultant	\$25.00 per hour
Junior consultant	\$17.50 per hour
Trainee	\$10.00 per hour

Required:

- Prepare a revenue and cost schedule for each client using the standard overhead rate.
- Prepare a revenue and cost schedule for each client using charges per consultant and other overhead at the standard rate.

56 A. Alpine Company has had declines in income during each of the last two years. Management does not understand this because sales have been on the increase. The following income statements illustrate these facts:

	19x1	19x2	19x3
Sales	\$2,050,000	\$2,395,000	\$3,062,000
Cost of goods sold	1,050,000	1,225,000	2,057,000
Gross margin	\$1,000,000	\$1,170,000	\$1,005,000
Selling and administrative	350,000	557,500	720,000
<u>Operating income</u>	<u>\$650,000</u>	<u>\$612,500</u>	<u>\$285,000</u>

A recent seminar attended by the general manager included a brief session on product line costing. Based on this information, she asked the controller to furnish detailed information on the three products the company sells. The controller compiled the following data for 19x3:

	Tables	Desks	Chairs
Percentage of total sales	40%	40%	20%
Cost of goods sold	38%	42%	20%
Support costs	45%	30%	25%
Cost of goods sold:			
Wholesale costs	50%	25%	60%
Handling costs	20%	30%	10%
Overhead	30%	45%	30%
Total	100%	100%	100%

Required:

- Prepare income statements for 19x3 by sales line.
- What does this analysis illustrate to management?

57 A. Larry's Appliance Shop operates retail stores that sell appliances. The cost objects are the individual sales of a given type of appliance and sales support. For refrigerators in July, the following costs were recorded:

Professional sales staff commissions	\$84,000
Depreciation on office space	4,000
Selling supplies	6,400
Office staff expenses	24,800
Customer relations	8,600

Required:

- Tell whether each cost is assigned or traced to its cost object.
- What is the total cost for refrigerators?
- What is the total cost of the sales support for refrigerators?

58 A. Pat Clemons Auto Sales operates a wholesale automobile company that buys and resells cars. For June, the following data are provided:

Cost Object	Actual	Budget
Units bought	2,600	2,500
Units sold	2,500	2,400
Total cost of sales	# of units sold \$30,000,000	\$26,400,000
Buyers' expenses	# of units bought 162,000	175,000
Cleaning of sold units	Cleaning dept. 150,000	156,000
Customer relations	Sales support 244,000	213,000
Rent on showroom	# of units bought 20,000	20,000
Sales staff commissions	# of units sold 300,000	264,000
<u>Utilities</u>	<u>Sales support 3,500</u>	<u>3,000</u>

Required:

- Compute the direct and indirect costing rates for each cost object using actual, normal, and budgeted costing techniques.
- What is the total cost assigned to a given automobile under each costing rate method?

59 A. Eastern Star Nursing Home has been using an indirect overhead job cost system for allocating general and nursing overhead charges to all patients. However, during the past few months the facility has been losing patients because a competing nursing home charges much less for some classes of patients. It seems that Eastern Star is keeping the well patients and losing those who require special attention. The facilities manager believes that a refined costing system can improve the allocation of charges to all patients. Hopefully this will reduce the charges to the sick patients so that they will quit transferring to the competitor.

The accounting staff provided information for September. The costs have traditionally been allocated to patients based on nursing days. However, the accounting staff can separate nursing days by nursing category. At the request of the facilities manager, the following information was furnished concerning nursing days.

Nursing Category	Critical Care	Special Care	General Care	Daily Rate
Senior RN	1,600	1,000	1,600	\$150
RN (Registered Nurse)	4,000	2,600	2,000	135
Senior PN	2,000	1,400	5,200	120
PN (Practical Nurse)	400	1,000	4,400	100
Nurse's aide	0	0	1,800	80
Total days	8,000	6,000	15,000	

Overhead charges per nursing day excluding nursing pay	\$110	\$100	\$90
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Hazel Jones, a long-time patient, spent 5 days in critical care, 4 days in special care, and 21 days in general care during September. Her monthly assignment of nursing days was: 2 for Senior RN, 6 for RN, 10 for PN, and 12 for Nurse's aide.

