

## Multiple Choice Questions

1. Activity-based costing:
  - a) Uses a plant-wide overhead rate to assign overhead
  - b) Is not expensive to implement
  - c) Typically applies overhead costs using direct labor-hours
  - d) Uses multiple activity rates
  
2. Assigning overhead using ABC often:
  - a) Shifts overhead costs from high-volume products to low-volume products
  - b) Shifts overhead costs from low-volume products to high-volume products
  - c) Provides the same results as traditional costing
  - d) Requires one predetermined overhead rate
  
3. Painting the product would be an example of which activity level groups
  - a) Facility-level activity
  - b) Product-level activity
  - c) Unit-level activity
  - d) Batch-level activity
  
4. X Company uses activity-based costing for Product B and Product D. The total estimated overhead cost for the parts administration activity pool was \$550,000 and the expected activity was 2000 part types. If Product D requires 1200 part types, the amount of overhead allocated to product D for parts administration would be:
  - a) \$275,000
  - b) \$300,000
  - c) \$330,000
  - d) \$345,000
  
5. Plant depreciation is an example of which activity-level group?
  - a) Unit-level activity
  - b) Facility-level activity
  - c) Batch-level activity
  - d) Product-level activity
  
6. B Company uses activity-based costing and has the following activity cost pools and estimated overhead cost for each pool:

Machine related	\$350,000
Handling material	\$240,000
Processing purchase orders	\$720,000
General factory	\$500,000

The amount of total estimated overhead is:

- a) \$1,310,000
  - b) \$1,090,000
  - c) \$ 850,000
  - d) \$1,810,000
7. Product design is an example of which activity-level group?
- a) Product-level activity
  - b) Facility-level activity
  - c) Batch-level activity
  - d) Unit-level activity
8. One of T Company's cost pools is parts administration. The expected overhead cost for that cost pool was \$380,000 and the expected activity was 5,000 part types. The actual overhead cost for the cost pool was \$420,000 at an actual activity of 6,000 part types. The activity rate for that cost pool was:
- a) \$63 per part type
  - b) \$76 per part type
  - c) \$70 per part type
  - d) \$84 per part type
9. P Company produces three types of products- product A, product B and product C. Product A requires 200 machine setups and machine hours used on it were 1,000. Product B requires 400 machine setups and machine hours used on it were 500. Product C requires 620 machine setups and machine hours used on it were 1,500. The company has defined an activity cost pool machine setups for which the cost driver is number of machine setups. The total overhead cost assigned to that cost pool was \$183,000. The machine setups overhead assigned to each of the products was:
- a) \$61,000 for A; \$61,000 for B; \$61,000 for C
  - b) \$61,000 for A; \$30,500 for B; \$91,500 for C
  - c) \$30,000 for A; \$60,000 for B; \$93,000 for C
  - d) \$30,000 for A; \$63,000 for B; \$90,000 for C
10. L Company produces two products- calculators and games. The company planned to produce 4,000 calculators and 8,000 games. The company uses

ABC costing, and one of the activity cost pools was assembly, which had a cost driver of total parts. The total amount of estimated overhead for the assembly cost pool was \$748,000. The calculator required 16 parts, and the games required 52 parts. What would the overhead cost per unit be as it relates to the assembly cost pool for games?

- a) \$44.00
- b) \$62.33
- c) \$71.50
- d) \$82.00

The next 2 questions refer to the following information.

Y Company estimated that its total overhead cost of \$600,000. It is considering implementing activity-based costing. Three cost pools (and activity measures) have been identified: machine-related (machine-hours), production orders (number of orders), and product testing (number of tests). The estimated overhead was assigned to the pools as follows: \$200,000 to machine-related, \$100,000 to production orders, and \$300,000 to product testing. Y Company produces two products. The following information is available:

	<u>Product 1</u>	<u>Product 2</u>
Machine-hours	40,000	10,000
Orders	800	200
Tests	6,000	9,000
Direct labor hours	25,000	15,000

The company currently uses traditional costing and allocates overhead based on direct labor-hours.

11. How much overhead is assigned to Product 1 using traditional costing?
  - a) \$375,000
  - b) \$300,000
  - c) \$325,000
  - d) \$225,000
  
12. How much overhead would be assigned to Product 1 if ABC is used?
  - a) \$300,000
  - b) \$173,000
  - c) \$420,000
  - d) \$360,000

13. Inspections are an example of which activity-level group?
- Unit-level activity
  - Batch-level activity
  - Product-level activity
  - Facility-level activity
14. Which of the following characteristics would be an indicator that a company would benefit from switching to activity-based costing?
- Only one homogenous product is produced on a continuous basis
  - The existing cost system is reliable and predictable
  - Overhead costs are high and increasing with no apparent reason
  - The costs of implementing ABC outweigh the benefits
15. Which of the following is a limitation of activity-based costing?
- Costs are accumulated by each major activity
  - A variety of activity measures are used
  - All costs in an activity cost pool pertain to a single activity
  - Activity-based costing relies on the assumption that the cost in each cost pool is strictly proportional to its cost measure

## Practice Problems

### **Practice Problem #1**

G Company has decided to produce two different briefcases: nylon and leather. They are deciding whether to use job-order costing or activity based costing. Based on next year's budget, two cost pools have been developed with the following information:

	<u>Nylon</u>	<u>Leather</u>	<u>Overhead Assigned</u>
Direct labor hours	50,000	100,000	\$0
Sewing machine hours	1,000	1,000	\$200,000
Machine setup hours	100	400	\$100,000

- Required:
- Compute the plant-wide overhead rate if overhead is applied on the basis of direct labor hours.
  - Compute the overhead rates using activity based costing.
  - Determine the difference in the amount of overhead allocated to each product between the two methods.

