

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 1) With increased competition, managers need more accurate estimates of product costs in order to set prices and to identify the most profitable products. 1) _____
- 2) The plantwide overhead cost allocation rate is computed by dividing the estimated total manufacturing overhead costs by the estimated total quantity of the cost allocation base. 2) _____
- 3) To determine the amount of overhead allocated, the overhead rate is divided by the cost driver. 3) _____
- 4) Using departmental overhead rates is generally more accurate than using a single plantwide overhead rate. 4) _____
- 5) Cost distortion occurs when some products are overcosted while other products are undercosted by the cost allocation system. 5) _____
- 6) As a result of cost distortion, either all products will be overcosted, or all products will be undercosted. 6) _____
- 7) Companies often refine their cost allocation systems to minimize the amount of cost distortion caused by the simpler cost allocation systems. 7) _____
- 8) Companies that use departmental overhead rates trace direct materials and direct labour to cost objects just as in a traditional costing systems. 8) _____
- 9) Refined costing systems can only be used by manufacturers to allocate manufacturing overhead. 9) _____
- 10) Refined costing systems can be used to allocate any indirect costs to any cost objects. 10) _____
- 11) Merchandising and service companies, as well as governmental agencies, can use refined cost allocation systems to provide their managers with better cost information. 11) _____
- 12) If a company's plantwide overhead rate is allocated based on direct labour hours, then each job will be allocated manufacturing overhead based on the total direct labour hours incurred on the job, regardless of the manufacturing department in which those hours were incurred. 12) _____
- 13) One condition that favours using a plantwide overhead rate, rather than departmental overhead rates, is that different departments incur different amounts and types of manufacturing overhead. 13) _____
- 14) The estimated total manufacturing overhead costs that will be incurred in each department in the coming year are often referred to as activity cost pools. 14) _____

- 15) A departmental overhead rate is calculated by multiplying the estimated total manufacturing overhead costs of the department by the estimated total quantity of the department's cost allocation base. 15) _____
- 16) The departmental overhead cost allocation rate is computed by dividing the estimated total manufacturing overhead costs of the department by the estimated total quantity of the department's cost allocation base. 16) _____
- 17) If a company uses departmental overhead allocation rates, then the amount of manufacturing overhead allocated to the job is equal to the plantwide overhead rate multiplied by the actual use of the cost allocation base. 17) _____
- 18) The allocation base selected for each department should be the cost driver of the costs in the departmental overhead pool. 18) _____
- 19) Direct labour hours would be the most appropriate cost allocation base for a Machining Department that uses machine robotics extensively. 19) _____
- 20) Plantwide overhead rates typically do a better job of matching each department's overhead costs to the products that use the department's resources than do departmental overhead rates. 20) _____
- 21) Using a departmental overhead rate reduces the cost distortion from allocating direct costs. 21) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 22) Cost distortion results in the 22) _____
A) overcosting of some products and undercosting of other products.
B) accurate costing of all products.
C) overcosting of all products.
D) undercosting of all products.
- 23) When calculating a departmental overhead rate, the numerator should be the 23) _____
A) actual quantity of the departmental allocation base used by the job.
B) total estimated amount of the departmental allocation base.
C) total estimated amount of manufacturing overhead for the factory.
D) total estimated departmental overhead cost pool.
- 24) When calculating the total amount of manufacturing overhead to allocate to a particular job, the company would multiply each departmental overhead rate by _____ and then _____ together the allocated amounts from each department. 24) _____
A) the actual amount of the plantwide allocation base used by the job; multiply
B) the actual amount of the departmental allocation base used by the job; multiply
C) the actual amount of the plantwide allocation base used by the job; add
D) the actual amount of the departmental allocation base used by the job; add

- 25) Which of the following condition(s) favours using departmental overhead rates in place of a plantwide overhead rate? 25) _____
- A) Different jobs or products use the departments to a different extent.
 - B) Departments use a similar amount of indirect costs.
 - C) Manufacturing overhead represents a small proportion of total cost.
 - D) Products spend the same amount of time in each department.

- 26) The use of departmental overhead rates will generally result in the use of a 26) _____
- A) separate cost allocation base for each activity in the factory.
 - B) single overhead cost pool for the factory.
 - C) separate cost allocation base for each department in the factory.
 - D) single cost allocation base.

Use the information below to answer the following questions:

Cheezy Snack produces rice crackers, wheat crackers, and corn crackers on three different production lines in the same manufacturing facility. Currently Cheezy uses a single plantwide overhead rate to allocate its \$3,119,000 of annual manufacturing overhead. Of this amount, \$800,000 is associated with the rice cracker line, \$1,419,000 with the wheat cracker line, and \$900,000 with the corn cracker line. Cheezy's plant is currently running a total of 20,000 machine hours: 6,400 in the rice cracker line, 8,600 with the wheat cracker line, and 5,000 with the corn cracker line. Cheezy's considers machine hours to be the cost driver of MOH costs.

- 27) What is Cheezy's plant wide overhead rate? 27) _____
- A) \$180.00 / machine hour
 - B) \$155.95 / machine hour
 - C) \$125.75 / machine hour
 - D) \$165.00 / machine hour
- 28) If Cheezy were to implement departmental overhead rates, what rate would be applied to the rice cracker line? 28) _____
- A) \$165.00 / machine hour
 - B) \$140.00 / machine hour
 - C) \$125.00 / machine hour
 - D) \$155.95 / machine hour
- 29) If Cheezy were to implement departmental overhead rates, what rate would be applied to the wheat cracker line? 29) _____
- A) \$155.95 / machine hour
 - B) \$195.00 / machine hour
 - C) \$165.00 / machine hour
 - D) \$185.00 / machine hour
- 30) If Cheezy were to implement departmental overhead rates, what rate would be applied to the corn cracker line? 30) _____
- A) \$155.95 / machine hour
 - B) \$165.00 / machine hour
 - C) \$195.00 / machine hour
 - D) \$180.00 / machine hour
- 31) Which product(s) are being over costed due to the use of a single plant-wide overhead allocation rate? 31) _____
- A) Just the Rice Cracker
 - B) None of them
 - C) Just the Wheat Cracker
 - D) All of them

- 32) Which product(s) are being under costed due to the use of a single plant-wide overhead allocation rate? 32) _____
- A) Just the Corn Cracker
 - B) Just the Wheat Cracker
 - C) Just the Rice Cracker
 - D) Both the Wheat Cracker and the Corn Cracker

Use the information below to answer the following question(s):

Bond Industries uses departmental overhead rates to allocate its manufacturing overhead to jobs. The company has two departments, Assembly and Sanding. The Assembly Department uses a departmental overhead rate of \$20 per machine hour, the Sanding Department uses a departmental overhead rate of \$15 per direct labour hour. Job 542 used the following direct labour hours and machine hours in the two departments:

| Actual results | Assembly Department | Sanding Department |
|--------------------------|---------------------|--------------------|
| Direct labour hours used | 4 | 3 |
| Machine hours used | 9 | 5 |

The cost for direct labour is \$25 per direct labour hour and the cost of the direct materials used by Job 542 is \$1,200.

- 33) How much manufacturing overhead would be allocated to Job 542 using the departmental overhead rates? 33) _____
- A) \$155
 - B) \$125
 - C) \$225
 - D) \$245
- 34) What was the total cost of Job 542 if Bond Industries used the departmental overhead rates to allocate manufacturing overhead? 34) _____
- A) \$1,500
 - B) \$1,375
 - C) \$1,600
 - D) \$1,425

Use the information below to answer the following question(s):

Ryan Fabrication allocates manufacturing overhead to each job using departmental overhead rates. Ryan's operations are divided into a metal casting department and a metal finishing department. The casting department uses a departmental overhead rate per machine hour, while the finishing department uses a departmental overhead rate of \$28 per direct labour hour. Job A216 used the following direct labour hours and machine hours in the two departments:

| Actual results | Casting Department | Finishing Department |
|--------------------------|--------------------|----------------------|
| Direct labour hours used | 5 | 12 |
| Machine hours used | 4 | 3 |

The cost for direct labour is \$32 per direct labour hour and the cost of the direct materials used by Job A216 is \$1,800.

- 35) How much manufacturing overhead would be allocated to Job A216 using the departmental overhead rates? 35) _____
- A) \$454
 - B) \$544
 - C) \$596
 - D) \$1,360

- 36) What was the total cost of Job A216 if Ryan Fabrication used the departmental overhead rates to allocate manufacturing overhead? 36) _____
- A) \$2,940 B) \$2,344 C) \$2,434 D) \$2,888

Use the information below to answer the following question(s):

Green Bags Company manufactures cloth grocery bags to be sold to grocery stores and other retailers. Green Bags Company sells the bags in cases of 1,000 bags. The bags come in three sizes: Large, Medium, and Small. Currently, Green Bags Company uses a single plantwide overhead rate to allocate its \$7,141,100 of annual manufacturing overhead. Of this amount, \$1,875,000 is associated with the Large Bag line, \$2,992,500 is associated with the Medium Bag line, and \$2,273,600 is associated with the Small Bag line. Green Bags Company is currently running a total of 37,000 machine hours; 12,500 in the Large Bag line, 13,300 in the Medium Bag line, and 11,200 in the Small Bag line. Green Bags Company uses machine hours as the cost driver for manufacturing overhead costs.

- 37) At Green Bags Company the plantwide manufacturing overhead rate would be closest to 37) _____
- A) \$225.00 per machine hour. B) \$50.68 per machine hour.
C) \$193.00 per machine hour. D) \$150.00 per machine hour.
- 38) The departmental manufacturing overhead rate for the Small Bag line would be closest to 38) _____
- A) \$225.00 per machine hour. B) \$150.00 per machine hour.
C) \$203.00 per machine hour. D) \$193.00 per machine hour.
- 39) Which product line(s) at Green Bags Company have been overcosted or undercosted by using the plantwide manufacturing overhead rate? 39) _____
- A) Large Bags has been overcosted; Medium and Small have been undercosted.
B) Large, Medium, and Small Bags have all been undercosted.
C) Large, Medium, and Small Bags have all been overcosted.
D) Large Bags has been undercosted; Medium and Small have been overcosted.

Use the information below to answer the following question(s):

Cooper's Bags Company manufactures cloth grocery bags to be sold to grocery stores and other retailers. Cooper's Bags Company sells the bags in cases of 1,000 bags. The bags come in three sizes: Large, Medium, and Small. Currently, Cooper's Bags Company uses a single plantwide overhead rate to allocate its \$8,088,000 of annual manufacturing overhead. Of this amount, \$2,210,000 is associated with the Large Bag line, \$3,418,800 is associated with the Medium Bag line, and \$2,459,200 is associated with the Small Bag line. Cooper's Bags Company is currently running a total of 40,000 machine hours; 13,000 in the Large Bag line, 15,400 in the Medium Bag line, and 11,600 in the Small Bag line. Cooper's Bags Company uses machine hours as the cost driver for manufacturing overhead costs.

- 40) At Cooper's Bags the plantwide manufacturing overhead rate would be closest to 40) _____
- A) \$202.20 per machine hour. B) \$55.25 per machine hour.
C) \$170.00 per machine hour. D) \$222.00 per machine hour.
- 41) The departmental manufacturing overhead rate for the Small Bag line would be closest to 41) _____
- A) \$170.00 per machine hour. B) \$202.20 per machine hour.
C) \$222.00 per machine hour. D) \$212.00 per machine hour.

42) Which product line(s) have been overcosted or undercosted by using the plantwide manufacturing overhead rate?

42) _____

- A) Large Bags has been overcosted; Medium and Small have been undercosted.
- B) Large Bags has been undercosted; Medium and Small have been overcosted.
- C) Large, Medium, and Small Bags have all been overcosted.
- D) Large, Medium, and Small Bags have all been undercosted.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

43) The Highland Corporation uses departmental overhead rates to allocate its manufacturing overhead to jobs. The company has two departments—cutting and painting. The Cutting Department uses a departmental overhead rate of \$15 per machine hour, while the Painting Department uses a departmental overhead rate of \$9 per direct labour hour. Job 586 used the following direct labour hours and machine hours in the two departments:

43) _____

| Actual results | Cutting Department | Painting Department |
|--------------------------|--------------------|---------------------|
| Direct labour hours used | 6 | 5 |
| Machine hours used | 12 | 10 |

The cost for direct labour is \$25 per direct labour hour and the cost of the direct materials used by Job 586 is \$900.

Required: What was the total cost of Job 586 if the Highland Corporation used the departmental overhead rates to allocate manufacturing overhead?

44) The Braveheart Corporation uses departmental overhead rates to allocate its manufacturing overhead to jobs. The company has two departments: cutting and painting. The Cutting Department uses a departmental overhead rate of \$12 per machine hour, while the Painting Department uses a departmental overhead rate of \$17 per direct labour hour. Job 422 used the following direct labour hours and machine hours in the two departments:

44) _____

| Actual results | Cutting Department | Painting Department |
|--------------------------|--------------------|---------------------|
| Direct labour hours used | 12 | 10 |
| Machine hours used | 14 | 12 |

The cost for direct labour is \$20 per direct labour hour and the cost of the direct materials used by Job 422 is \$800.

Required: What was the total cost of Job 422 if the Braveheart Corporation used the departmental overhead rates to allocate manufacturing overhead?

45) Clearview Display Company manufactures display cases to be sold to retail stores. The cases come in three sizes—Large, Medium, and Small. Currently, Clearview Display Company uses a single plantwide overhead rate to allocate its \$7,141,100 of annual manufacturing overhead. Of this amount, \$1,875,000 is associated with the Large Case line, \$2,992,500 is associated with the Medium Case line, and \$2,273,600 is associated with the Small Case line. Clearview Display Company is currently running a total of 37,000 machine hours: 12,500 in the Large Case line, 13,300 in the Medium Case line, and 11,200 in the Small Case line. Clearview Display Company uses machine hours as the cost driver for manufacturing overhead costs.

45) _____

Required:

- Calculate the plantwide manufacturing overhead rate.
- Calculate the departmental overhead rate for each of the three departments listed.
- Which product line(s) have been overcosted by using the plantwide manufacturing overhead rate? By how much per machine hour? Which product line(s) have been undercosted by using the plantwide manufacturing overhead rate? By how much per machine hour?

46) High Rise Display Company manufactures display cases to be sold to retail stores. The cases come in three sizes: Large, Medium, and Small. Currently, High Rise Display Company uses a single plantwide overhead rate to allocate its \$3,357,800 of annual manufacturing overhead. Of this amount, \$820,000 is associated with the Large Case line, \$1,276,800 is associated with the Medium Case line, and \$1,261,000 is associated with the Small Case line. Clearview Display Company is currently running a total of 33,000 machine hours: 10,000 in the Large Case line, 13,300 in the Medium Case line, and 9,700 in the Small Case line. High Rise Display Company uses machine hours as the cost driver for manufacturing overhead costs.

46) _____

Required:

- Calculate the plantwide manufacturing overhead rate.
- Calculate the departmental overhead rate for each of the three departments listed.
- Which product line(s) have been overcosted by using the plantwide manufacturing overhead rate? By how much per machine hour? Which product line(s) have been undercosted by using the plantwide manufacturing overhead rate? By how much per machine hour?

