# Hilton chapter 2

**Answers to Assigned End of Chapter Exercises, Problems, Cases**

# Answers to Review Questions

2-1 Product costs are costs that are associated with manufactured goods until the time period during which the products are sold, when the product costs become expenses. Period costs are expensed during the time period in which they are incurred.

2-2 Product costs are also called inventoriable costs because they are assigned to manufactured goods that are inventoried until a later period, when the products are sold. The product costs remain in the Work-in-Process or Finished-Goods Inventory account until the time period when the goods are sold.

* 1. The most important difference between a manufacturing firm and a service industry firm, with regard to the classification of costs, is that the goods produced by a manufacturing firm are inventoried, whereas the services produced by a service industry firm are consumed as they are produced. Thus, the costs incurred in manufacturing products are treated as product costs until the period during which the goods are sold. Most of the costs incurred in a service industry firm to produce services are operating expenses that are treated as period costs.
	2. Product costs include the backpack’s direct material (e.g., fabric, stitching, zippers and pulls), direct labor involved in production, and various overhead costs (e.g., electricity, insurance on the plant, and depreciation on plant and equipment).
	3. **The four types of production processes are as follows:**
* **Job shop: Low production volume; little standardization; one-of-a-kind products. Examples include custom home construction, feature film production, and ship building.**
* **Batch: Multiple products; low volume. Examples include construction equipment, tractor trailers, and cabin cruisers.**
* **Assembly: A few major products; higher volume. Examples include kitchen appliances and automobile assembly.**
* **Continuous flow: High production volume; highly standardized commodity products. Examples include food processing, textiles, lumber, and chemicals.**

2-6 The cost of idle time is treated as manufacturing overhead because it is a normal cost of the manufacturing operation that should be spread out among all of the manufactured products. The alternative to this treatment would be to charge the cost of idle time to a particular job that happens to be in process when the idle time occurs. Idle time often results from a random event, such as a power outage. Charging the cost of the idle time resulting from such a random event to only the job that happened to be in process at the time would overstate the cost of that job.

2-7 Overtime premium is included in manufacturing overhead in order to spread the extra cost of the overtime over all of the products produced, since overtime often is a normal cost of the manufacturing operation. The alternative would be to charge the overtime premium to the particular job in process during overtime. In most cases, such treatment would overstate the cost of that job, since it is only coincidental that a particular job happened to be done on overtime. The need for overtime to complete a particular job results from the fact that other jobs were completed during regular hours.

2-8 The phrase “different costs for different purposes” refers to the fact that the word “cost” can have different meanings depending on the context in which it is used. Cost data that are classified and recorded in a particular way for one purpose may be inappropriate for another use.

2-9 The city of Tampa would use cost information for planning when it developed a budget for its operations during the next year. Included in that budget would be projected costs for police and fire protection, street maintenance, and city administration. At the end of the year this budget would be used for cost control. The actual costs incurred would be compared to projected costs in the budget. City administrators would also use cost data in making decisions, such as where to locate a new fire station.

2-10 A fixed cost remains constant in total across changes in activity, whereas the total variable cost changes in proportion to the level of activity.

2-11 The fixed cost per unit declines as the level of activity (or cost driver) increases. The cost per unit is reduced because the total fixed cost, which does not change as activity changes, is spread over a larger number of activity units.

2-12 The variable cost per unit remains constant as the level of activity (or cost driver) changes. Total variable costs change in proportion to activity, and the additional variable cost when one unit of activity is added is the variable cost per unit.

2-13 A volume-based cost driver, such as the number of passengers, causes costs to be incurred because of the quantity of service offered by the airline. An operations-based cost driver, such as hub domination, affects costs because of the basic way in which the airline conducts its operations. Greater control over a hub airport's facilities and services gives an airline greater ability to control its operating costs.

2-14 a. Number of students: volume-based cost driver. This characteristic of the college relates to the quantity of services provided.

b. Number of disciplines offered for study: operations-based cost driver. The greater the diversity in a college's course offerings, the greater will be the costs incurred, regardless of the overall size of the student body.

c. Urban versus rural location: operations-based cost driver. A college's location will affect the type of housing and food facilities required, the cost of obtaining services, and the cost of transportation for college employees acting on behalf of the college.

