

Chapter 19—Additional Topics in Product Costing

Solutions to Practice Quiz

1. An indirect department cost is:
- a. Any production cost other than direct material or direct labor cost
 - b. The same as a service department cost
 - c. A cost assigned to a department from another department through indirect allocation
 - d. A cost assigned directly to a department when it is incurred

Answer: c

Rationale: Indirect department costs are costs that cannot be directly traced to a particular department, but which are assigned to it from another department through indirect allocation. Direct department costs, on the other hand, are any costs that can be traced directly to a department.

2. A service department cost would typically be any of the following departments, except the:
- a. Payroll department
 - b. Human resources department
 - c. Facilities department
 - d. Product assembly department

Answer: d

Rationale: Payroll, human resources, and facilities are typical service departments that provide services to the production and other service departments. A product assembly department is typically a production department that receives services from service departments.

3. The following budgeted information pertains to Olsen Company:

	Service Departments		Producing Departments	
	Human Resources	Facilities	Mixing	Molding
Direct department costs	\$80,000	\$40,000	\$280,000	\$540,000
Direct labor hours	5,000	3,000	9,000	27,000
Square footage	2,000	3,000	10,500	17,500
# of Employees	4	5	11	9

The direct department costs for Mixing and Molding represent the direct department overhead costs of those departments, not including any direct material or direct labor. Human Resource Department costs are assigned to other departments based on the number of employees, and Facilities Department costs are assigned to other departments based on square footage occupied.

If the direct method is used to allocate service department costs to the producing departments, the total budgeted overhead for the Molding Department after service department costs are allocated is:

- a. \$601,000
- b. \$336,200
- c. \$603,800
- d. \$339,000

Answer: a

Rationale:

	Department	
	Mixing	Molding
Direct Dept. Costs	\$280,000	\$540,000
Service Cost Allocation:		
Human Resources		
$11/20 \times \$80,000$	44,000	
$9/20 \times \$80,000$		36,000
Facilities		
$10,500/28,000 \times \$40,000$	15,000	
$17,500/28,000 \times \$40,000$		25,000
Total overhead costs after service dept. allocation	\$339,000	\$601,000

4. Refer to the previous question. If the step method is used to allocate service departments to the producing departments, the total budgeted overhead for the Mixing Department after service department costs are allocated is:

- a. \$589,800
- b. \$325,200
- c. \$603,800
- d. \$336,200

Answer: d

Rationale: Human Resources provided 5/25, or 20 percent, of its services to the Facilities Dept.

Facilities provided 2,000/30,000, or 6.67% of its services to the Human Resources Dept.; therefore Human Resources cost is allocated first under the step method.

	<u>Human Resources</u>	<u>Facilities</u>	<u>Mixing</u>	<u>Molding</u>
Direct Dept. Costs	\$80,000	\$40,000	\$280,000	\$540,000
Service Cost Allocation:				
Human Resources				
5/25 x \$80,000		16,000		
11/25 x \$80,000			35,200	
9/25 x \$80,000				28,800
Facilities				
10,500/28,000 x \$56,000			21,000	
17,500/28,000 x \$56,000				35,000
Total overhead costs after service dept. allocation			\$336,200	\$603,800

5. Refer to the Question 3 above. Assume that the Molding Department uses a predetermined overhead rate for assigning overhead costs to products based on budgeted total overhead after service department costs are allocated using the direct allocation method.

The predetermined overhead rate for the Molding Department is (round all calculations to two decimal places):

- a. \$16.63 per direct labor hour
- b. \$20.00 per direct labor hour
- c. \$22.26 per direct labor hour
- d. \$15.00 per direct labor hour

Answer: c

Rationale: Total Molding Department overhead after allocation of \$601,000 (see answer to question 3) divided by budgeted direct labor hours of 27,000 equals \$22.26 per direct labor hour.

6. The key elements of JIT/lean production include all the following *except*:

- a. Increased coordination throughout the value chain
- b. Increased inventories
- c. Increased product quality and employee empowerment
- d. Reduced production times

Answer: *b*

7. Which of the following describes a Kanban production line system?

- a. Workers keep producing as long as there are available units of inventory to work on
- b. Workers produce only enough unit to provide the requirements of the next work station
- c. A Kanban system is also known as a material push system
- d. In a Kanban system, inventories at the various work stations are large enough to allow for variations in efficiency and processing speeds.

Answer: *b*

Rationale: A Kanban system is a materials pull system (not a push system), where employees at each work station work to provide inventory for the next workstation only as needed. In this system, building excess in-process inventories is strictly prohibited. When inventory reaches a specified level, work at the station stops until workers at a subsequent station pulls a unit from the in-process storage area, thereby authorizing production to resume.

8. Cobalt Company sold and produced 55,000 units of product at a cost of \$1,540,000 for a sales price of \$50 per unit during the most recent year. Throughout the year it's average inventory was 5,000 units with an average cost of \$110,000. Based on this information, which of the following cannot be determined about Cobalt's inventory management performance?

- a. Cobalt's inventory turnover in units was 11 times
- b. Cobalt's gross margin return on average inventory investment was 1,100%
- c. Cobalt's inventory turnover in dollars was 14 times
- d. Cobalt's production cycle efficiency was 100%

Answer: *d*

Rationale: Cobalt's inventory turnover in units is calculated as the number of units sold / average units in inventory, or $55,000 / 5,000 = 11$ times. Its inventory turnover in dollars is calculated as the cost of goods sold / average inventory cost, or $\$1,540,000 / \$110,000 = 14$ times. Cobalt's gross margin return on inventory is calculated as gross margin / average cost of inventory, or $[(55,000 \times \$50) - \$1,540,000] / \$110,000 = 11.00 = 1,100$ percent. Cobalt's cycle efficiency, which is calculated as processing time / cycle time, cannot be determined from the information provided.

9. Which of the following statements about backflush costing is *false*?
- a. All cost of direct materials, direct labor, and manufacturing overhead are assigned to Cost of Goods Sold as they are incurred.
 - b. Backflush costing derives its name from the fact that under this system, inventory costs are backed out of Cost of Goods Sold at the end of the accounting period.
 - c. Firms that have implemented JIT rarely use the backflush costing approach.
 - d. If there are no inventories on hand at the end of the accounting period, no costs are transferred from Cost of Goods Sold to an inventory account.

Answer: c

Rationale: Firms who have implemented JIT/lean production often use a backflush approach to accounting for production costs, since ending inventories are nonexistent or so small that costs assigned to them are insignificant in comparison with the costs assigned to Cost of Goods Sold.