47) Humber Products manufactures its products in two separate departments: milling and assembly. Total manufacturing overhead costs for the year are budgeted at \$2 million. Of this amount Milling Department incurs \$1,200,000 (primarily for machine operation and depreciation) while the Assembly Department incurs \$800,000. Humber Products estimates it will incur 8,000 machine hours (all in the Milling Department) and 25,000 direct labour hours (5,000 in the Milling Department and 20,000 in the Assembly Department) during the year.

47) _____

Humber Products currently uses a plantwide overhead rate based on direct labour hours to allocate overhead. However, the company is considering refining its overhead allocation by using departmental overhead rates. The Milling Department would allocate its overhead using machine hours (MH), but the Assembly Department would allocate its overhead using direct labour (DL) hours.

The following chart shows the machine hours (MH) and direct labour (DL) hours incurred for Jobs 600 and 601 in each production department:

| | Milling Department | Assembly Department |
|---------|--------------------|---------------------|
| Job 600 | 4 DL hours | 12 DL hours |

| | | |
|---------|--------------------------------|-------------|
| Job 600 | 4 DL hours 6 machine hours | 12 DL hours |
| Job 601 | 4 DL hours 12 machine hours | 12 DL hours |

Both Jobs 600 and 601 used \$2,000 of direct materials. Wages and benefits total \$25 per direct labour hour. Humber Products prices its products at 110% of total manufacturing costs.

Required:

1. Compute Humber Products' current plantwide overhead rate.
2. Compute refined departmental overhead rates.
3. Compute the total amount of overhead allocated to each job if Humber Products uses its current plantwide overhead rate.
4. Compute the total amount of overhead allocated to each job if Humber Products uses departmental overhead rates.
5. Do both allocation systems accurately reflect the resources that each job used? Explain.
6. Compute the total manufacturing cost and sales price of each job using Humber Products' current plantwide overhead rate.
7. Compute the total manufacturing cost and sales price of each job using Humber Products' refined departmental overhead rates.
8. Based on the current (plantwide) allocation system, how much profit did Humber Products think it earned on each job?
9. Based on the departmental overhead rates and the sales price determined in Requirement 7, how much profit did it really earn on each job?

- 48) Credit Valley Products manufactures its products in two separate departments: milling and assembly. Total manufacturing overhead costs for the year are budgeted at \$1,600,000. Of this amount, the Milling Department incurs \$960,000 (primarily for machine operation and depreciation) while the Assembly Department incurs \$640,000. Credit Valley Products estimates that it will incur 8,000 machine hours (all in the Milling Department) and 25,000 direct labour hours in the Milling Department and 20,000 in the Assembly Department during the year.

48) _____

Credit Valley Products currently uses a plantwide overhead rate based on direct labour hours to allocate overhead. However, the company is considering refining its overhead allocation system by using departmental overhead rates. The Milling Department would allocate its overhead using machine hours (MH), but the Assembly Department would allocate its overhead using direct labour (DL) hours.

The following chart shows the machine hours (MH) and direct labour (DL) hours incurred on Jobs 400 and 401 in each production department:

| | Milling Department | Assembly department |
|---------|--------------------------------|---------------------|
| Job 400 | 4 DL hours 6 machine hours | 12 DL hours |
| Job 401 | 4 DL hours 12 machine hours | 12 DL hours |

Both Jobs 400 and 401 used \$4,000 of direct materials. Wages and benefits total \$35 per direct labour hour. Credit Valley Products prices its products at 120% of total manufacturing costs.

Required:

1. Compute Credit Valley Products' current plantwide overhead rate.
2. Compute refined departmental overhead rates.
3. Compute the total amount of overhead allocated to each job if Credit Valley Products uses current plantwide overhead rate.
4. Compute the total amount of overhead allocated to each job if Credit Valley Products uses departmental overhead rates.
5. Do both allocation systems accurately reflect the resources that each job used? Explain.
6. Compute the total manufacturing cost and sales price of each job using Credit Valley Products' current plantwide overhead rate.
7. Compute the total manufacturing cost and sales price of each job using Credit Valley Products' refined departmental overhead rates.
8. Based on the current (plantwide) allocation system, how much profit did Credit Valley Products think it earned on each job?
9. Based on the departmental overhead rates and the sales price determined in Requirement 7, how much profit did it really earn on each job?

- 49) Speedy Machine Products manufactures its products in two separate departments, Machining and Painting. Total manufacturing overhead costs for the year are budgeted at \$2,500,000. This amount the Machining Department incurs \$1,500,000 (primarily for machine operation depreciation) while the Painting Department incurs \$1,000,000. Speedy Machine Products estimates that it will incur 12,000 machine hours (all in the Machining Department) and 40,000 direct labour hours (15,000 in the Machining Department and 25,000 in the Assembly Department) during the year.

Speedy Machine Products currently uses a plantwide overhead rate based on direct labour hours to allocate overhead. However, the company is considering refining its overhead allocation system by using departmental overhead rates. The Machining Department would allocate its overhead using machine hours (MH), but the Painting Department would allocate its overhead using direct labour (DL) hours.

The following chart shows the machine hours (MH) and direct labour (DL) hours incurred for Jobs 810 and 811 in each production department:

| | Machining Department | Assembly Department |
|---------|--------------------------------|---------------------|
| Job 810 | 9 DL hours 10 machine hours | 27 DL hours |
| Job 811 | 9 DL hours 20 machine hours | 27 DL hours |

Both Jobs 810 and 811 used \$7,500 of direct materials. Wages and benefits total \$30 per direct labour hour. Speedy Machine Products prices its products at 120% of total manufacturing cost.

Required:

1. Compute Speedy Machine Products' current plantwide overhead rate.
2. Compute refined departmental overhead rates.
3. Compute the total amount of overhead allocated to each job if Speedy Machine Products uses its current plantwide overhead rate.
4. Compute the total amount of overhead allocated to each job if Speedy Machine Products uses departmental overhead rates.
5. Do both allocation systems accurately reflect the resources that each job used? Explain.
6. Compute the total manufacturing cost and sales price of each job using Speedy Machine Products' current plantwide overhead rate.

7. Compute the total manufacturing cost and sales price of each job using Speedy Machine Products' refined departmental overhead rates
8. Based on the current (plantwide) allocation system, how much profit did Speedy Machi Products think it earned on each job?
9. Based on the departmental overhead rates and the sales price determined in Requirement how much profit did it really earn on each job?

- 50) Sector's Machine Works manufactures custom equipment. Sector's Machine Works currently uses a plantwide overhead rate, based on direct labour hours, to allocate its \$2,000,000 of manufacturing overhead to individual jobs. 50) _____

Sector's plant completed Jobs 550 and 555 on May 15. Both jobs incurred a total of 7 DL hours throughout the entire production process. Job 550 incurred 3 MH in the Machining Department and 6 DL hours in the Assembly Department (the other DL hour occurred in the Machining Department). Job 555 incurred 4 MH in the Machining Department and 5 DL hours in the Assembly Department (the other two DL hours occurred in the Machining Department).

Requirements

1. Compute the plantwide overhead rate, assuming Sector expects to incur 40,000 total DL hours during the year.
2. How much manufacturing overhead would be allocated to each job if Sector uses the plantwide rate?

- 51) Sector's Machine Works manufactures custom equipment. Sector's Machine Works currently uses a plantwide overhead rate, based on direct labour hours, to allocate its \$2,000,000 of manufacturing overhead to individual jobs. However, Franco Sector, owner and CEO, is considering refining the company's costing system by using departmental overhead rates. Currently, the Machining Department incurs \$1,400,000 of MOH while the Assembly Department incurs \$600,000 of MOH. Franco has identified machine hours (MH) as the primary MOH cost driver in the Machining Department and direct labour (DL) hours as the primary cost driver in the Assembly Department. Sector completed job numbers 550 and 555 on May 15. Both jobs incurred a total of 7 DL hours throughout the entire production process. Job 550 incurred 3 MH in the Machining Department and 6 DL hours in the Assembly Department (the other DL hour occurred in the Machining Department). Job 555 incurred 4 MH in the Machining Department and 5 DL hours in the Assembly Department (the other two DL hours occurred in the Machining Department). 51) _____

Requirements

1. Compute departmental overhead rates, assuming Sector expects to incur 25,000 MH in the Machining Department and 30,000 DL hours in the Assembly Department during the year.
2. Using the departmental rates how much manufacturing overhead would be allocated to Job 550 and to Job 555.

- 52) Murphy's Machine Works manufactures custom equipment. Sector's Machine Works currently uses a plantwide overhead rate, based on direct labour hours, to allocate its \$2,500,000 of manufacturing overhead to individual jobs. 52) _____

Murphy's plant completed Jobs 600 and 601 on July 15. Both jobs incurred a total of 9 DL hours throughout the entire production process. Job 600 incurred 5 MH in the Machining Department and 6 DL hours in the Assembly Department (the other 3 DL hours occurred in the Machining Department). Job 601 incurred 8 MH in the Machining Department and 7 DL hours in the Assembly Department (the other two DL hours occurred in the Machining Department).

Requirements

1. Compute the plantwide overhead rate, assuming Murphy expects to incur 50,000 total DL hours during the year.
2. How much manufacturing overhead would be allocated to each job if Murphy uses the plantwide rate?

- 53) Murphy's Machine Works manufactures custom equipment. Murphy's Machine Works currently uses a plantwide overhead rate, based on direct labour hours, to allocate its \$2,500,000 of manufacturing overhead to individual jobs. However, Sean Murphy, owner and CEO, is considering refining the company's costing system by using departmental overhead rates. Currently, the Machining Department incurs \$1,500,000 of MOH while the Assembly Department incurs \$1,000,000 of MOH. Sean has identified machine hours (MH) as the primary MOH cost driver in the Machining Department and direct labour (DL) hours as the primary cost driver in the Assembly Department. Murphy's completed job numbers 600 and 601 on July 15. Both jobs incurred a total of 9 DL hours throughout the entire production process. Job 600 incurred 5 MH in the Machining Department and 6 DL hours in the Assembly Department (the other 3 DL hours occurred in the Machining Department). Job 601 incurred 8 MH in the Machining Department and 7 DL hours in the Assembly Department (the other two DL hours occurred in the Machining Department). 53) _____

Requirements

1. Compute departmental overhead rates, assuming Sector expects to incur 30,000 MH in the Machining Department and 40,000 DL hours in the Finishing Department during the year.
2. Using the departmental rates how much manufacturing overhead would be allocated to Job 600 and to Job 601.

- 54) Babcock Industries uses departmental overhead rates to allocate its manufacturing overhead to jobs. The company has two departments: Assembly and Sanding. The Assembly Department uses a departmental overhead rate of \$20 per machine hour, while the Sanding Department uses a departmental overhead rate of \$15 per direct labour hour. Job 396 used the following direct labour hours and machine hours in the two departments:

54) _____

| Actual results | Assembly Department | Sanding Department |
|--------------------------|---------------------|--------------------|
| Direct labour hours used | 4 | 3 |
| Machine hours used | 9 | 5 |

The cost for direct labour is \$25 per direct labour hour and the cost of the direct materials used by Job 396 is \$1,200.

What was the total cost of Job 396 if Babcock Industries used the departmental overhead rates to allocate manufacturing overhead?

- 55) Leonard Industries uses departmental overhead rates to allocate its manufacturing overhead to jobs. The company has two departments: Building and Inspection. The Building Department uses a departmental overhead rate of \$18 per machine hour, while the Inspection Department uses a departmental overhead rate of \$15 per direct labour hour. Job 611 used the following direct labour hours and machine hours in the two departments:

55) _____

| Actual results | Building Department | Inspection Department |
|--------------------------|---------------------|-----------------------|
| Direct labour hours used | 6 | 2 |
| Machine hours used | 10 | 0 |

The cost for direct labour is \$25 per direct labour hour and the cost of the direct materials used by Job 611 is \$1,500.

What was the total cost of Job 611 if Leonard Industries used the departmental overhead rates to allocate manufacturing overhead?

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

- 56) Under what circumstances might a single manufacturing overhead rate distort costs?

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

- 57) ABC costing is generally more accurate than traditional cost systems.

57) _____

- 58) It is easier to allocate indirect costs to the products that caused those costs if you use the ABC system rather than traditional costing systems.

58) _____

- 59) Companies that use ABC trace direct materials and direct labour to cost objects just as in traditional costing systems.

59) _____

- 60) Two main benefits of ABC are: (1) more accurate product cost information, and (2) more detailed information on the costs of activities and the drivers of those costs. 60) _____
- 61) The cost allocation rate for each activity is equal to the estimated total manufacturing overhead costs of the activity multiplied by the estimated total quantity of the cost allocation base. 61) _____
- 62) The four categories of activity costs in cost hierarchy are determined by the underlying factor that drives its costs. 62) _____
- 63) Unit-level activities and costs are incurred once for every batch. 63) _____
- 64) The cost of inspecting and packaging each unit the company produces would be considered a unit-level activity cost. 64) _____
- 65) Batch-level activities and costs are incurred again each time a unit is produced. 65) _____
- 66) Machine set-up would be considered a batch-level cost. 66) _____
- 67) Product-level activities and costs are incurred for a particular product, regardless of the number of units or batches of the product produced. 67) _____
- 68) The cost to research and develop, design and market new models would be considered a unit-level cost. 68) _____
- 69) The cost to design and market new models would be considered a facility-level cost. 69) _____
- 70) Facility-level activities and costs are incurred no matter how many units, batches, or products are produced in the plant. 70) _____
- 71) The cost of maintenance on the entire production plant would be considered a batch-level cost. 71) _____
- 72) The cost of depreciation, insurance, and property tax on the entire production plant would be considered a unit-level cost. 72) _____
- 73) Traditional costing that uses a plantwide overhead allocation rate is considered to be most accurate when each product uses specific resources. 73) _____
- 74) In ABC it is assumed that it is activities that drive costs, rather than cost objects such as inventory. 74) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 75) In using an ABC system, which of the following steps is NOT performed before the company's year begins? 75) _____
A) Calculate an activity cost allocation rate for each activity.
B) Allocate the costs to the cost object using the activity cost allocation rates.
C) Select an allocation base for each activity.
D) Identify the primary activities and estimate a total cost pool for each.
- 76) Four basic steps are used in an ABC system. List the proper order of these steps, which are currently scrambled below: 76) _____
a. Identify the primary activities and estimate a total cost pool for each.
b. Allocate the costs to the cost object using the activity cost allocation rates.
c. Select an allocation base for each activity.
d. Calculate an activity cost allocation rate for each activity.
A) a, d, c, b B) b, a, c, d C) a, c, d, b D) c, a, b, d
- 77) The use of which of the following costing systems is most likely to reduce cost distortion to a minimum? 77) _____
A) Departmental overhead allocation rates B) Traditional costing system
C) Plantwide overhead rate D) Activity-based costing
- 78) Machine set-up would most likely be classified as a 78) _____
A) unit-level activity. B) batch-level activity.
C) product-level activity. D) facility-level activity.
- 79) Research and development would most likely be classified as a 79) _____
A) unit-level activity. B) batch-level activity.
C) product-level activity. D) facility-level activity.
- 80) Using factory utilities would most likely be classified as a 80) _____
A) unit-level activity. B) batch-level activity.
C) product-level activity. D) facility-level activity.
- 81) Molding and sanding each unit of product would most likely be classified as a 81) _____
A) unit-level activity. B) batch-level activity.
C) product-level activity. D) facility-level activity.