Required:

- Determine the total rate to be charged patients if only one rate is used for each care area. What is Hazel Jones' charge for the month of September?
- Determine the amount to be charged Hazel Jones if separate rates are used for care area and nurses.

60A. Duran and Duran provide tax consulting for estates and trusts. Their job costing system has a single direct-cost category (professional labor) and a single indirect-cost pool (research support). The indirect-cost pool contains all the costs except direct personnel costs. All budgeted indirect costs are allocated to individual jobs using actual professional labor-hours.

*Required:*

- Discuss the reasons a consulting firm might use budgeted costing in its job system rather than actual or normal costing.
- What might be some ways for the firm to change from a one-pool allocation concept?

61A. The new manager of the insurance division does not understand how the company can have so many overhead rates for assigning costs to the activities of the company's life insurance underwriters. There is one rate schedule for average assignable costs when agents write standard policies. There is another rate schedule which the agents must complete when they write special policies, and these policies are costed out differently from those that are categorized as standard policies.

*Required:*

- Why might the company have different costing systems with different overhead rates for the standard and specialized policies?
- Which rate (standard or specialized) would cross-subsidize the other if the company used only one set of overhead rates for costing its policies?

62A. Behn Dance Studio sells all types of items for dancing. Some items are inexpensive ribbons, while some are expensive, made-to-order dresses. Some items are sold to individuals while others are bought in large quantities by dance companies. The manager of the European Division does not understand why many of the division's long-time customers are finding other suppliers. The cost system is computerized and provides monthly, even weekly when needed, accounting reports that detail the cost of every item sold, who sold it, special marketing efforts to make the sale, and delivery charges, if any.

*Required:*

- What can the manager request that will assist in the evaluation of the division's customers if the cost system can provide a variety of information?
- In addition to customer evaluations, what changes might be useful as to the type of costing system?

**Answers**

- True
- False
- False
- True
- True
- True
- True
- False
- False
- False
- False
- False
12. d
- d [140,000 + (\$90 x 600)] = \$194,000
- a \$800,000/\$4,000,000 = \$0.20
- c
- d \$100,000 and \$6,000 as given
- b
- b \$60,000 and \$40,000 + \$20,000 as given
- a \$25,000 + \$10,000 and \$50,000 as given
- c
- c
- c
- d

26. a  $\$23,000 / 5,000 = \$4.60$  pre machine-hour

27. d  $\$25,000 / 2,500 = \$10$  per labor-hour

28. a  $\$112,500 - \$100,000 = \$12,500$

29. d

Work-in-process	\$ 20,000	5%	x \$12,500 = \$ 625
Finished goods	40,000	10	x \$12,500 = \$ 1,250
Cost of goods sold	<u>340,000</u>	<u>85</u>	x \$12,500 = \$10,625
Total	\$400,000	100%	

30. b

31. b

32. d

33. c

35. d  $\$4/\$4 = 1$  unit  $\$0.30 \times 55 = \$16.50$   $\$16/32 = \$0.50$

36. c  $\$150,000 / 200,000 = \$0.75$

37. c \$300 as given

38. b \$290.30 as given

43. c

Manufacturing department cost object:

Computer time used by manufacturing operations	\$12,000
Depreciation on manufacturing equipment	8,000
Depreciation of manufacturing plant	4,500
Indirect manufacturing labor	14,300
Manufacturing supplies	3,200
Utilities for plant	<u>1,700</u>
Total	\$43,700

44. d

Product cost object:

Direct materials	\$ 23,700
Direct manufacturing labor	44,400
Manufacturing overhead	<u>43,700</u>
Total	\$111,800

46. c  $\$13,000 + \$21,000 + 500(\$4.60) + \$5,400 + \$21,400 + 150(\$10) = \$64,600$

47. d

48. a  $\$4 + \$16.50 + \$16 + \$18 + \$9 + \$15.20 + \$225 = \$303.70$

50. a. Manufacturing Overhead Allocated \$870,000

Cost of Goods Sold	\$ 20,000
Manufacturing Overhead Control	850,000

b. Work-in-process	\$ 80,000	5%	x \$20,000 = \$ 1,000
Finished goods	160,000	10	x \$20,000 = \$ 2,000
Cost of goods sold	<u>1,360,000</u>	<u>85</u>	x \$20,000 = \$17,000
Total	\$1,600,000		100%

