

e-MBA ACCT 631: Section E1 Spring 2014

Chapter 5 assignments

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1. value:
25.00 points

Rainbow Spray Paints, Inc. has used a traditional cost accounting system to apply quality-control uniformly to all products at a rate of 15 percent of direct-labor cost. Monthly direct-labor cost for the enamel paint line is \$108,000. In an attempt to more equitably distribute quality-control costs, Rainbow is considering activity-based costing. The monthly data shown in the following chart have been gathered for the enamel paint line.

Activity Cost Pool	Cost Driver	Pool Rates	Quantity of Driver for Enamel Paint
Incoming material inspection	Type of material	\$ 21.00 per type	23 types
In-process inspection	Number of units	0.27 per unit	43,000 units
Product certification	Per order	147.00 per order	55 orders

Required:

- Calculate the monthly quality-control cost to be assigned to the enamel paint line under each of the following product-costing systems.
 - Traditional system which assigns overhead on the basis of direct-labor cost.
 - Activity-based costing.

	Assigned Cost
Traditional system	
Activity-based costing	

- Does the traditional product-costing system overcost or undercost the enamel paint line with respect to quality-control costs? By what amount?

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2.

value:
25.00 points

Wilmington Office Equipment Corporation manufactures two types of filing cabinets—Deluxe and Executive—and applies manufacturing overhead to all units at the rate of \$152.00 per machine hour. Production information follows.

	Deluxe	Executive
Direct-material cost	\$ 44	\$ 66
Direct-labor cost	49	49
Budgeted volume (units)	30,400	57,000

The controller, who is studying the use of activity-based costing, has determined that the firm's overhead can be identified with three activities: manufacturing setups, machine processing, and product shipping. Data on the number of setups, machine hours, and outgoing shipments, which are the activities' three respective cost drivers, follow.

	Deluxe	Executive	Total
Setups	172	132	304
Machine hours	60,800	85,500	146,300
Outgoing shipments	200	150	350

The firm's total overhead of \$22,237,600 is subdivided as follows: manufacturing setups, \$4,851,840; machine processing, \$13,342,560; and product shipping, \$4,043,200.

Required:

1. Compute the unit manufacturing cost of Deluxe and Executive filing cabinets by using the company's current overhead costing procedures. **(Round your answers to 2 decimal places.)**

	Deluxe	Executive
Unit manufacturing costs		

2. Compute the unit manufacturing cost of Deluxe and Executive filing cabinets by using activity-based costing. **(Round activity based application rates, overhead application and the final answers to 2 decimal places.)**

	Deluxe	Executive
Unit manufacturing costs		

3. Is the cost of the Deluxe filing cabinet overstated or understated (i.e., distorted) by the use of machine hours to allocate total manufacturing overhead to production? By how much? **(Round your answer to 2 decimal places.)**

Deluxe cabinet line is		
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4. Calculate the aggregate amount by which the Deluxe cabinet line is undercosted by the company's current traditional overhead costing procedures. Calculate the aggregate amount by which the traditional system overcosts the Executive cabinet line. **(Round your answers to the nearest whole dollar.)**

Deluxe cabinet line is undercosted by	
Executive cabinet line is overcosted by	

5. Assume that the current selling price of a Deluxe filing cabinet is \$465 and the marketing manager is contemplating a \$48 discount to stimulate volume. Is this discount advisable?

- ☐ Yes
☐ No

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WMTB is an independent television station run by a major state university. The station's broadcast vary during the year depending on whether the university is in session. The station's production crew supervisory costs are as follows for August and October.

Cost Item	Cost Behavior	Cost Amount	Broadcast Hours during Month
Production Crew	Variable		
August		\$4,752	360
October		9,108	690
Supervisory employees	Fixed		
August		4,400	360
October		4,400	690

Required:

1. Compute the cost per broadcast hour during August and October for each of these cost **(Round your answers to 2 decimal places.)**

Cost Item	Cost per Broadcast Hour	
	August	October
Production Crew	per hour	per hour
Supervisory employees	per hour	per hour

2. What will be the total amount incurred for each of these costs during December, when the st activity will be 390 broadcast hours?

	Total Cost
Production Crew	
Supervisory employees	

3. What will be the cost per broadcast hour in December for each of the cost items? (**Round answers to 2 decimal places.**)

Cost Item	Cost per Broadcast Hour in December	
Production Crew		per hour
Supervisory employees		per hour

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Energy cost	
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2.

value:
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Jonathan Macintosh is a highly successful upstate New York orchardman who has formed his company to produce and package applesauce. Apples can be stored for several months in cold storage so applesauce production is relatively uniform throughout the year. The recently hired controller's firm is about to apply the high-low method in estimating the company's energy cost behavior. The following costs were incurred during the past 12 months:

Month	Pints of Applesauce Produced	Energy Cost
January	117,000	\$ 71,400
February	75,000	65,700
March	78,000	68,400
April	84,000	69,150
May	102,000	69,900
June	108,000	70,650
July	132,000	71,100
August	102,000	69,600
September	102,000	70,200
October	96,000	69,300
November	135,000	73,500
December	129,000	71,800

Required:

1. Use the high-low method to estimate the company's energy cost behavior and express it in equation form. Use the formula $Y = a + bX$, where Y denotes energy cost for a month and X denotes pints of applesauce produced. **(Round coefficient of X to 2 decimal places.)**

Total energy cost = + \times

2. Predict the energy cost for a month in which 86,000 pints of applesauce are produced.

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[The following information applies to the questions displayed below.]