- 82) Which of the following describes how, in ABC, the activity allocation rate is computed? 82) _____
- A) The total estimated activity allocation base is multiplied by the total estimated activity cost pool.
 - B) You take the total estimated activity allocation base and subtract the total estimated total activity cost pool.
 - C) The total estimated activity allocation base is divided by the total estimated activity cost pool.
 - D) The total estimated activity cost pool is divided by the total estimated activity allocation base.
- 83) What is the last step in developing an ABC system? 83) _____
- A) Select an allocation base for each activity.
 - B) Identify the primary activities and estimate a total cost pool for each.
 - C) Calculate an activity cost allocation rate for each activity.
 - D) Allocate the costs to the cost object using the activity cost allocation rates.
- 84) Which of the following statements does NOT describe an ABC system? 84) _____
- A) ABC systems can create more accurate product costs.
 - B) ABC systems are used in both manufacturing and non manufacturing companies.
 - C) ABC systems are more complex and costly than traditional costing systems.
 - D) ABC systems may only be used by service companies.
- 85) The _____ system focuses on activities as the fundamental cost objects. It uses the costs of those activities as building blocks for compiling the indirect costs of products and other cost objects. 85) _____
- A) job costing
 - B) product costing
 - C) activities-based costing
 - D) process costing
- 86) ABC costing might lead to 86) _____
- A) raising the sale price of low-volume products.
 - B) raising the sale price of high-volume products.
 - C) expanding low-volume products that appear profitable.
 - D) cutting back on high-volume products that appear unprofitable.
- 87) Which of the following is NOT likely to be a cost driver of activities associated with determining product cost? 87) _____
- A) Number of production orders
 - B) Number of material requisitions
 - C) Number of accountant's labour hours
 - D) Number of product inspections
- 88) Which of the following is MOST likely to be the cost driver for the packaging and shipping activity? 88) _____
- A) Number of units produced
 - B) Hours of testing
 - C) Number of setups
 - D) Number of orders shipped

- 89) All of the following are activities in an activity-based costing system that determine the cost of a manufactured product except for 89) _____
- A) inspecting. B) materials handling.
C) machining. D) accounting.
- 90) Which of the following statements is TRUE regarding activity-based costing systems? 90) _____
- A) ABC systems accumulate overhead costs by departments.
B) ABC costing systems are less complex and, therefore, less costly than traditional systems.
C) ABC costing systems have separate indirect cost allocation rates for each activity.
D) ABC costing systems can be used in manufacturing firms only.
- 91) Activity-based costing considers _____ to be the fundamental cost object. 91) _____
- A) direct labour hours B) activities
C) finished goods D) direct materials
- 92) A four-part ABC cost hierarchy includes 92) _____
- A) market-sustaining costs. B) output unit-level costs.
C) research and development costs. D) manufacturing-level costs.

Use the information below to answer the following question(s):

Pittinger Company manufactures cuckoo clocks and uses an activity-based costing system. Each cuckoo clock consists of 10 separate parts totaling \$120 in direct materials, and requires 2.0 hours of machine time to produce. Additional information follows:

| Activity | Allocation Base | Cost Allocation Rate |
|--------------------|--------------------------|--------------------------|
| Materials handling | Number of parts | \$1.25 per part |
| Machining | Machine hours | \$2.50 per machine hour |
| Assembling | Number of parts | \$0.50 per part |
| Packaging | Number of finished units | \$1.50 per finished unit |

- 93) What is the cost of materials handling per cuckoo clock? 93) _____
- A) \$4.50 B) \$5.00 C) \$3.00 D) \$12.50
- 94) What is the cost of machining per cuckoo clock? 94) _____
- A) \$5.00 B) \$10.50 C) \$3.00 D) \$25.00
- 95) What is the cost of assembling per cuckoo clock? 95) _____
- A) \$3.00 B) \$4.50 C) \$12.50 D) \$5.00
- 96) What is the number of finished cuckoo clocks? 96) _____
- A) 20
B) 250
C) 100
D) Cannot be determined from the information given

97) What is the total manufacturing cost per cuckoo clock?

A) \$24.00

B) \$144.00

C) \$142.50

D) \$25.00

97) _____

Use the information below to answer the following question(s):

Electronics Unlimited uses activity-based costing to allocate all manufacturing conversion costs. Electronics Unlimited produces computer keyboards; each computer keyboard has \$8.00 of direct materials, includes 12 parts and requires 1/2 hour of machine time. Additional information follows:

| Activity | Allocation Base | Cost Allocation Rate |
|--------------------|--------------------------|--------------------------|
| Materials handling | Number of parts | \$0.25 per part |
| Machining | Machine hours | \$12.00 per machine hour |
| Assembling | Number of parts | \$1.00 per part |
| Packaging | Number of finished units | \$1.75 per finished unit |

98) What is the cost of materials handling per computer keyboard?

A) \$12.00

B) \$0.88

C) \$3.00

D) \$6.00

98) _____

99) What is the cost of machining per computer keyboard?

A) \$6.00

B) \$12.00

C) \$3.00

D) \$0.88

99) _____

100) What is the cost of assembling per computer keyboard?

A) \$0.88

B) \$6.00

C) \$12.00

D) \$3.00

100) _____

Use the information below to answer the following question(s):

General Products Company manufactures toaster ovens and uses an activity-based costing system. The following information provided for the month of May:

| Activity | Estimated Indirect Activity Costs | Allocation Base | Estimated Quantity of Allocation Base |
|--------------------|-----------------------------------|-------------------------|---------------------------------------|
| Materials handling | \$5,400 | Number of parts | 3,000 parts |
| Assembling | \$9,600 | Number of parts | 3,000 parts |
| Packaging | \$2,500 | Number of toaster ovens | 1,000 toaster ovens |

Each toaster oven consists of 3 parts. The direct materials cost per toaster oven is \$25.00.

101) What is the cost of materials handling and assembling per toaster oven?

A) \$15.00

B) \$5.40

C) \$9.60

D) \$17.50

101) _____

102) What is the total manufacturing cost per toaster oven?

A) \$40.00

B) \$15.00

C) \$42.50

D) \$17.50

102) _____

Use the information below to answer the following question(s):

Traditions Home Accessories Company manufactures pillows using an activity-based costing system to allocate all manufacturing conversion costs. The following information is provided for the month of June:

| Activity | Estimated Indirect Activity Costs | Allocation Base | Estimated Quantity of Allocation Base |
|--------------------|-----------------------------------|-------------------|---------------------------------------|
| Materials handling | \$3,000 | Number of parts | 6,000 parts |
| Assembling | \$7,200 | Number of parts | 6,000 parts |
| Packaging | \$4,000 | Number of pillows | 2,000 pillows |

Each pillow consists of 3 parts; the total direct materials cost per pillow is \$8.00.

- 103) What is the total cost of materials handling and assembling for each pillow? 103) _____
 A) \$5.10 B) \$3.60 C) \$15.10 D) \$11.60
- 104) What is the total cost of packaging per pillow? 104) _____
 A) \$10.00 B) \$1.50 C) \$3.60 D) \$2.00
- 105) What is the total manufacturing cost per pillow? 105) _____
 A) \$13.10 B) \$5.10 C) \$7.10 D) \$15.10
- 106) If the cost to purchase the same pillow from a supplier is \$17.00, what should Traditions Home Accessories do to maximize profits? 106) _____
 A) Since the cost to manufacture the pillow is also \$17.00, the company would make the same profit whether it bought the pillow or manufactured it.
 B) Close down the business.
 C) Continue to manufacture the pillow.
 D) Purchase the pillow from the supplier.

Use the information below to answer the following question(s):

Hinckley & Granger Company had the following activities, estimated indirect activity costs, and allocation bases:

| Activities | Indirect Activity Costs | Allocation Base |
|---------------------------------|-------------------------|-----------------|
| Account inquiry (hours) | \$75,000 | 2,500 |
| Account billing (lines) | \$45,000 | 30,000 |
| Account verification (accounts) | \$18,000 | 24,000 |
| Correspondence (letters) | \$40,000 | 4,000 |

Hinckley & Granger uses activity-based costing.

The above activities are used by Departments P and Q as follows:

| | Department P | Department Q |
|---------------------------------|--------------|--------------|
| Account inquiry (hours) | 300 | 600 |
| Account billing (lines) | 8,000 | 6,000 |
| Account verification (accounts) | 5,000 | 4,500 |
| Correspondence (letters) | 500 | 600 |

- 107) What is the cost per driver unit for the account inquiry activity? 107) _____
A) \$10.00 B) \$30.00 C) \$18.75 D) \$1.50
- 108) What is the cost per driver unit for the account billing activity? 108) _____
A) \$7.50 B) \$10.00 C) \$0.75 D) \$1.50
- 109) What is the cost per driver unit for the account verification activity? 109) _____
A) \$10.00 B) \$1.50 C) \$3.00 D) \$0.75
- 110) What is the cost per driver unit for the correspondence activity? 110) _____
A) \$10.00 B) \$16.00 C) \$30.00 D) \$1.50
- 111) How much of the account inquiry cost will be assigned to Department Q? 111) _____
A) \$9,000 B) \$18,000 C) \$6,000 D) \$8,000
- 112) How much of the correspondence cost will be assigned to Department P? 112) _____
A) \$375 B) \$6,000 C) \$3,750 D) \$5,000
- 113) How much of the account verification costs will be assigned to Department P? 113) _____
A) \$450 B) \$5,000 C) \$3,750 D) \$3,375

Use the information below to answer the following question(s):

Durable Engines Company uses ABC to account for its manufacturing process.

| Activities | Indirect activity budget | Allocation base (cost driver) |
|--------------------|--------------------------|-----------------------------------|
| Materials handling | \$36,000 | Based on number of parts |
| Machine setup | \$19,200 | Based on number of setups |
| Assembling | \$6,000 | Based on number of parts |
| Packaging | \$12,800 | Based on number of finished units |

Durable Engines Company expects to produce 2,000 engines. Durable Engines Company also expects to use 12,000 parts and setups.

- 114) The allocation rate for materials handling will be 114) _____
 A) \$18.00. B) \$6.40. C) \$3.00. D) \$5.28.
- 115) The allocation rate for machine setups is 115) _____
 A) \$5.28. B) \$375. C) \$1,200. D) \$800.
- 116) The allocation rate for packaging is 116) _____
 A) \$5.28. B) \$3.00. C) \$6.40. D) \$9.60.

Use the information below to answer the following question(s):

Sparrow Manufacturing manufactures small parts and uses an activity-based costing system.

| Activity | Est. Indirect Activity Costs | Allocation base | Cost allocation rate |
|------------|------------------------------|---------------------|-------------------------|
| Materials | \$70,000 | Material moves | \$2.00/move |
| Assembling | \$240,000 | Direct labour hours | \$8.00/dir. labour hour |
| Packaging | \$80,000 | # of finished units | \$0.80/finished unit |

The following parts were produced in October with the following information:

| Part | # Produced | Materials Costs | # Moves | Dir. labour Hrs. |
|------|------------|-----------------|---------|------------------|
| A | 2,500 | \$2,500 | 800 | 200 |
| B | 3,500 | \$7,000 | 1,500 | 300 |
| C | 4,500 | \$11,250 | 2,200 | 1,000 |

- 117) Total manufacturing costs for part A is 117) _____
 A) \$5,700. B) \$7,700. C) \$3,200. D) \$5,200.
- 118) Total manufacturing costs for part B is 118) _____
 A) \$8,200. B) \$15,200. C) \$12,400. D) \$5,400.
- 119) Total manufacturing costs for part C is 119) _____
 A) \$23,650. B) \$16,000. C) \$27,250. D) \$12,400.

- 120) Total units costs for all parts is 120) _____
 A) \$4.34. B) \$13.48. C) \$6.06. D) \$7.98.
- 121) Total unit cost for part B is 121) _____
 A) \$4.34. B) \$3.08. C) \$6.06. D) \$2.34.
- 122) Total assembly costs for part B is 122) _____
 A) \$600. B) \$1,600. C) \$2,400. D) \$12,000.
- 123) Total packaging costs for all three parts is 123) _____
 A) \$21,000. B) \$3,600. C) \$4,800. D) \$8,400.
- 124) Haas Corporation, a manufacturer of a variety of products, uses an activity-based costing system. Information from its system for the year for all products follows: 124) _____

| Activity cost pool | Total cost | Total activity | |
|--------------------|------------|----------------|------------------|
| Assembly | \$595,000 | 25,000 | Machine-hours |
| Inspection | \$327,600 | 7,200 | Inspection-hours |
| Packaging | \$19,096 | 1,540 | Orders |

Haas Corporation makes 300 of its product A92 a year, which requires a total of 48 machine hours, inspection hours, and 14 orders. Product A92 requires \$51.40 in direct materials per unit and \$62.8 direct labour per unit. Product A92 sells for \$140 per unit. What is the product margin in total for Product A92?

- A) \$44.10 B) \$35,969.00 C) \$13,230.00 D) \$70,114.80
- 125) Silver Company manufactures several different products and uses an activity-based costing system. Information from its system for the year for all products follows: 125) _____

| Activity cost pool | Total cost | Total activity | |
|--------------------|------------|----------------|------------------|
| Assembly | \$ 266,000 | 14,000 | machine-hours |
| Processing orders | \$ 86,400 | 3,600 | Orders |
| Inspection | \$ 18,630 | 2,300 | inspection-hours |

The annual production and sales of one of its products, the Zinger, are 1,000 units. The following data relate to the production and sales of Zingers in the most recent year:

| | |
|-----------------------------------|----------|
| Annual machine hours | 850 |
| Annual number of orders | 125 |
| Annual number of inspection hours | 100 |
| Direct materials cost per unit | \$112.50 |
| Direct labour cost per unit | \$62.70 |

What is the average cost of one Zinger?

- A) \$19.96 B) \$155.24 C) \$226.30 D) \$195.16

- 126) Franklin Corporation manufactures a wide variety of products and uses an activity-based costing system. Data from its activity-based costing system for all products follows: 126) _____

| Activity cost pool | Total cost | Total activity | |
|---------------------|------------|----------------|--------------------|
| Engineering costs | \$ 149,500 | 6,500 | engineering hours |
| Setup costs | \$ 34,000 | 2,000 | number of batches |
| Assembling products | \$ 667,000 | 7,250 | direct labor hours |

What is the engineering cost pool rate per engineering hour?