Manufacturing Overhead Allocated \$870,000

Work-in-Process	\$ 1,000
Finished Goods	2,000
Cost of Goods Sold	17,000
Manufacturing Overhead Control	850,000

51. a. Unit-level: material handling, material purchase costs, energy costs  
 Batch-level: none  
 Product-sustaining: new product development  
 Facility-sustaining: plant supervision and safety costs

b. i. Material handling \$ 433,500  
 Material purchase costs 2,213,000  
 Energy costs 171,500  
 Total output-level costs \$2,818,000  
 $\$2,818,000/10,000,000 = \$0.2818$

ii. Output-level costs \$2,818,000  
 Product sustaining costs 614,000  
 Faculty sustaining costs 623,000  
 Total costs \$4,055,000

$\$4,055,000/10,000,000 = \$0.4055$

52. a. Unit-level: material handling, material purchase costs, energy costs  
 Batch-level: none  
 Product-sustaining: new product development  
 Facility-sustaining: plant supervision and safety costs

b. i. Material handling \$ 216,750  
 Material purchase costs 1,106,500  
 Energy costs 85,750  
 Total output-level costs \$1,409,000  
 $\$1,409,000/5,000,000 = \$0.2818$

ii. Output-level costs \$1,409,000  
 Product sustaining costs 307,000  
 Faculty sustaining costs 311,500  
 Total costs \$2,027,500  
 $\$2,027,500/5,000,000 = \$0.4055$

55. a. Manufacturing overhead rate Department 100 =  $\$46,000/10,000 \text{ hrs.} = \$4.60$  per machine hr.

Manufacturing overhead rate Department 200 =  $\$50,000/5,000 \text{ hrs.} = \$10.00$  per labor hr.

b. Materials Control Dept. 100 \$88,000  
 Accounts Payable Control \$88,000

Work-in-process Control Dept. 100 \$26,000  
 Manufacturing Overhead Control Dept. 100 6,000  
 Materials Control Dept. 100 \$32,000

Work-in-process Control Dept. 100 \$42,000  
 Manufacturing Overhead Control Dept. 100 8,800  
 Wages Payable Control \$50,800

Manufacturing Overhead Control Dept. 100 \$13,800  
 Leaseholds Payable Control \$13,000  
 Utilities Payable Control 800

Work-in-Process Control Dept. 100 (\$4.60 x 1,000 hrs) \$ 4,600  
 Manufacturing Overhead Allocated \$ 4,600

c. Job XX:

Direct materials Dept. 100 \$ 26,000  
 Direct materials Dept. 200 10,800  
 Direct manufacturing labor Dept. 100 42,000  
 Direct manufacturing labor Dept. 200 42,800  
 Manufacturing overhead Dept. 100 (\$4.60 x 1,000) 4,600  
 Manufacturing overhead Dept. 200 (\$10.00 x 300) 3,000  
 Total \$129,200

56. a. Manufacturing Overhead Allocated \$2,000,000  
 Cost of Goods Sold 200,000  
 Manufacturing Overhead Control \$2,200,000

b. Work-in-process \$200,000 2.0% x \$200,000 = \$ 4,000  
 Finished goods 1,500,000 15.0 x \$200,000 = \$ 30,000  
 Cost of goods sold 8,300,000 83.0 x \$200,000 = \$166,000  
 Total \$10,000,000 100.0%

Manufacturing Overhead Allocated \$2,000,000  
 Work-in-Process 4,000  
 Finished Goods 30,000  
 Cost of Goods Sold 166,000  
 Manufacturing Overhead Control \$2,200,000

c. Work-in-process \$ 50,000 2.5% x \$200,000 = \$ 5,000  
 Finished goods 150,000 7.5 x \$200,000 = \$ 15,000  
 Cost of goods sold 1,800,000 90.0 x \$200,000 = \$180,000  
 Total \$2,000,000 100.0%