Liberty Bell Fitness, Inc. operates a chain of fitness centers in Philadelphia. The firm's controller is accumulating data to be used in preparing its annual profit plan for the coming year. The cost behavior pattern of the firm's equipment maintenance costs must be determined. The accounting staff suggested the use of an equation, in the form of $Y = a + bX$, for maintenance costs. Data regarding maintenance hours and costs for last year are as follows:

Month	Hours of Maintenance Service	Maintenance Costs
January	560	\$ 4,856
February	460	4,240
March	300	2,750
April	460	4,320
May	320	3,020
June	450	4,140
July	370	3,090
August	410	3,570
September	490	3,990
October	360	3,260
November	390	3,240
December	330	3,060
Total	4,900	\$ 43,536
Average	408	\$ 3,628

3.

value:
6.25 points

Required:

- Using the high-low method of cost estimation, estimate the behavior of the maintenance incurred by Liberty Bell Fitness, Inc. Express the cost behavior pattern in equation form. (**"Variable cost per hour" to 2 decimal places.**)

Monthly maintenance cost = + X

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4.

value:

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2. Using your answer from requirement 1, what is the variable component of the maintenance **(Round your answer to 2 decimal places.)**

Maintenance cost per hour

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5.

value:

6.25 points

3. Compute the predicted maintenance cost at 600 hours of activity.

Maintenance cost

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6.

value:

6.25 points

- 4-a. Compute the variable cost per hour and the fixed cost per hour at 610 hours of activity. **(Round your answers to 2 decimal places.)**

Variable cost per hour	
Fixed cost per hour	

4-b. Why the fixed cost per hour could be misleading?

- ☐ Because it will not change as the number of hours changes.
- ☐ Because it will change as the number of hours changes.

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7. value:
6.25 points

Lone Mountain Extraction, which mines ore in Idaho, uses a calendar year for both financial-reporting and tax purposes. The following selected costs were incurred in December, the low point of activity, when 1,900 tons of ore were extracted:

Straight-line depreciation	\$ 47,000
Charitable contributions*	14,000
Mining labor/fringe benefits	427,500
Royalties	109,000
Trucking and hauling	417,875

*Incurred only in December.

Peak activity of 3,200 tons occurred in June, resulting in mining labor/fringe benefit costs of \$720,000, royalties of \$148,000, and trucking and hauling outlays of \$542,875. The trucking and hauling outlays exhibit the following behavior:

Less than 1,900 tons	\$355,375
From 1,900–2,399 tons	417,875
From 2,400–2,899 tons	480,375
From 2,900–3,399 tons	542,875

Lone Mountain Extraction uses the high-low method to analyze costs.

Required:

- Classify the five costs listed in terms of their behavior: variable, step-variable, committed fixed, discretionary fixed, step-fixed, or semivariable.

a. Straight-line depreciation	
b. Charitable contributions	
c. Mining labor/fringe benefits	
d. Royalties	
e. Trucking and hauling	

- Calculate the total cost for next February when 2,200 tons are expected to be extracted.

Total cost	
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- Is hauling 1,900 tons with respect to Lone Mountain's trucking/hauling cost behavior cost effective?

☐ Yes
☐ No

3-b. Given the current scenario at what number of units cost effectiveness can be achieved?

Number of units

4. In times of economic difficulties, the management will cut which type of fixed costs?

- ☐ Discretionary fixed costs.
- ☐ Committed fixed costs.

5. Speculate as to why the company's charitable contribution cost arises only in December. Choose the most relevant reason from the given options.

- ☐ To demonstrate social responsibility.
- ☐ To claim tax deduction.
- ☐ To promote business.

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8.

value:
6.25 points

Lone Mountain Extraction, which mines ore in Idaho, uses a calendar year for both financial-reporting and tax purposes. The following selected costs were incurred in December, the low point of a year when 1,400 tons of ore were extracted:

Straight-line depreciation	\$ 30,000
Charitable contributions*	12,000
Mining labor/fringe benefits	315,000
Royalties	140,000
Trucking and hauling	280,000

*Incurred only in December.

Peak activity of 2,700 tons occurred in June, resulting in mining labor/fringe benefit costs of \$600,000, royalties of \$224,500, and trucking and hauling outlays of \$360,000. The trucking and hauling costs exhibit the following behavior:

Less than 1,400 tons	\$240,000
From 1,400–1,899 tons	280,000
From 1,900–2,399 tons	320,000
From 2,400–2,899 tons	360,000

Lone Mountain Extraction uses the high-low method to analyze costs.

Required:

1. Classify the five costs listed in terms of their behavior: variable, step-variable, committed fixed, discretionary fixed, step-fixed, or semivariable.

a.	Straight-line depreciation	
b.	Charitable contributions	
c.	Mining labor/fringe benefits	
d.	Royalties	
e.	Trucking and hauling	

2. Calculate the total cost for next February when 1,700 tons are expected to be extracted.

Total cost

- 3-a. Is hauling 1,400 tons with respect to Lone Mountain's trucking/hauling cost behavior cost effective?

- ☐ Yes
☐ No

- 3-b. Given the current scenario at what number of units cost effectiveness can be achieved?

Number of units

4. In times of economic difficulties, the management will cut which type of fixed costs?

- ☐ Discretionary fixed costs
☐ Committed fixed costs

5. Speculate as to why the company's charitable contribution cost arises only in December. Choose the most relevant reason from the given options.

- ☐ To demonstrate social responsibility
- ☐ To claim tax deduction
- ☐ To promote business

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