- A) \$92 B) \$23 C) \$52 D) \$17

- 127) Salcido, LLC provides a wide variety of legal services and uses an activity-based costing system. Data from its activity-based costing system for all services follows: 127) _____

| Activity cost pool | Total cost | Total activity | |
|----------------------|------------|----------------|-------------------------|
| Research | \$ 327,600 | 7,800 | Hours of paralegal time |
| Client meetings | \$ 441,000 | 4,200 | Number of meeting hours |
| Court filing fees | \$ 300,000 | 1,200 | Number of cases |
| Document preparation | \$ 140,000 | 5,600 | Number of documents |

The cost pool activity rate for client meetings is

- A) \$42 per meeting hour. B) \$25 per meeting hour.
C) \$64 per meeting hour. D) \$105 per meeting hour.

- 128) Dudley & Spahr, Attorneys at Law, provide a variety of legal services. The law firm uses an activity-based costing system and has developed the following activity pool cost rates: 128) _____

| Activity cost pool | Activity rate | |
|----------------------|---------------|----------------------------|
| Legal research | \$ 48 | per hour of paralegal time |
| Court filing costs | \$ 500 | per case filed |
| Document preparation | \$ 17 | per document |

Cost and activity data related to two clients is as follows:

| | Client 103 | Client 212 |
|---------------------------|------------|------------|
| Number of paralegal hours | 38 | 92 |
| Number of cases filed | 2 | 1 |
| Number of documents | 17 | 42 |

How much overhead cost would be allocated to Client 103 using the activity-based costing system?

- A) \$3,113 B) \$32,205 C) \$8,743 D) \$565

- 129) Rach & Johnson is an advertising agency. The firm uses an activity-based costing system to allocate overhead costs to its services. Information about the firm's activity cost pool rates follows:

129) _____

| Activity cost pool | Activity rate | |
|---------------------|---------------|-----------------------------------|
| Clerical costs | \$ 26 | per administrative assistant hour |
| Legal filing fees | \$ 150 | per new ad campaign |
| Client meeting time | \$ 57 | per meeting hour |

Smythe Company is a client of Rach & Johnson. Recently, 8 administrative assistant hours, 2 new ad campaigns, and 6 meeting hours were incurred for the Smythe Company account.

Using the activity-based costing system, how much overhead cost would be allocated to the Smythe Company account?

- A) \$508 B) \$233 C) \$850 D) \$3,912

Use the information below to answer the following question(s):

Louis Corporation, which uses an activity-based costing system, produces travel trailers and boat trailers. The company allocates batch setup costs to the two products using the following basic data:

| | Travel trailers | Boat trailers |
|---|-----------------|---------------|
| Budgeted units to be produced | 2,000 | 3,000 |
| Budgeted number of setups | 380 | 420 |
| Budgeted number of direct labour hours per unit | 20 | 10 |

Total budgeted setup costs for the year are \$140,000.

- 130) If the setup costs are allocated using direct labour hours, how much of the total setup costs would be allocated to boat trailers? 130) _____

- A) \$60,000 B) \$326,667 C) \$140,000 D) \$105,000

- 131) If the setup costs are allocated using number of setups, how much of the total setup costs would be allocated to boat trailers? 131) _____

- A) \$140,000 B) \$73,500 C) \$294,737 D) \$66,500

Use the information below to answer the following question(s):

Jason Corporation uses activity-based costing. The company produces two products: Snaps and Pops. The expected annual production of Snaps is 1,000 units, while the expected annual production of Pops is 3,000 units. There are three activity cost pools: Assembly, Testing, and Packing. The estimated costs and activities for each of these three activity pools follows:

| Activity cost pool | Estimated cost | Expected activity | | |
|--------------------|----------------|-------------------|------|-------|
| | | Snaps | Pops | Total |
| Assembly | \$ 4,550 | 600 | 100 | 700 |
| Testing | \$ 22,320 | 1,100 | 700 | 1,800 |
| Packing | \$ 1,738 | 60 | 160 | 220 |

- 132) The cost pool activity rate for Testing would be 132) _____
- A) \$31.89 per activity. B) \$5.58 per activity.
- C) \$12.40 per activity. D) \$20.29 per activity.

- 133) The overhead cost per unit of Pops would be closest to 133) _____
- A) \$10.59. B) \$3.53. C) \$9.54. D) \$26.80.

Use the information below to answer the following question(s):

Vittoria Corporation manufactures two products—Carts and Wheelbarrows. The annual production and sales of Carts is 2,000 while 1,800 units of Wheelbarrows are produced and sold. The company has traditionally used direct labour hours to allocate overhead to products. Carts require 1.0 direct labour hours per unit, while Wheelbarrows require 0.5 direct labour hours per unit. The total estimated overhead for the period is \$117,500. The company is looking at the possibility of changing to an activity-based costing system for its products. If the company used an activity-based costing system, it would have the following three activity cost pools:

| Activity Cost Pool | Estimated Overhead Cost | Expected Activity | | |
|--------------------|-------------------------|---------------------------|-------------------------|---------------------------|
| | | Carts | Wheelbarrows | Total |
| Setups | \$6,000 | 200 batches | 400 batches | 600 batches |
| Engineering | \$68,000 | 900 engineering hours | 800 engineering hours | 1,700 engineering hours |
| Maintenance | \$43,500 | 2,000 direct labour hours | 900 direct labour hours | 2,900 direct labour hours |
| Total | \$117,500 | | | |

- 134) The predetermined overhead allocation rate using the traditional costing system would be closest to 134) _____
- A) \$58.75 per direct labour hour. B) \$40.52 per direct labour hour.
- C) \$30.92 per direct labour hour. D) \$130.56 per direct labour hour.

- 135) The overhead cost per Wheelbarrow using the traditional costing system would be closest to 135) _____
- A) \$65.28. B) \$18.01. C) \$40.52. D) \$20.26.

- 136) The cost pool activity rate for engineering costs would be closest to 136) _____
 A) \$40.00 per engineering hour. B) \$75.56 per engineering hour.
 C) \$10.00 per engineering hour. D) \$15.00 per engineering hour.

- 137) The overhead cost per Wheelbarrow using an activity-based costing system would be closest to 137) _____
 A) \$65.00. B) \$27.50. C) \$24.75. D) \$65.28.

Use the information below to answer the following question(s):

Kepple Manufacturing currently uses a traditional costing system. The company allocates overhead to its two products, Zips Dees, using a predetermined manufacturing overhead rate based on direct labour hours. Here is data related to the company's products:

| | Zips | Dees |
|------------------------------|----------|----------|
| Direct materials per unit | \$140.00 | \$100.00 |
| Direct labour per unit | \$55.00 | \$50.00 |
| Direct labour hours per unit | 2.0 | 1.5 |
| Annual production | 25,000 | 40,000 |

Information about the company's estimated manufacturing overhead for the year follows:

| Activities | Activity Measures | Estimated Overhead Cost |
|-----------------------------|---------------------|-------------------------|
| Supervision and maintenance | Direct labour hours | \$ 2,200,000 |
| Batch processing | Number of setups | \$ 212,500 |
| Engineering | Engineering hours | \$ 180,000 |
| | | \$ 2,592,500 |

Additional information about production needed for the activity-based costing system follows:

| | Expected Activity | | |
|---------------------|-------------------|--------|---------|
| | Zips | Dees | Total |
| Direct labour hours | 50,000 | 60,000 | 110,000 |
| Setups | 2,000 | 500 | 2,500 |
| Engineering hours | 1,800 | 1,200 | 3,000 |
| Total | | | |

- 138) The amount of manufacturing overhead that would be allocated to one unit of Zips using the traditional costing system would be closest to 138) _____
 A) \$35.35. B) \$32.86. C) \$23.57. D) \$47.14.

- 139) The amount of manufacturing overhead that would be allocated to one unit of Zips using an activity-based costing system would be closest to 139) _____
 A) \$11.95. B) \$64.81. C) \$32.86. D) \$51.12.

Use the information below to answer the following question(s):

Menno Corporation manufactures two products—Tables and Chairs. The annual production and sales of Tables is 2,000 units while 8,000 units of Chairs are produced and sold. The company has traditionally used direct labour hours to allocate its overhead to products. Tables require 1.0 direct labour hours per unit, while Chairs require 0.5 direct labour hours per unit. The total estimated overhead for the period is \$235,000. The company is looking at the possibility of changing to an activity-based costing system for its products. If the company used an activity-based costing system, it would have the following three activity cost pools:

| Activity Cost Pool | Estimated Overhead Cost | Expected Activity | | |
|--------------------|-------------------------|---------------------------|---------------------------|---------------------------|
| | | Tables | Chairs | Total |
| Setups | \$12,000 | 200 batches | 400 batches | 600 batches |
| Machining | \$136,000 | 900 machine hours | 800 machine hours | 1,700 machine hours |
| Finishing | \$87,000 | 2,000 direct labour hours | 4,000 direct labour hours | 6,000 direct labour hours |
| Total | \$235,000 | | | |

- 140) The predetermined overhead allocation rate using the traditional costing system would be closest to: 140) _____
- A) \$43.50 per direct labour hour. B) \$14.50 per direct labour hour.
C) \$39.17 per direct labour hour. D) \$21.75 per direct labour hour.
- 141) The overhead cost per Chair using the traditional costing system would be closest to 141) _____
- A) \$19.58. B) \$39.17. C) \$18.01. D) \$21.75.
- 142) The cost pool activity rate for machining costs would be closest to 142) _____
- A) \$80 per machine hour. B) \$138.23 per machine hour.
C) \$20.00 per machine hour. D) \$30.00 per machine hour.
- 143) The overhead cost per chair using an activity-based costing system would be closest to 143) _____
- A) \$325.00. B) \$16.25. C) \$145.00. D) \$7.25.
- 144) The overhead cost per table using an activity-based costing system would be closest to 144) _____
- A) \$14.50. B) \$34.00. C) \$525.00. D) \$52.50.

Use the information below to answer the following question(s):

Martin Corporation manufactures two products—Plows and Harrows. The annual production and sales of Plows is 1,000 units while 2,000 units of Harrows are produced and sold. The company has traditionally used direct labour hours to allocate its overhead to products. Plows require 5.0 direct labour hours per unit, while Harrows require 2.0 direct labour hours per unit. The total estimated overhead for the period is \$603,500. The company is looking at the possibility of changing to an activity-based costing system for its products. If the company used an activity-based costing system, it would have the following three activity cost pools:

| Activity Cost Pool | Estimated Overhead Cost | Expected Activity | | |
|--------------------|-------------------------|---------------------------|---------------------------|---------------------------|
| | | Plows | Harrows | Total |
| Setups | \$50,000 | 200 batches | 400 batches | 600 batches |
| Machining | \$337,500 | 1,700 machine hours | 1,000 machine hours | 2,700 machine hours |
| Assembly | \$216,000 | 5,000 direct labour hours | 4,000 direct labour hours | 9,000 direct labour hours |
| Total | \$603,500 | | | |

- 145) The predetermined overhead allocation rate using the traditional costing system would be closest to 145) _____
 A) \$60.30 per direct labour hour. B) \$201.17 per direct labour hour.
 C) \$67.06 per direct labour hour. D) \$43.20 per direct labour hour.
- 146) The overhead cost per Harrow using the traditional costing system would be closest to 146) _____
 A) \$134.12. B) \$120.60. C) \$402.34. D) \$86.40.
- 147) The cost pool activity rate for Machining Costs would be closest to 147) _____
 A) \$37.50 per Machine hour. B) \$125.00 per Machine hour.
 C) \$198.53 per Machine hour. D) \$223.52 per Machine hour.
- 148) The overhead cost per harrow using an activity-based costing system would be closest to 148) _____
 A) \$127.17. B) \$301.75. C) \$635.83. D) \$67.05.
- 149) The overhead cost per plow using an activity-based costing system would be closest to 149) _____
 A) \$216.00. B) \$349.17. C) \$201.00. D) \$112.17.

Answer the following question(s) using the information below.

Wallace Printing has contracts to complete weekly supplements required by forty-six customers. For the year 2016, manufacturing overhead cost estimates total \$420,000 for an annual production capacity of 10 million pages.

For 2016 Wallace Printing decided to evaluate the use of additional cost pools. After analyzing manufacturing overhead costs determined that number of design changes, setups, and inspections are the primary manufacturing overhead cost drivers. The following information was gathered during the analysis:

| Cost pool | Manufacturing overhead costs | Activity level |
|------------------------------------|------------------------------|--------------------|
| Design changes | \$60,000 | 200 design changes |
| Setups | 320,000 | 4,000 setups |
| Inspections | 40,000 | 16,000 inspections |
| Total manufacturing overhead costs | <u>\$420,000</u> | |

During 2016, two customers, Wayward Insurance and Hapless Systems, are expected to use the following printing services:

| Activity | Wayward Insurance | Hapless Systems |
|----------------|-------------------|-----------------|
| Pages | 60,000 | 76,000 |
| Design changes | 10 | 2 |
| Setups | 20 | 10 |
| Inspections | 30 | 38 |

- 150) If manufacturing overhead costs are considered one large cost pool and are assigned based on 10 million pages of production capacity, what is the cost driver rate? 150) _____
 A) \$0.025 per page B) \$0.25 per page
 C) \$0.05 per page D) \$0.042 per page
- 151) Using pages printed as the only overhead cost driver, what is the manufacturing overhead cost estimate for Hapless Systems during 2016? 151) _____
 A) \$3,800 B) \$3,192 C) \$1,900 D) \$2,520
- 152) Assuming activity-cost pools are used, what are the activity-cost driver rates for design changes, setups, and inspections cost pools? 152) _____
 A) \$210 per change, \$2.50 per setup, \$26.25 per inspection
 B) \$250 per change, \$80 per setup, \$3.75 per inspection
 C) \$300 per change, \$125 per setup, \$4.00 per inspection
 D) \$300 per change, \$80 per setup, \$2.50 per inspection
- 153) Using activity-based costing to allocate overhead costs, what is the total manufacturing overhead cost estimate for Hapless Systems during 2016? 153) _____
 A) \$1,495.00 B) \$3,113.75 C) \$2,068.00 D) \$3,412.50

Answer the following questions using the information below:

Gregory Enterprises has identified three cost pools to allocate overhead costs. The following estimates are provided for the co year:

| <u>Cost Pool</u> | <u>Overhead Costs</u> | <u>Cost driver</u> | <u>Activity level</u> |
|------------------------------|-----------------------|-----------------------|-----------------------|
| Supervision of direct labour | \$320,000 | Direct labour hours | 800,000 |
| Machine maintenance | \$120,000 | Machine hours | 960,000 |
| Facility rent | <u>\$200,000</u> | Square metres of area | 100,000 |
| Total overhead costs | <u>\$640,000</u> | | |

The accounting records show the Mossman Job consumed the following resources:

| <u>Cost driver</u> | <u>Actual level</u> |
|-----------------------|---------------------|
| Direct labour - hours | 200 |
| Machine - hours | 1,600 |
| Square metres of area | 50 |

- 154) If Gregory Enterprises uses a simple cost system based on direct labour hours then what amount of indirect costs will be allocated to the Mossman job? 154) _____
- A) \$100 B) \$80 C) \$60 D) \$160
- 155) If Gregory Enterprises uses an ABC system then what amount of indirect costs will be allocated to the Mossman job? 155) _____
- A) \$380 B) \$420 C) \$160 D) \$240

Answer the following question(s) using the information below.