Manufacturing Overhead Allocated \$2,000,000  
 Work-in-Process 5,000  
 Finished Goods 15,000  
 Cost of Goods Sold 180,000  
 Manufacturing Overhead Control \$2,200,000

59. a. Only one cost center is *Required*. This is because only one product is produced and outputs of this product all go through the same processes. Labor costs and overhead costs should be assigned to the job on the basis of time recorded on the work tickets. This necessitates employees at each operation completing a work ticket, or portion thereof, noting the time they start and stop work on each job. Overhead could be assigned on the basis of labor since it is a very labor-driven process. There should be a plant-wide overhead rate.

b. 1. Yes, it is possible to continue to use a job costing system with small batches. This would require some method of identifying the first and last unit in a batch. As the first unit in a batch enters each production operation, a start time for the job would be noted on the work ticket. When the last unit in the batch left each production operation, a stop time would be noted. Labor and overhead costs would then be assigned on some basis, probably labor hours.

2. A more efficient approach would be to treat all production operations as a single-process cost center. Total costs assigned to production would be summarized in the categories of material and conversion. Equivalent units of materials and conversion in process would be computed on the basis of units completed and ending work-in-process. Then, the cost per



58A. a. Costing rates	Actual	Normal	Budgeted
Units sold	\$30,300,000/2,500 = \$12,120	\$30,300,000/2,500 = \$12,120	\$26,664,000/2,400 = \$11,110
Units bought	\$182,000/2,600 = \$70	\$195,000/2,500 = \$78	\$195,000/2,500 = \$78
Cleaning	\$150,000/2,500 = \$60	\$156,000/2,400 = \$65	\$156,000/2,400 = \$65
Sales support	\$247,500/2,500 = \$99	\$216,000/2,400 = \$90	\$216,000/2,400 = \$90

b. Actual rate = \$12,120 + \$70 + \$60 + \$99 =	\$12,349
Normal rate = \$12,120 + \$78 + \$65 + \$90 =	\$12,353
Budgeted rate = \$11,110 + \$78 + \$65 + \$90 =	\$11,343

60A. a. Budget rates are normally used because the actual costs of performing the work will not usually be available until sometime after a job is completed. Decisions about billing a client for services rendered generally must be made immediately after the job is completed. Also, actual costs may reflect short-run changes in the environment which may distort the billing process. Budgeted costs are affected by weekly or monthly fluctuations and, therefore, offer a stable comparison and assignment of costs throughout the accounting cycle.

b. Having separate professional labor-hour rates assists in assigning the personnel costs to jobs closest to their real values. This helps to maintain different costs for jobs which have the same number of hours but a different mix of professionals doing the job. Seldom is there only one cause and effect relationship between a job and the tasks performed on the job; therefore, it may also be a good idea to develop multiple indirect-cost assignments (i.e., one for staff support and others for such items as computer support or general administrative support).

61A. a. Because the standard policies are written the same way each time, the company knows how long it takes to complete such a policy and the average effort expended by the agents in doing standard policy work. Special policies, on the other hand, are different and the amount of effort and time to complete such a policy is difficult to standardize. The agents are thus required to keep track of their time and expenses in completing such policies.

b. The standard policy rates would probably cross-subsidize the special policy rates because the average assignable costs would probably be greater than the real cost of the standard policies. For example, if the actual cost to write a standard policy was \$100 and the assignable rate was \$125, the standard policies would be subsidizing the special policies by \$25 every time a standard policy was written.

62A. a. This may be a case where the division needs to examine customer costing. The manager needs to ensure that customers making major contributions to the company's profits are getting an appropriate level of attention. Customer profitability analysis can provide this type of information by highlighting which customers are the most profitable, not necessarily which customers have the largest dollar sales.

b. The division might want to consider multiple costing systems for different types of customers. For the small purchase customers, a standard system with only one cost object for direct and indirect cost might be sufficient. For the large purchase customers, a costing system with multiple cost objects could provide substantially more information as to the areas where costs may not be in control. Adaptability is the key when an organization has many different types of customers. Not all customers demand the same amount of time or effort to complete a sale and the costing system must be responsive for such differences.