**Practice Problem #2**

W Company manufactures spoked and solid bicycle wheels. The company relies on an activity based costing system. The following information is for the cost pools:

<u>Cost Pool</u>	<u>Activity</u>	<u>Activity</u>		
		<u>Rate</u>	<u>Spoked</u>	<u>Solid</u>
Machine set-up	Set-ups	\$180.00	200	800
Assembly / Polish	Labor hours	\$4.00	40,000	30,000
Inspection	Inspections	\$20.00	100	1,100
Total production			10,000	10,000

- Required:
- a) Determine the total overhead cost assigned to each product.
  - b) Determine the overhead cost per unit for each product.

**Practice Problem #3**

A Company has two products: X and Y. It has prepared the following analysis showing budgeted cost and activity for each of its three activity cost pools:

<u>Cost Pool</u>	<u>Cost</u>	<u>Per Budget</u>	
		<u>Product X Activity</u>	<u>Product Y Activity</u>
Activity 1	\$3,600	25,200	46,800
Activity 2	\$4,800	36,000	44,000
Activity 3	\$6,300	43,200	46,800

Annual production and sales level of Product X is 161,100 units, and the annual production and sales level of Product Y is 275,200 units.

- Required:
- a) Compute the approximate overhead cost per unit of Product X.
  - b) Compute the approximate overhead cost per unit of Product Y.

**Solutions**

1. D

- 2. A
- 3. C
- 4. C
- 5. B
- 6. D
- 7. A
- 8. B
- 9. C
- 10. C
- 11. A
- 12. D
- 13. B
- 14. C
- 15. D

**Practice Problem #1**

a) Predetermined overhead rate:

$$\text{Predetermined overhead rate} = \frac{\text{Total Overhead}}{\text{Total DL Hour}} = \frac{\$100,000 + \$200,000}{50,000 + 100,000} = \$2.00 \text{ per DLH}$$

b)

<u>Activities</u>	<u>Overhead Cost</u>	<u>Total Expected Activity</u>	<u>Activity Rate</u>
Sewing machine hours	\$200,000	1,000 + 1,000 SMH	= \$100.00 per MH
Machine setups	\$100,000	400 + 100 setups	= \$200.00 per setup

	<u>Activity Rate</u>	<u>Nylon Activity</u>	<u>Amount</u>	<u>Leather Activity</u>	<u>Amount</u>
Job order costing					
Direct labor Hours			50,000		100,000
Overhead rate			\$2.00		\$2.00
Overhead assigned			<u>\$100,000</u>		<u>\$200,000</u>

Activity based costing:

Sewing machine hours	\$100.00	1,000	\$100,000	1,000	\$100,000
Machine setup hours	\$200.00	100	<u>\$20,000</u>	400	<u>\$80,000</u>
			<u>\$120,000</u>		<u>\$180,000</u>

**Practice Problem #2**

a)

<u>Cost Pools</u>	<u>Activity Rate</u>	<u>Spoked</u>		<u>Solid</u>	
		<u>Activity</u>	<u>Amount</u>	<u>Activity</u>	<u>Amount</u>
Machine set-up	\$180.00	200	\$36,000	800	\$144,000
Assembly / Polish	\$4.00	40,000	\$160,000	30,000	\$120,000
Inspection	\$20.00	100	\$2,000	1,100	\$22,000
Total Overhead Assigned to each Product			\$198,000		\$286,000
Total Units Produced			10,000		10,000
b) Overhead Cost per Unit			\$19.80		\$28.60

**Practice Problem #3**

Cost \* (Product Activity/Total Activity)= Overhead Assigned

	<u>Cost</u>	<u>Product X Activity</u>	<u>Total Activity</u>	<u>Overhead Assigned</u>
Activity 1	\$3,600	25,200	70,000	\$1,260
Activity 2	4,800	36,000	80,000	2,160
Activity 3	6,300	43,200	90,000	3,024
				\$6,444
		Divide by units of X		161,100
		Cost per unit		\$.04

	<u>Cost</u>	<u>Product Y Activity</u>	<u>Total Activity</u>	<u>Overhead Assigned</u>
Activity 1	\$3,600	46,800	70,000	\$2,340
Activity 2	4,800	44,000	80,000	2,640
Activity 3	6,300	46,800	90,000	3,276
				\$8,256
		Divide by units of Y		275,200
		Cost per unit		\$.03