Ernsting Printers has contracts to complete weekly supplements required by forty-six customers. For the year 2015, manufacturing overhead cost estimates total \$420,000 for an annual production capacity of 12 million pages.

For 2015 Ernsting Printers has decided to evaluate the use of additional cost pools. After analyzing manufacturing overhead costs, it was determined that number of design changes, setups, and inspections are the primary manufacturing overhead cost drivers. The following information was gathered during the analysis:

| Cost pool | Manufacturing overhead costs | Activity level |
|------------------------------------|------------------------------|--------------------|
| Design changes | \$60,000 | 300 design changes |
| Setups | 320,000 | 5,000 setups |
| Inspections | 40,000 | 8,000 inspections |
| Total manufacturing overhead costs | <u>\$420,000</u> | |

During 2015, two customers, Wealth Managers and Health Systems, are expected to use the following printing services:

| Activity | Wealth Managers | Health Systems |
|----------------|-----------------|----------------|
| Pages | 60,000 | 76,000 |
| Design changes | 10 | 0 |
| Setups | 20 | 10 |
| Inspections | 30 | 38 |

- 156) What is the cost driver rate if manufacturing overhead costs are considered one large cost pool and are assigned based on 12 million pages of production capacity? 156) _____
 A) \$0.025 per page B) \$0.035 per page
 C) \$0.35 per page D) \$0.05 per page
- 157) Using pages printed as the only overhead cost driver, what is the manufacturing overhead cost estimate for Wealth Managers during 2015? 157) _____
 A) \$2,500 B) \$2,700 C) \$1,500 D) \$2,100
- 158) Assuming activity-cost pools are used, what are the activity-cost driver rates for design changes, setups, and inspections cost pools? 158) _____
 A) \$150 per change, \$64 per setup, \$4 per inspection
 B) \$180 per change, \$76 per setup, \$4 per inspection
 C) \$180 per change, \$76 per setup, \$5 per inspection
 D) \$200 per change, \$64 per setup, \$5 per inspection
- 159) Using activity-based costing to allocate overhead costs, what is the total manufacturing overhead cost estimate for Wealth Managers during 2015? 159) _____
 A) \$5,096 B) \$3,250 C) \$4,020 D) \$6,850 E) \$3,430

- 160) When selling price is cost plus 25% and costs are assigned using the single cost driver, number of pages printed, then 160) _____
- A) Ernsting Printers will want to drop Wealth Managers as a customer.
 - B) Wealth Managers is unfairly over billed for its use of printing resources.
 - C) Wealth Managers will likely seek to do business with competitors.
 - D) Wealth Managers is under billed for the job, while other jobs will be unfairly over billed.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Use the information below to answer the following questions:

Steeler Wheels uses ABC to account for its chrome wheel manufacturing process. Managers have identified four manufacturing activities that incur manufacturing overhead costs: materials handling, machine set-up, assembly, and paint and polish. The budgeted activity costs for the upcoming year and their allocation bases are as follows:

| Activity | Total Budgeted Manufacturing Overhead Cost | Allocation Base |
|-------------------------|--|-------------------------------|
| Materials handling..... | \$ 8,000 | Number of parts |
| Machine set-up..... | 3,000 | Number of set-ups |
| Assembly..... | 4,800 | Number of parts |
| Paint and Polish..... | 80,000 | Finishing direct labour hours |
| Total..... | \$143,400 | |

Steeler Wheels expects to produce 1,000 chrome wheels during the year. The wheels are expected to use 4,000 parts, require 15 set-ups, and consume 1,600 hours of finishing time.

Job 350 used 160 parts, required 3 set-up, and consumed 60 finishing hours and produced 40 wheels
 Job 454 used 100 parts, required 4 set-ups, and consumed 80 finishing hours and produced 20 wheels

- 161) Compute the cost allocation rate for each activity 161) _____
- 162) a. How much overhead should be applied to job 350? 162) _____
 b. How much overhead would be attributed to each wheel in Job 350?
- 163) a. How much overhead should be applied to job 454? 163) _____
 b. How much overhead would be attributed to each wheel in Job 454?

- 164) Red Stone Manufacturing, a manufacturer of a variety of products, uses an activity-based costing system. Information from its system for the year for all products follows:

164) _____

| Activity cost pool | Total cost | Total activity | |
|--------------------|------------|----------------|------------------|
| Assembly | \$552,000 | 30,000 | machine-hours |
| Inspection | \$324,700 | 8,500 | inspection-hours |
| Packaging | \$49,450 | 2,300 | orders |

Red Stone Manufacturing makes 400 of its product B34 a year, which requires a total of 52 machine hours, 15 inspection hours, and 20 orders. Product B34 requires \$75.50 in direct materials per unit and \$68.80 in direct labour per unit. Product B34 sells for \$180 per unit.

Required:

- Calculate the cost pool activity rate for each of the three activities.
- How much manufacturing overhead would be allocated to Product B34 in total?
- What is the product margin in total for Product B34?

- 165) Rhapsody Corporation manufactures several different products and uses an activity-based costing system. Information from its system for the year for all products follows:

165) _____

| Activity cost pool | Total cost | Total activity | |
|--------------------|------------|----------------|------------------|
| Assembly | \$120,000 | 12,000 | machine-hours |
| Processing orders | \$80,750 | 4,750 | orders |
| Inspection | \$22,880 | 1,760 | inspection-hours |

The annual production and sales of one of its products, the Sizzler, are 1,000 units. The following data relate to the production and sales of Sizzlers in the most recent year:

| | |
|--------------------------------|----------|
| Annual machine hours | 750 |
| Annual number of orders | 180 |
| Annual number of inspections | 350 |
| Direct materials cost per unit | \$125.00 |
| Direct labour cost per unit | \$67.00 |

Required:

- Calculate the activity cost pool rates for each of the three activity cost pools listed.
- Calculate the average cost of one Sizzler.

- 166) Moylan & Bolognese, Attorneys at Law, provide a variety of legal services. The law firm uses an activity-based costing system and has developed the following activity pool cost rates:

166) _____

| Activity cost pool | Activity rate | |
|----------------------|---------------|----------------------------|
| Legal research | \$ 53 | per hour of paralegal time |
| Court filing costs | \$ 400 | per case filed |
| Document preparation | \$ 15 | per document |

Cost and activity data related to two clients is as follows:

| | Client 352 | Client 487 |
|---------------------------|------------|------------|
| Number of paralegal hours | 42 | 72 |
| Number of cases filed | 3 | 2 |
| Number of documents | 24 | 33 |

Required:

- Calculate the amount of overhead that would be allocated to Client 352 using the activity-based costing system.
- Calculate the amount of overhead that would be allocated to Client 487 using the activity-based costing system.

- 167) Heese Corporation manufactures two products—Tricycles and Wagons. The annual production and sales of Tricycles is 2,000 units, while 1,500 units of Wagons are produced and sold. The company has traditionally used direct labour hours to allocate its overhead to products. Tricycles require 1.5 direct labour hours per unit, while Wagons require 1.0 direct labour hours per unit. The total estimated overhead for the period is \$215,000. The company is looking at the possibility of changing to an activity-based costing system for its products. If the company used an activity-based costing system, it would have the following three activity cost pools:

167) _____

| Activity cost pool | Estimated overhead cost | Expected activity | | |
|--------------------|-------------------------|-------------------|--------|-------|
| | | Tricycles | Wagons | Total |
| Setup costs | \$ 50,000 | 25 | 75 | 100 |
| Engineering costs | \$ 7,500 | 60 | 40 | 100 |
| Maintenance costs | \$ 157,500 | 3,000 | 1,500 | 4,500 |
| Total | \$ 215,000 | | | |

Required:

- Calculate the overhead per unit for a Wagon using the traditional system based on a single-wide overhead rate (use direct labour hours as the cost driver).
- Calculate the overhead per unit for a Wagon using the activity-based costing system.

- 168) Clucker Chicken produces several styles of precooked and package chicken wings (drums tips, buffalo and coated with a variety of spices and sauces). Each style of wing requires different preparation time, different cooking and draining times and different packaging. Therefore the company management has decided to try ABC costing to better capture the manufacturing overhead costs incurred by each style of wing. The following activities related to yearly manufacturing overhead costs and cost drivers have been identified:

| ACTIVITY | MANUFACTURING OVERHEAD | COST DRIVER |
|----------------------|------------------------|---------------------------|
| Preparation | \$900,000 | Preparation time |
| Cooking and draining | \$1,350,000 | Cooking and draining time |
| Packaging | \$450,000 | Units packaged |

Compute the activity cost allocation rates for each activity assuming the following total estimated activity for the year: 45,000 hours preparation time, 45,000 cooking and draining hours, and 9,000,000 packages.

- 169) Conquest Machining Ltd. is a manufacturer of precision hand tools, is concerned with the apparent lack of controls over cost incurrence in its Pliers Division. The division has always a plantwide rate for allocating manufacturing overhead to its products. However, some products cost substantially more than competitors retail prices while others are substantially less. The division manager believes that a better cost allocation method can be developed.

With the assistance of a plant supervisor, the accounting department has been able to establish the following relationships between production activities and the indirect costs of the activities:

| <u>Activity</u> | <u>Cost Driver</u> | <u>Allocation Rate</u> |
|-------------------|--------------------|------------------------|
| Material handling | Number of parts | \$2.60 per part |
| Machine stamping | Machine hours | \$60.00 per hour |
| Finishing Time | Finishing minutes | \$4.00 per minute |

The traditional allocation method is based upon direct manufacturing labour hours, and if this method is used the rate is \$28 per hour.

Required:

Compute the unit indirect manufacturing costs of a batch of 200 tools if the batch required 100 parts, 8 machine hours, 52 minutes of finishing time, and 46 direct labour hours:

- 170) Millennium Ideas Ltd. manufactures odd size sporting equipment sold over the internet. 170) _____
 items, Dive Masks and Fins are manufactured on a common assembly line. Although different direct materials are used, the direct labour cost is the same for each product line. The plantwide rate for allocating manufacturing overhead to its products is no longer acceptable. The production manager has heard about activity-based costing and has ascertained some information for use in changing the cost system to a cost driver concept. With the help of the accounting department, the manager has been able to establish the following relationships between production costs and some of the indirect manufacturing activities for August, along with the production data for the two product lines:

| <u>Activity</u> | <u>Cost Driver</u> | <u>Allocation Rate</u> | <u>Dive Masks</u> | <u>Fins</u> |
|-------------------|--------------------|------------------------|-------------------|-------------|
| Material handling | Number of parts | \$1.00 per part | 2,000 | 1,300 |
| Machining | Machine hours | \$15.00 per hour | 205 | 300 |
| Assembly | Units began | \$1.60 per unit | 1,000 | 1,300 |
| Inspection | Number tested | \$2.00 per unit | 100 | 1,200 |

Direct costs:

| | <u>Dive Masks</u> | <u>Fins</u> |
|-----------|-------------------|-------------|
| Labour | \$12,000 | \$12,000 |
| Materials | \$5,200 | \$2,600 |

Required:

Using activity-based costing determine the total production cost of each of the two product lines for August and the cost per unit assuming all units started were completed.

171) Step-Up Corporation manufactures two small step ladders, Regular and Deluxe. Deluxe ladders were added as a product line three years ago. Deluxe ladders are the more complex of the two products as they are extendable, requiring one hour of direct labour time per unit to manufacture, compared to one-half hours of direct labour time for Regular ladder.

171)

Indirect costs are currently allocated to the products on the basis of direct labour hours. The company estimated it would incur \$332,500 in manufacturing overhead costs and produce 6,000 units of Deluxe ladders and 20,000 units of Regular ladders during the current year.

Unit costs for materials and direct labour are:

| | Regular | Deluxe |
|------------------|---------|--------|
| Direct labour | \$ 9 | \$ 18 |
| Direct materials | \$ 12 | \$ 16 |

Indirect costs are:

| | Estimated Indirect Costs | Estimated Activity Regular | Estimated Activity Deluxe | Total |
|------------------------------|--------------------------------|----------------------------------|---------------------------------|--------|
| Activity cost pools/drivers: | | | | |
| Machine setups | \$ 153,000 | 700 | 1,000 | 1,700 |
| Purchase orders | 27,500 | 300 | 200 | 500 |
| Machine hours | 128,000 | 5,000 | 11,000 | 16,000 |
| Maintenance requests | 24,000 | 200 | 300 | 50 |
| Total | \$ 332,500 | | | |

Required:

- Determine the unit cost of the two products using traditional costing with units as the allocation base.
- Determine the unit cost of the two products using activity-based costing.

172) At Deutschland Electronics, product lines are charged for call centre support costs based on sales revenue. Last year's summary of call centre operations revealed the following: 172) _____

| | <u>Surveillance Products</u> | <u>Specialty Products</u> |
|-------------------------------------|------------------------------|---------------------------|
| Number of calls for information | 1,000 | 4,000 |
| Average call length for information | 3 minutes | 8 minutes |
| Number of calls for warranties | 300 | 1,200 |
| Average call length for warranties | 7 minutes | 15 minutes |
| Sales revenue | \$8,000,000 | \$5,000,000 |

Deutschland Electronics currently allocates call centre support costs using a rate of 0.5% of revenue.

Required:

- Compute the amount of call centre support costs allocated to each product line under current system.
- Assume Deutschland decides to use the *average call length for information* to assign last year's support costs. Does this allocation method seem more appropriate than percentage of sales? Why or why not?
- Assume Deutschland decides to use the *numbers of calls for information and for warranties* to assign last year's support costs of \$65,000. Compute the amount of call centre support costs assigned to each product line under this revised ABC system.
- Deutschland Electronics assigns bonuses based on departmental profits. How might the Specialty Products manager try to obtain higher profits for next year if support costs are assigned based on the average call length for information?
- Discuss the barriers for implementing ABC for this call centre.

Use the information below to answer the following questions:

QualityQuality Inc. is using a costs of quality approach to evaluate design engineering efforts for a new robot. The company's senior managers expect the engineering work to reduce appraisal, internal failure, and external failure activities. The predicted reductions in activities over the three-year life of the robot follow. Also shown are the cost allocation rates for each activity.

| Activity | Predicted Reduction in Activity | Activity Cost Allocation Rate per unit of activity |
|--|---------------------------------------|--|
| Inspection of incoming materials..... | 310 | \$15 |
| Inspection of finished goods..... | 850 | 25 |
| Number of defective units discovered in-house..... | 300 | 15 |
| Number of defective units discovered by customers..... | 200 | 80 |
| Lost sales to dissatisfied customers..... | 650 | 15 |

173) What are the expected cost savings from this quality initiative 173) _____

174) If the cost of implementing the change is \$45,000 should QualityQuality implement the change? Why 174) _____

175) If the cost of implementing the change is \$57,000 should QualityQuality implement the change? Why 175) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

176) Describe each of the four cost hierarchies used to define levels for activities in activity-based costing.

MATCHING. Choose the item in column 2 that best matches each item in column 1.

Match the Following

| | | |
|----------------------------------|-------------------|------------|
| 177) Product Line Manager Salary | A) Batch Level | 177) _____ |
| 178) CEO Salary | B) Product Level | 178) _____ |
| 179) Direct Materials | C) Facility Level | 179) _____ |
| 180) Depreciation on the Factory | D) Unit Level | 180) _____ |
| 181) Direct Labour | | 181) _____ |
| 182) Order Processing | | 182) _____ |

TRUE/FALSE. Write 'T' if the statement is true and 'F' if the statement is false.

| | |
|---|------------|
| 183) Traditional single-allocation-base cost systems tend to over-cost high-volume products and under-cost low-volume products. | 183) _____ |
| 184) The benefits are lower when ABC reports different product costs than reported under the old system. | 184) _____ |
| 185) PD Company has re-engineered its production process and should now review and potentially revise its activity-based costing system. | 185) _____ |
| 186) Activity-based management refers to using activity-based cost information to make decisions that may increase profits while satisfying customers' needs. | 186) _____ |
| 187) Activity Based Management is an approach to managing organizational activities with a focus on eliminating non-value-added activities. | 187) _____ |
| 188) Managers often reap benefits by using ABC data in ABM to pinpoint opportunities to cut costs. | 188) _____ |
| 189) ABC can be used in routine planning and control decisions as well as pricing, product mix and cost-cutting decisions. | 189) _____ |
| 190) The benefits of adopting ABC/ABM are higher for companies in more competitive markets. | 190) _____ |

- 191) The goal of value-engineering is to eliminate all waste in the system by making the company's processes as effective and efficient as possible. 191) _____
- 192) Value-engineering is accomplished by eliminating, reducing, or simplifying all non-value added activities, and examining whether value-added activities could be improved. 192) _____
- 193) The movement of parts is considered a value-added activity. 193) _____
- 194) The storage of raw materials is considered a non-value-added activity. 194) _____
- 195) Inspection is considered a value-added activity. 195) _____
- 196) Value-added activities can be described as activities for which the customer is willing to pay. 196) _____
- 197) Waste activities is another name for value-added activities. 197) _____
- 198) Non-value-added activities are activities that neither enhance the customer's image of the product or service nor provide a competitive advantage. 198) _____
- 199) Value-added activities are activities that could be reduced or removed from the process with no ill effect on the end product or service. 199) _____
- 200) The goal of value engineering is to eliminate all waste in a company's production or service system. 200) _____
- 201) ABC/ABM is only effective for manufacturing companies. 201) _____
- 202) The benefits of ABC/ABM are higher when the risks of cost distortion is high. 202) _____
- 203) Lean practices tend to centre on external waste that may occur as a result of the product. 203) _____
- 204) Sustainability and lean thinking are both important but have little in common. 204) _____
- 205) Companies with higher direct costs in relation to indirect costs are more suitable for activity-based costing. 205) _____
- 206) The benefits of adopting ABC/ABM are higher for companies in competitive markets. 206) _____
- 207) Cost versus benefit should be a criterion when evaluating the implementation of an activity-based cost system. 207) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 208) Value-added activities are 208) _____
A) activities for which the customer is willing to pay.
B) also called waste activities.
C) activities that neither enhance the customer's image of the product or service nor provide a competitive advantage.
D) activities that could be reduced or removed from the process with no ill effect on the end product or service.
- 209) The benefits of using the ABC costing system are higher if the company 209) _____
A) has high indirect costs.
B) produces only one product.
C) produces many different products that use differing amounts of resources.
D) has high indirect costs and produces many different products that use differing amounts of resources.
- 210) The process of reevaluating activities to reduce costs while satisfying customers' needs is referred to as 210) _____
A) developmental engineering. B) design engineering.
C) value engineering. D) total engineering.
- 211) Why are the benefits of adopting ABC/ABM higher for companies in competitive markets? 211) _____
A) Because accounting /information system expertise is inexpensive to develop
B) Because accurate product cost information is not as relevant for price setting
C) Because ABM can pinpoint opportunities for cost savings
D) Because companies in competitive markets have low indirect costs
- 212) Signs that a product cost system is not working properly include 212) _____
A) the cost system is fully depreciated.
B) the cost system has multiple allocation bases.
C) managers don't understand costs and profits.
D) the cost system was installed five years ago.
- 213) A system that focuses on activities as the fundamental cost object and uses the costs for these activities to compile indirect costs of goods and services is 213) _____
A) prevention costs. B) value engineering.
C) activity-based costing. D) appraisal costs.
- 214) Outsourcing the accounting function is an example of what facet of activity-based management? 214) _____
A) match the company's use of resources to customer demand
B) reduce costs of non-value-added activities
C) improve selection of process activities to enhance profit
D) achieve planned growth

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 215) The Guy Fawkes Company is noted for an exceptionally impressive line of Mardi Gras masks. Guy Fawkes has established the following selling and distribution support activity-cost pools and their corresponding activity drivers for the current year: 215) _____

| Activity | Cost | Cost driver |
|------------------|----------|--------------------|
| Marketing | \$60,000 | \$500,000 of sales |
| Customer service | 20,000 | 5,000 customer |
| Order execution | 10,000 | 100 orders |
| Warehousing | 10,000 | 50 product lines |

Required:

- Determine the activity-cost-driver rate for each of the four selling and distribution activities.
- Describe at least one possible negative behavioural consequence for each of the four activity-cost drivers.

Use the information below to answer the following questions:

Steel Wheeler recently developed an ABC system. Part of the reason Nguyen developed the ABC system was that Steel Wheel profits had been declining even though the company had shifted its product mix toward the product that had appeared most profitable under the old system. Before adopting the new ABC system, Steel Wheeler had used a plant wide overhead rate that developed years ago, based on direct labour hours.

For the upcoming year, Steel Wheeler's budgeted ABC manufacturing overhead allocation rates are as follows:

| Activity | Allocation Base | Allocation Rate |
|--------------------|-------------------|-----------------------------|
| Materials Handling | Number of parts | \$ 4.00 per part |
| Set up | Number of set ups | \$ 400.00 per set up |
| Assembly | Number of parts | \$ 2.50 per part |
| Paint and Polish | Finishing hours | \$ 30.00 per finishing hour |

Steel Wheeler produces two wheel models: Standard and Deluxe. Budgeted data for the upcoming year are as follows:

| | Standard | Deluxe |
|-------------------------------------|----------|--------|
| Parts per wheel | 4 | 8 |
| Set ups per 1,000 wheels | 12 | 8 |
| Finishing hours per wheel | 1.2 | 3.5 |
| Total Direct Labour Hours per wheel | 3.0 | 3.5 |

The company's managers expect to produce 10,000 units of each wheel during the year

- 216) Calculate the total Manufacturing Overhead for Steel Wheeler. 216) _____
- 217) Calculate the total Manufacturing Overhead that would have been applied to each wheel using the plant wide rate. 217) _____
- 218) Calculate the total Manufacturing Overhead that would have been applied to each wheel using the ABC system 218) _____

219) Calculate the total Manufacturing Overhead for Steel Wheeler.

219) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

220) What is activity-based management and how can it be used to improve the profitability of a company?

MATCHING. Choose the item in column 2 that best matches each item in column 1.

Match the following:

221) Would a company be more likely or less likely to benefit from refining its costing system if it produces a variety of products using different types and amounts of resources?

A) Less likely

221) _____

B) More likely

C) About the same

222) Would a company be more likely or less likely to benefit from refining its costing system if it produces a high volume of some products and a low volume of other products?

222) _____

223) Would a company be more likely or less likely to benefit from refining its costing system if it operates in a highly competitive market?

223) _____

224) Would a company be more likely or less likely to benefit from refining its costing system if it produces a variety of products, and the products use resources in a different manner?

224) _____

Answer Key

Testname: UNTITLED2

- 1) TRUE
- 2) TRUE
- 3) FALSE
- 4) TRUE
- 5) TRUE
- 6) FALSE
- 7) TRUE
- 8) TRUE
- 9) FALSE
- 10) TRUE
- 11) TRUE
- 12) TRUE
- 13) FALSE
- 14) FALSE
- 15) FALSE
- 16) TRUE
- 17) FALSE
- 18) TRUE
- 19) FALSE
- 20) FALSE
- 21) FALSE
- 22) A
- 23) D
- 24) D
- 25) A
- 26) C
- 27) B
- 28) C
- 29) C
- 30) D
- 31) A
- 32) D
- 33) C
- 34) C
- 35) B
- 36) D
- 37) C
- 38) C
- 39) D
- 40) A
- 41) D
- 42) A

Answer Key

Testname: UNTITLED2

43)

| Job Number 586 | Cutting Department | Painting Department | Total |
|---|--------------------|---------------------|-------|
| Departmental overhead rate | \$15 | \$9 | |
| Machine hours incurred in the Cutting Department | 12 | | |
| Direct labour hours incurred in the Painting Department | | 5 | |
| Total manufacturing overhead allocated (Rate × hours) | \$180 | \$45 | \$225 |
| | | | |
| Direct labour hours in the Cutting Department | 6 | | |
| Direct labour hours in the Painting Department | 5 | | |
| Total direct labour hours | 11 | | |
| Direct labour rate per hour | \$25 | | |
| Total direct labour cost | \$275 | | |
| | | | |
| Cost of direct materials used | \$900 | | |
| Total direct labour cost | \$275 | | |
| Total manufacturing overhead allocated (Rate × hours) | \$225 | | |
| Total cost of job | \$1,400 | | |

44)

| Job Number 422 | Cutting Department | Painting Department | Total |
|---|--------------------|---------------------|-------|
| Departmental overhead rate | \$12 | \$17 | |
| Machine hours incurred in the Cutting Department | 14 | | |
| Direct labour hours incurred in the Painting Department | | 10 | |
| Total manufacturing overhead allocated (Rate × hours) | \$168 | \$170 | \$338 |
| | | | |
| Direct labour hours in the Cutting Department | 12 | | |
| Direct labour hours in the Painting Department | 10 | | |
| Total direct labour hours | 22 | | |
| Direct labour rate per hour | \$20 | | |
| Total direct labour cost | \$440 | | |
| | | | |
| Cost of direct materials used | \$800 | | |
| Total direct labour cost | \$440 | | |
| Total manufacturing overhead allocated (Rate × hours) | \$338 | | |
| Total cost of job | \$1,578 | | |

Answer Key

Testname: UNTITLED2

45) a.

| Production Department | Departmental Manufacturing Overhead |
|-------------------------|--|
| Large Cases | \$1,875,000 |
| Medium Cases | \$2,992,500 |
| Small Cases | \$2,273,600 |
| Total overhead | \$7,141,100 |
| | |
| Production Department | Machine Hours |
| Large Cases | 12,500.0 |
| Medium Cases | 13,300.0 |
| Small Cases | 11,200.0 |
| Total machine hours | 37,000.0 |
| | |
| Total overhead | \$7,141,100.00 |
| Total machine hours | 37,000 |
| Plantwide overhead rate | \$193.00 |

b.

| | Departmental Manufacturing Overhead | Machine Hours | Departmental Overhead Rates | |
|--------------|---|------------------|-----------------------------|------------------|
| Large Cases | \$ 1,875,000 | 12,500 | \$ 150.00 | per machine hour |
| Medium Cases | \$ 2,992,500 | 13,300 | \$ 225.00 | per machine hour |
| Small Cases | \$ 2,273,600 | 11,200 | \$ 203.00 | per machine hour |

c.

| | Departmental Manufacturing Overhead | Machine Hours | Departmental Overhead Rates | | | |
|--|---|------------------|-----------------------------------|-------------|----|--------------------|
| Large Cases | \$ 1,875,000 | 12,500 | \$ 150.00 | Undercosted | by | \$43.00 per MH* |
| Medium Cases | \$ 2,992,500 | 13,300 | \$ 225.00 | Overcosted | by | \$32.00 per MH* |
| Small Cases | \$ 2,273,600 | 11,200 | \$ 203.00 | Overcosted | by | \$10.00 per MH* |
| *Compare Departmental overhead rates to Plantwide overhead rate of \$193.00. | | | | | | |

Answer Key

Testname: UNTITLED2

46) a.

| Production Department | Departmental Manufacturing Overhead |
|-------------------------|-------------------------------------|
| Large Cases | \$820,000 |
| Medium Cases | \$1,276,800 |
| Small Cases | \$1,261,000 |
| Total overhead | \$3,357,800 |
| | |
| Production Department | Machine Hours |
| Large Cases | 10,000.0 |
| Medium Cases | 13,300.0 |
| Small Cases | 9,700.0 |
| Total machine hours | 33,000.0 |
| | |
| Total overhead | \$3,357,800.00 |
| Total machine hours | 33,000 |
| Plantwide overhead rate | \$101.75 |

b.

| | Departmental Manufacturing Overhead | Machine Hours | Departmental Overhead Rates | |
|--------------|-------------------------------------|---------------|-----------------------------|------------------|
| Large Cases | \$ 820,000 | 10,000 | \$ 82.00 | per machine hour |
| Medium Cases | \$ 1,276,800 | 13,300 | \$ 96.00 | per machine hour |
| Small Cases | \$ 1,261,000 | 9,700 | \$ 130.00 | per machine hour |

c.

| | Departmental Manufacturing Overhead | Machine Hours | Departmental Overhead Rates | | | |
|--|-------------------------------------|---------------|-----------------------------|-------------|----|-----------------|
| Large Cases | \$ 820,000 | 10,000 | \$ 82.00 | Overcosted | by | \$19.75 per MH* |
| Medium Cases | \$ 1276,800 | 13,300 | \$ 96.00 | Overcosted | by | \$5.75 per MH* |
| Small Cases | \$ 1,261,000 | 9,700 | \$ 130.00 | Undercosted | by | \$28.25 per MH* |
| *Compare Departmental overhead rates to Plantwide overhead rate of \$101.75. | | | | | | |

Answer Key

Testname: UNTITLED2

- 47) 1. Plantwide overhead rate = $\$2,000,000/25,000 \text{ DLH} = \80 per DLH
 2. Refined departmental overhead rates:
 Milling department = $\$1,200,000/8,000 \text{ Machine hours} = \$150 \text{ per machine hour (MH)}$
 Assembly department = $\$800,000/20,000 \text{ DLH} = \40 per DLH
 3. Overhead allocated from Assembly Department:
 Job 600: $(16 \text{ DLH} \times \$80) = \$1,280$
 Job 601: $(16 \text{ DLH} \times \$80) = \$1,280$
 4. Overhead allocated:
 Job 600: $(6 \text{ MH} \times \$150) + (12 \text{ DLH} \times \$40) = \$1,380$
 Job 601: $(12 \text{ MH} \times \$150) + (12 \text{ DLH} \times \$40) = \$2,280$
 5. No. The higher cost of machine hours is not appropriately allocated under a plantwide rate.
 6. Under plantwide rate:

| | | |
|---------|--|----------------|
| Job 600 | Total cost: $(\$2,000 + (16 \times \$25) + \$1,280)$ | \$3,680 |
| | Multiply by | <u>110%</u> |
| | Selling price | <u>\$4,048</u> |

| | | |
|----------|--|----------------|
| Job 601: | Total cost: $(\$2,000 + (16 \times \$25) + \$1,280)$ | \$3,680 |
| | Multiply by | <u>110%</u> |
| | Selling price | <u>\$4,048</u> |

7. Under refined departmental rates:

| | | |
|----------|--|----------------|
| Job 600: | Total cost: $(\$2,000 + (16 \times \$25) + \$1,380)$ | \$3,780 |
| | Multiply by | <u>110%</u> |
| | Selling price | <u>\$4,158</u> |

| | | |
|----------|--|----------------|
| Job 601: | Total cost: $(\$2,000 + (16 \times \$25) + \$2,280)$ | \$4,680 |
| | Multiply by | <u>110%</u> |
| | Selling price | <u>\$5,148</u> |

8. Under plantwide rate:

| | <u>Job 600</u> | <u>Job 601</u> |
|-------------|----------------|----------------|
| Sales price | \$4,048 | \$4,048 |
| Cost | <u>3,680</u> | <u>3,680</u> |
| Profit | <u>\$368</u> | <u>\$368</u> |

9. Under refined departmental rates:

| | <u>Job 600</u> | <u>Job 601</u> |
|-------------|----------------|----------------|
| Sales price | \$4,158 | \$5,148 |
| Cost | <u>3,780</u> | <u>4,680</u> |
| Profit | <u>\$378</u> | <u>\$468</u> |

Answer Key

Testname: UNTITLED2

- 48) 1. Plantwide overhead rate = $\$1,600,000/25,000 \text{ DLH} = \64 per DLH
 2. Refined departmental overhead rates:
 Milling department = $\$960,000/8,000 \text{ Machine hours} = \$120 \text{ per machine hour (MH)}$
 Assembly department = $\$640,000/20,000 \text{ DLH} = \32 per DLH
 3. Overhead allocated:
 Job 400: $(16 \text{ DLH} \times \$64) = \$1,024$
 Job 401: $(16 \text{ DLH} \times \$64) = \$1,024$
 4. Overhead allocated:
 Job 400: $(6 \text{ MH} \times \$120) + (12 \text{ DLH} \times \$32) = \$1,104$
 Job 401: $(12 \text{ MH} \times \$120) + (12 \text{ DLH} \times \$32) = \$1,824$
 5. No. The higher cost of machine hours is not appropriately allocated under a plantwide rate.
 6. Under plantwide rate:

| | | |
|----------|--|----------------|
| Job 400: | Total cost: $(\$4,000 + (16 \times \$35) + \$1,024)$ | \$5,584 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$6,701</u> |

| | | |
|----------|--|----------------|
| Job 401: | Total cost: $(\$4,000 + (16 \times \$35) + \$1,024)$ | \$5,584 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$6,701</u> |

7. Under refined departmental rates:

| | | |
|----------|--|----------------|
| Job 400: | Total cost: $(\$4,000 + (16 \times \$35) + \$1,104)$ | \$5,664 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$6,797</u> |

| | | |
|----------|--|----------------|
| Job 401: | Total cost: $(\$4,000 + (16 \times \$35) + \$1,824)$ | \$6,384 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$7,660</u> |

8. Under plantwide rate:

| | | |
|-------------|----------------|----------------|
| | <u>Job 400</u> | <u>Job 401</u> |
| Sales price | \$6,701 | \$6,701 |
| Cost | <u>5,584</u> | <u>\$5,584</u> |
| Profit | <u>\$1,117</u> | <u>\$1,117</u> |

9. Under refined departmental rates:

| | | |
|-------------|----------------|----------------|
| | <u>Job 400</u> | <u>Job 401</u> |
| Sales price | \$6,797 | \$7,660 |
| Cost | <u>5,664</u> | <u>6,384</u> |
| Profit | <u>\$1,133</u> | <u>\$1,276</u> |

Answer Key

Testname: UNTITLED2

- 49) 1. plantwide overhead rate = $\$2,500,000/40,000 \text{ DLH} = \62.50 per DLH
2. Refined departmental overhead rates:
Machining department = $\$1,500,000/12,000 \text{ Machine hours} = \$125 \text{ per machine hour (MH)}$
Painting department = $\$1,000,000/25,000 \text{ DLH} = \40 per DLH
3. Overhead allocated:
Job 810: $(36 \text{ DLH} \times \$62.50) = \$2,250$
Job 811: $(36 \text{ DLH} \times \$62.50) = \$2,250$
4. Overhead allocated:
Job 810: $(10 \text{ MH} \times \$125) + (27 \text{ DLH} \times \$40) = \$2,330$
Job 811: $(20 \text{ MH} \times \$125) + (27 \text{ DLH} \times \$40) = \$3,580$
5. No. The higher cost of machine hours is not appropriately allocated under a plantwide rate.
6. Under plantwide rate:
- | | | |
|----------|--|-----------------|
| Job 810: | Total cost: $(\$7,500 + (36 \times \$30) + \$2,250)$ | \$10,830 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$12,996</u> |
| Job 811: | Total cost: $(\$7,500 + (36 \times \$30) + \$2,250)$ | \$10,830 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$12,996</u> |
7. Under refined departmental rates:
- | | | |
|----------|--|-----------------|
| Job 810: | Total cost: $(\$7,500 + (36 \times \$30) + \$2,330)$ | \$10,910 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$13,092</u> |
| Job 811: | Total cost: $(\$7,500 + (36 \times \$30) + \$3,580)$ | \$12,160 |
| | Multiply by | <u>120%</u> |
| | Selling price | <u>\$14,592</u> |
8. Under plantwide rate:
- | | <u>Job 810</u> | <u>Job 811</u> |
|-------------|----------------|----------------|
| Sales price | \$12,996 | \$12,996 |
| Cost | <u>10,830</u> | <u>10,830</u> |
| Profit | <u>\$2,166</u> | <u>\$2,166</u> |
9. Under refined departmental rates:
- | | <u>Job 810</u> | <u>Job 811</u> |
|-------------|----------------|----------------|
| Sales price | \$13,092 | \$14,592 |
| Cost | <u>10,910</u> | <u>12,160</u> |
| Profit | <u>\$2,182</u> | <u>\$2,432</u> |
- 50) 1. Plant wide rate = $\$2,000,000/40,000 = \$50 \text{ per direct labour hour.}$
2. Overhead allocation:
Job 550: $7 \text{ DLH} \times \$50 = \350
Job 555: $7 \text{ DLH} \times \$50 = \350

Answer Key

Testname: UNTITLED2

- 51) 1. Departmental rates:
Machining: $\$1,400,000/25,000$ machine hours = \$56 per machine hour
Assembly: $\$600,000/30,000$ direct labour hours = \$20 per direct labour hour
2. Overhead allocations:
Job 550: $(3 \text{ hours} \times \$56/\text{MH}) + (6 \text{ DLH} \times \$20) = \$288$
Job 555: $(4 \text{ hours} \times \$56/\text{MH}) + (5 \text{ DLH} \times \$20) = \$324$
- 52) 1. Plant wide rate = $\$2,500,000/50,000 = \50 per direct labour hour.
2. Overhead allocation:
Job 600: $9 \text{ DLH} \times \$50 = \450
Job 601: $9 \text{ DLH} \times \$50 = \450
- 53) 1. Departmental rates:
Machining: $\$1,500,000/30,000$ machine hours = \$50 per machine hour
Assembly: $\$1,000,000/40,000$ direct labour hours = \$25 per direct labour hour
2. Overhead allocations:
Job 600: $(5 \text{ hours} \times \$50/\text{MH}) + (6 \text{ DLH} \times \$25) = \$400$
Job 601: $(8 \text{ hours} \times \$50/\text{MH}) + (7 \text{ DLH} \times \$25) = \$575$
- 54) Labour $(\$25 \times 4 \text{ hrs}) + (\$25 \times 3 \text{ hrs}) = 175.00$
Materials = 1,200.00
Overhead
Assembly dept $\$20 \times 9 \text{ hrs} = 180.00$
Sanding dept $\$15 \times 3 \text{ hrs} = 45.00$
Total = 1,600.00
- 55) Labour $(\$25 \times 6 \text{ hrs}) + (\$25 \times 2 \text{ hrs}) = 200.00$
Materials = 1,500.00
Overhead
Bldg dept $\$18 \times 10 \text{ hrs} = 180.00$
Inspect dept $\$15 \times 2 \text{ hrs} = 30.00$
Total = 1,910.00
- 56) The company produces many different products that use different types and amounts of resources. (If all products use similar types and amounts of resources, a simple plantwide allocation system works fine.)
The company has high indirect costs. (If the company has relatively low indirect costs, it matters less how they are allocated.)
The company produces high volumes of some products and low volumes of other products. (Plantwide allocation systems based on a volume-related driver, such as direct labour hours, tend to overcost high-volume products and undercost low-volume products.)
- 57) TRUE
58) FALSE
59) TRUE
60) TRUE
61) FALSE
62) TRUE
63) FALSE
64) TRUE
65) FALSE
66) TRUE

Answer Key

Testname: UNTITLED2

- 67) TRUE
- 68) FALSE
- 69) FALSE
- 70) TRUE
- 71) FALSE
- 72) FALSE
- 73) FALSE
- 74) TRUE
- 75) B
- 76) C
- 77) D
- 78) B
- 79) C
- 80) D
- 81) A
- 82) D
- 83) D
- 84) D
- 85) C
- 86) A
- 87) C
- 88) D
- 89) D
- 90) C
- 91) B
- 92) B
- 93) D
- 94) A
- 95) D
- 96) D
- 97) B
- 98) C
- 99) A
- 100) C
- 101) A
- 102) C
- 103) A
- 104) D
- 105) D
- 106) C
- 107) B
- 108) D

Answer Key

Testname: UNTITLED2

- 109) D
- 110) A
- 111) B
- 112) D
- 113) C
- 114) C
- 115) C
- 116) C
- 117) B
- 118) B
- 119) C
- 120) B
- 121) A
- 122) C
- 123) D
- 124) B
- 125) D
- 126) B
- 127) D
- 128) A
- 129) C
- 130) A
- 131) B
- 132) C
- 133) B
- 134) B
- 135) D
- 136) A
- 137) B
- 138) D
- 139) D
- 140) C
- 141) A
- 142) A
- 143) B
- 144) D
- 145) C
- 146) A
- 147) B
- 148) A
- 149) B
- 150) D

Answer Key

Testname: UNTITLED2

151) B

152) D

153) A

154) D

155) A

156) B

157) D

158) D

159) E

160) D

161)

| Activity | Budget Cost | Allocation Base | Estimated Level of Activity | Cost per unit of activity |
|--------------------|-------------|-----------------|-----------------------------|---------------------------|
| Materials Handling | \$ 8,000 | Parts | 4,000 | \$ 2.00 |
| Set Ups | \$ 3,000 | Set-Ups | 150 | \$ 20.00 |
| Assembly | \$ 4,800 | Parts | 4,000 | \$ 1.20 |
| Paint and Polish | \$ 80,000 | Finishing Hours | 1,600 | \$ 50.00 |

162) a. $160 \text{ parts} \times \$2.00 + 3 \text{ set ups} \times \$20.00 + 160 \text{ parts} \times \$1.20 + 60 \times \$50.00 = \$3,572$

b. $\$3,572 / 40 = \89.30

163) a. $100 \text{ parts} \times \$2.00 + 4 \text{ set ups} \times \$20.00 + 100 \text{ parts} \times \$1.20 + 80 \times \$50.00 = \$4,400$

b. $\$4,400 / 20 = \220.00

Answer Key

Testname: UNTITLED2

164)

| Part A | (a) | (b) | | (a)/(b) | |
|--------------------|------------|----------------|------------------|---------------|---------------------|
| Activity cost pool | Total cost | Total activity | | Activity rate | |
| Assembly | \$ 552,000 | 30,000 | machine-hours | \$ 18.40 | per machine-hour |
| Inspection | \$ 324,700 | 8,500 | inspection-hours | \$ 38.20 | per inspection-hour |
| Packaging | \$ 49,450 | 2,300 | orders | \$ 21.50 | per order |

| Part B | (a) | | (b) | (a)x(b) |
|--------------------|---------------|---------------------|----------------|---------------------|
| Activity cost pool | Activity rate | | Total activity | Activity-based cost |
| Assembly | \$ 18.40 | per machine-hour | 52 | \$ 956.80 |
| Inspection | \$ 38.20 | per inspection-hour | 15 | \$ 573.00 |
| Packaging | \$ 21.50 | per order | 20 | \$ 430.00 |
| | | TOTAL | | \$ 1,959.80 |

| | | |
|---------------------------------|-------------|-------------|
| Part C | | |
| Production, in units | 400 | |
| Selling price per unit | \$180.00 | |
| Sales | \$72,000 | |
| | | |
| Production, in units | 400 | |
| Direct materials cost, per unit | \$75.50 | |
| Direct materials cost | \$30,200 | |
| | | |
| Production, in units | 400 | |
| Direct labour cost, per unit | \$68.80 | |
| Direct labour cost | \$27,520 | |
| | | |
| | | |
| Sales | | \$72,000.00 |
| Costs: | | |
| Direct materials cost | \$30,200.00 | |
| Direct labour cost | \$27,520.00 | |
| Assembly | \$956.80 | |
| Inspection | \$573.00 | |
| Packaging | \$430.00 | \$59,679.80 |
| Product margin | | \$12,320.20 |

Answer Key

Testname: UNTITLED2

165)

| Part A | (a) | (b) | (a)/(b) |
|-----------------------------|------------|-----------------------------|---------------------------|
| Activity cost pool | Total cost | Total activity | Activity Rate |
| Assembly | \$ 120,000 | 12,000 machine-hours | \$ 10.00 per machine hour |
| Packaging | \$ 80,750 | 4,750 number of orders | \$ 17.00 per order |
| Quality control inspections | \$ 22,880 | 1,760 number of inspections | \$ 13.00 per inspection |

| | |
|-----------------------------------|------------|
| Part B | |
| Activity rate per machine hour | \$10.00 |
| Annual machine hours | 750 |
| Total assembly costs | \$7,500.00 |
| Divide by | Divide by |
| Annual unit production and sales | 1,000 |
| Assembly cost per unit | \$7.50 |
| | |
| Activity rate per order | \$17.00 |
| Annual number of orders | 180 |
| Total processing orders costs | \$3,060.00 |
| Divide by | Divide by |
| Annual unit production and sales | 1,000 |
| Processing orders cost per unit | \$3.06 |
| | |
| Activity rate per inspection hour | \$13.00 |
| Annual number of inspections | 350 |
| Total inspection costs | \$4,550.00 |
| Divide by | Divide by |
| Annual unit production and sales | 1,000 |
| Inspection cost per unit | \$4.55 |
| | |
| | |
| Direct materials cost per unit | \$125.00 |
| Direct labour cost per unit | \$67.00 |
| Assembly cost per unit | \$7.50 |
| Processing orders cost per unit | \$3.06 |
| Inspection cost per unit | \$4.55 |
| Average cost per unit | \$207.11 |

Answer Key

Testname: UNTITLED2

166)

| Part A | | (a) | | (b) | | (a)x(b) |
|----------------------|-----------|----------------------------|----|---------------------------|--|---------------------|
| Activity cost pool | | Activity rate | | Total activity | | Activity-based cost |
| Legal research | \$ 53.00 | per hour of paralegal time | 42 | Number of paralegal hours | | \$ 2,226 |
| Court filing costs | \$ 400.00 | per case filed | 3 | Number of cases filed | | \$ 1,200 |
| Document preparation | \$ 15.00 | per document | 24 | Number of documents | | \$ 360 |
| | | | | | | \$ 3,786 |
| | | | | | | |
| Part B | | (a) | | (b) | | (a)x(b) |
| Activity cost pool | | Activity rate | | Total activity | | Activity-based cost |
| Legal research | \$ 53.00 | per hour of paralegal time | 72 | Number of paralegal hours | | \$ 3,816 |
| Court filing costs | \$ 400.00 | per case filed | 2 | Number of cases filed | | \$ 800 |
| Document preparation | \$ 15.00 | per document | 33 | Number of documents | | \$ 495 |
| | | | | | | \$ 5,111 |

167)

| | |
|--|-------------|
| Part A | |
| Tricycles annual production and sales | 2,000 |
| Tricycles direct labour hours per unit | 1.5 |
| Tricycles total direct labour hours | 3000 |
| | |
| Wagons annual production and sales | 1,500 |
| Wagons direct labour hours per unit | 1 |
| Wagons total direct labour hours | 1500 |
| | |
| Tricycles total direct labour hours | 3000 |
| Wagons total direct labour hours | 1500 |
| Total direct labour hours | 4500 |
| | |
| Total estimated overhead cost | \$215,000 |
| Divide by | Divide by |
| Total direct labour hours | 4500 |
| Predetermined overhead rate | \$47.78 |
| | |
| Predetermined overhead rate | \$47.78 |
| Wagons general factory activity | 1,500 |
| Total overhead cost applied to Wagons | \$71,666.67 |
| | |
| Total overhead cost applied to Wagons | \$71,666.67 |
| Divide by | Divide by |
| Wagons annual production and sales | 1,500 |
| Overhead cost per unit | \$47.78 |

| | | | |
|--------------------|------------|----------------|---------------|
| Part B | | | |
| | (a) | (b) | (a)/(b) |
| Activity cost pool | Total cost | Total activity | Activity rate |
| Setup costs | \$50,000 | 100 | \$500.00 |

Answer Key

Testname: UNTITLED2

| | | | |
|------------------------------------|---------------|----------------|---------------------|
| Setup costs | \$50,000 | 100 | \$500.00 |
| Engineering costs | \$7,500 | 100 | \$75.00 |
| Maintenance costs | \$157,500 | 4,500 | \$35.00 |
| | | | |
| | | | |
| | (a) | (b) | (a) × (b) |
| Activity cost pool | Activity rate | Total activity | Activity-based cost |
| Setup costs | \$500.00 | 75 | \$37,500 |
| Engineering costs | \$75.00 | 40 | \$3,000 |
| Maintenance costs | \$35.00 | 1,500 | \$52,500 |
| | | | \$93,000 |
| | | | |
| Total overhead cost | \$93,000 | | |
| Divide by | Divide by | | |
| Wagons annual production and sales | 1,500 | | |
| Overhead cost per unit | \$62.00 | | |

168) Allocation bases:

Preparation = \$900,000/15,000 hours = \$60 per preparation hour

Cooking and draining = \$1,350,000/45,000 hours = \$30 per hour of cooking and draining time

Packaging = \$450,000/9,000,000 packages = \$0.05 per package

169) a. Traditional method:

46 hours × \$28 = \$1,288 per batch

or \$1,288/200 = 6.44 per unit

b. Activity base method:

Material handling (\$2.60 × 220) \$572

Machine stamping (\$60 × 8) 480

Finishing (\$4 × 52) 208

Batch total \$1,260

Unit costs \$1,260/200 = \$6.30 per unit

Answer Key

Testname: UNTITLED2

170)

| | <u>Dive Masks</u> | <u>Fins</u> |
|-----------------------------|-------------------|--------------|
| Direct manufacturing costs: | | |
| Direct labour | \$12,000 | \$12,000 |
| Direct materials | <u>5,200</u> | <u>2,600</u> |
| Total direct costs | 17,200 | 14,600 |

Indirect manufacturing costs:

| | | | |
|---|-----------------|-----------------------------|-----------------|
| Material handling ($\$1.00 \times 2,000$) = | 2,000 | ($\$1.00 \times 1,300$) = | 1,300 |
| Machining ($\$15.00 \times 205$) = | 3,075 | ($\15.00×300) = | 4,500 |
| Assembly ($\$1.60 \times 1,000$) = | 1,600 | ($\$1.60 \times 1,300$) = | 2,080 |
| Inspection ($\$2.00 \times 100$) = | <u>200</u> | ($\$2.00 \times 1,200$) = | <u>2,400</u> |
| Total indirect costs | <u>6,875</u> | | <u>10,280</u> |
| Total manufacturing costs | <u>\$24,075</u> | | <u>\$24,880</u> |

| | | |
|--------------------------|--------------------------------|--------------------------------|
| Unit manufacturing costs | \$24,075 | \$24,880 |
| | <u>$\div 1,000$</u> | <u>$\div 1,300$</u> |
| | <u>\$24.075</u> | <u>19.138</u> |

Answer Key

Testname: UNTITLED2

171) a. Traditional Costing

| | Regular | Deluxe |
|------------------|--------------|--------------|
| Direct labour | \$ 9.00 | \$ 18.00 |
| Direct materials | 12.00 | 16.00 |
| Indirect cost* | <u>10.39</u> | <u>20.78</u> |
| Total | \$31.39 | \$54.78 |

* $\$332,500 / [6,000 + (1/2 \times 20,000)] = \20.78

b. Activity-Based Costing

| | Estimated Activity Regular | Estimated Activity Deluxe | Allocation Rate | Indirect Cost Regular | Indirect Cost Deluxe |
|----------------------|----------------------------|---------------------------|-----------------|-----------------------|----------------------|
| | A | B | C | D = A × C | E = B × C |
| Activity cost pools: | | | | | |
| Machine setups | 700 | 1,000 | \$90.00 | \$63,000 | \$90,000 |
| Purchase orders | 300 | 200 | \$55.00 | \$16,500 | \$11,000 |
| Machine hours | 5,000 | 11,000 | \$8.00 | \$40,000 | \$88,000 |
| Maintenance requests | 200 | 300 | \$48.00 | \$9,600 | \$14,400 |
| Total | | | | \$129,100 | \$203,400 |
| # of units | | | | 20,000 | 6,000 |
| Indirect \$/unit | | | | \$6.46 | \$33.90 |

| | Regular | Deluxe |
|------------------|-------------|--------------|
| Direct labour | \$ 9.00 | \$18.00 |
| Direct materials | 12.00 | 16.00 |
| Indirect cost | <u>6.46</u> | <u>33.90</u> |
| Total | \$27.46 | \$67.90 |

172) a. Call centre support costs allocated to surveillance products is $\$40,000 = 0.005 \times \$8,000,000$ and to specialty products $\$25,000 = 0.005 \times \$5,000,000$.

b. Yes, average call length appears to be a more appropriate allocation method because it allocates more support costs to specialty products, which consume a greater portion of the call centre's resources.

c. $\$65,000$ of support costs / $6,500$ total calls (Surveillance $1,000 + 300 +$ Specialty $4,000 + 1,200$) = $\$10$ per call. Call centre support costs allocated to surveillance products is $\$13,000 = 1,300$ calls \times $\$10$ per call, and to specialty products is $\$52,000 = 5,200$ calls \times $\$10$ per call.

d. To increase profits, Specialty Product managers would want less cost allocated to their departments. Therefore, if support cost allocation were based on length of call, Specialty Products management may emphasize keeping calls for department short and to the point, rather than emphasizing understanding and helping the caller.

e. Poor model design or poor analytical interpretation and accountability consequences may function as barriers to using ABC assignments for the call centre activities. It is also important to recognize that the call volumes from this year may be an anomaly so that in an average year, the current allocation rate on sales may not be as distortive as it appears for this year.

Answer Key

Testname: UNTITLED2

173) $310 \times \$15 + 850 \times \$25 + 300 \times \$15 + 200 \times \$80 + 650 \times \$15 = \$56,150$

174) $310 \times \$15 + 850 \times \$25 + 300 \times \$15 + 200 \times \$80 + 650 \times \$15 = \$56,150$

Yes - the savings over three years outweigh the cost of implementing it.

175) $310 \times \$15 + 850 \times \$25 + 300 \times \$15 + 200 \times \$80 + 650 \times \$15 = \$56,150$

Yes - While the indications are that the costs outweigh the savings, the improvement in quality may generate additional sales in the future.

176) The four parts of the cost hierarchy are output unit-level costs, batch-level costs, product (or service) sustaining costs, and facility-sustaining costs. Output unit-level costs are costs of activities performed on each individual unit of a product or service. Batch-level costs are the costs of activities related to a group of units of products or services rather than to each individual unit of product or service. Product (or service) sustaining costs are the costs of activities undertaken to support individual products or services regardless of the number of units or batches in which the products are produced. Facility-sustaining costs are the costs of activities that cannot be traced to individual products or services but support the organization as a whole. When compared to the fixed-variable dichotomy, which considers only units of output as a cost driver, the four part cost hierarchy provides opportunity to model many different cost drivers. For example, batch-level costs and product (or service) sustaining costs are driven by the number of batches of a product and the number of different products. Neither of these class of cost drivers are able to be considered in a simple fixed-variable dichotomy.

177) B

178) C

179) D

180) C

181) D

182) A

183) TRUE

184) FALSE

185) TRUE

186) TRUE

187) TRUE

188) TRUE

189) TRUE

190) TRUE

191) TRUE

192) TRUE

193) FALSE

194) TRUE

195) FALSE

196) TRUE

197) FALSE

198) TRUE

199) FALSE

200) TRUE

201) FALSE

202) TRUE

203) FALSE

Answer Key

Testname: UNTITLED2

204) FALSE

205) FALSE

206) TRUE

207) TRUE

208) A

209) D

210) C

211) C

212) C

213) C

214) B

- 215) a. Activity-cost driver rate for Marketing = 12% of sales = \$60,000/\$500,000.
 Activity-cost driver rate for Customer Service = \$4 per customer = \$20,000/5,000.
 Activity-cost driver rate for Order Execution = \$100 per order = \$10,000/100.
 Activity-cost driver rate for Warehousing = \$200 per order = \$10,000/50.

b. For marketing, using 12% of sales limits the marketing activities to an arbitrary amount without consideration for potential opportunities. Using the number of customers for customer service can lead to customer service initiatives to the amount of time servicing each customer to cause the number of customers serviced to increase. Using the number orders for order execution can result in purchasers splitting orders to increase the numbers of orders executed. Using the number of product lines for warehousing can lead warehouse personnel to designate more product line differences in warehouse.

216)

| | Cost per unit | Units per wheel | | Cost for 10,000 | |
|------------------|---------------|-----------------|--------|-----------------|-----------------|
| | | standard | deluxe | standard | deluxe |
| Material | \$ 4.00 | 4.0000 | 8.0000 | \$ 160,000.00 | \$ 320,000.00 |
| Set Up | \$ 400.00 | 0.0120 | 0.0080 | \$ 48,000.00 | \$ 32,000.00 |
| Assembly | \$ 2.50 | 1.2000 | 3.5000 | \$ 30,000.00 | \$ 87,500.00 |
| Paint and Polish | \$ 30.00 | 2.5000 | 3.5000 | \$ 750,000.00 | \$ 1,050,000.00 |
| | | | | \$ 988,000.00 | \$ 1,489,500.00 |

Total MOH = 988,000 + 1,489,500 = \$2,477,500

217)

| | Cost per unit | Units per wheel | | Cost for 10,000 | |
|------------------|---------------|-----------------|--------|-----------------|-----------------|
| | | standard | deluxe | standard | deluxe |
| Material | \$ 4.00 | 4.0000 | 8.0000 | \$ 160,000.00 | \$ 320,000.00 |
| Set Up | \$ 400.00 | 0.0120 | 0.0080 | \$ 48,000.00 | \$ 32,000.00 |
| Assembly | \$ 2.50 | 1.2000 | 3.5000 | \$ 30,000.00 | \$ 87,500.00 |
| Paint and Polish | \$ 30.00 | 2.5000 | 3.5000 | \$ 750,000.00 | \$ 1,050,000.00 |
| | | | | \$ 988,000.00 | \$ 1,489,500.00 |

Total MOH = 988,000 + 1,489,500 = \$2,477,500

Direct labour hours - (3 × 10,000) + (3.5 × 10,000) = 65,000

MOH Rate \$2,477,500/65,000 = \$38.1154

Standard wheel 3 hours × \$38.1154 = \$114.3462

Deluxe wheel 3.5 hours × \$38.1154 = \$133.4038

Answer Key

Testname: UNTITLED2

| 218) | Cost per unit | Units per wheel | Cost per wheel | | |
|------------------|---------------|-----------------|----------------|----------------|-----------------|
| | | standard | deluxe | Std | DLX |
| Material | \$ 4.00 | 4.0000 | 8.0000 | 16.0000 | 32.0000 |
| Set Up | \$ 400.00 | 0.0120 | 0.0080 | 4.8000 | 3.2000 |
| Assembly | \$ 2.50 | 1.2000 | 3.5000 | 3.0000 | 8.7500 |
| Paint and Polish | \$ 30.00 | 2.5000 | 3.5000 | <u>75.0000</u> | <u>105.0000</u> |
| | | | | 98.8000 | 148.9500 |

| 219) | Cost per unit | Units per wheel | Cost for 10,000 | | |
|------------------|---------------|-----------------|-----------------|---------------|-----------------|
| | | standard | deluxe | standard | deluxe |
| Material | \$ 4.00 | 4.0000 | 8.0000 | \$ 160,000.00 | \$ 320,000.00 |
| Set Up | \$ 400.00 | 0.0120 | 0.0080 | \$ 48,000.00 | \$ 32,000.00 |
| Assembly | \$ 2.50 | 1.2000 | 3.5000 | \$ 30,000.00 | \$ 87,500.00 |
| Paint and Polish | \$ 30.00 | 2.5000 | 3.5000 | \$ 750,000.00 | \$ 1,050,000.00 |
| | | | | \$ 988,000.00 | \$ 1,489,500.00 |

Total MOH = 988,000 + 1,489,500 = \$2,477,500

- 220) Activity-based management is a method of management decision making that uses activity-based costing information to improve customer satisfaction and profitability. Some of the typical issues that require a refined costing system (such as ABC) are pricing and product mix decisions, cost reduction initiatives, streamlining of processes, and decisions that can lead to improved product design based on knowledge of detailed costs of the existing product lines. The gathering of timely and accurate information is one of the crucial steps in the decision-making process. A properly designed ABC system will be likely to efficiently provide detailed costing information to managers in companies that manufacture and distribute diverse product lines.

221) B

222) B

223) B

224) B