2-15 Examples of direct costs of the food and beverage department in a hotel include the money spent on the food and beverages served, the wages of table service personnel, and the costs of entertainment in the dining room and lounge. Examples of indirect costs of the food and beverage department include allocations of the costs of advertising for the entire hotel, of the costs of the grounds and maintenance department, and of the hotel general manager's salary.

2-16 Costs that are likely to be controllable by a city's airport manager include the wages of personnel hired by the airport manager, the cost of heat and light in the airport manager's administrative offices, and the cost of some materials consumed in the process of operating the airport, such as cleaning, painting, and maintenance materials. Costs that are likely to be uncontrollable by the city's airport manager include depreciation of the airport facilities, fees paid by the airport to the federal government for air traffic control services, and insurance for the airport employees and patrons.

2-17 a. Uncontrollable cost

b. Controllable cost

c. Uncontrollable cost

2-18 Out-of-pocket costs are paid in cash at or near the time they are incurred. An opportunity cost is the potential benefit given up when the choice of one action precludes the selection of a different action.

2-19 A sunk cost is a cost that was incurred in the past and cannot be altered by any current or future decision. A differential cost is the difference in a cost item under two decision alternatives.

* 1. A marginal cost is the extra cost incurred in producing one additional unit of output. The average cost is the total cost of producing a particular quantity of product or service, divided by the number of units of product or service produced.
	2. The process of registering for classes varies widely among colleges and universities, and the responses to this question will vary as well. Examples of information that might be useful include the credit requirements and course requirements to obtain a particular degree, and a list of the prerequisites for each of the elective courses in a particular major. Such information could help the student plan an academic program over several semesters or quarters. An example of information that might create information overload is a comprehensive listing of every course offered by the college in the past five years.

2-22 The purchase cost of the old bar code scanners is a sunk cost, since it occurred in the past and cannot be changed by any future course of action. The manager is exhibiting a common behavioral tendency to pay too much attention to sunk costs.

2-23 a. Direct cost

b. Direct cost

c. Indirect cost

d. Indirect cost

# SOLUTIONS to ASSIGNED EXERCISES

## Exercise 2-32

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | Phone bill, January: $200 + ($.15 × 7,000)  | $1,250 |  |
|  | Phone bill, February: $200 + ($.15 × 8,000)  | $1,400 |  |
|  |  |  |  |
| 2. | Cost per call, January: $1,250/7000  | $ .179  | (rounded) |
|  | Cost per call, February: $1,400/8000  | $ .175 |  |
|  |  |  |  |
| 3. | Fixed component, January  | $ 200 |  |
|  | Variable component, January: $.15 × 7,000  |  1,050 |  |
|  | Total  | $1,250 |  |
|  |  |
| 4. | Since each phone call costs $.15, the marginal cost of making the 7,001st call is $.15. |
|  |  |
| 5. | The average cost of a phone call in January (rounded) is $.179 ($1,250/7,000). |

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## Problem 2-42

1. 3 hours × ($14 + $4) = $54

 Notice that the overtime premium on the flight is not a direct cost of the flight.

2. 3 hours × $14 × .5 = $21

 This is the overtime premium, which is part of Gaines' overall compensation.

3. The overtime premium should be included in overhead and allocated across all of the company's flights.

4. The $87 is an opportunity cost of using Gaines on the flight departing from San Diego on August 11. The cost should be assigned to the August 11 flight departing from San Diego.

## Problem 2-43

|  |  |
| --- | --- |
| 1. | Laredo Luggage CompanySchedule of Cost of Goods ManufacturedFor the Year Ended December 31, 20x2 |
|  |
|  |
|  |  |  |  |
|  | Direct material: |  |  |
|  |  Raw-material inventory, January 1  | $ 20,000 |  |
|  |  Add: Purchases of raw material  |  90,000 |  |
|  |  Raw material available for use  | $110,000 |  |
|  |  Deduct: Raw-material inventory, December 31  |   12,500 |  |
|  |  Raw material used  |  | $97,500 |
|  | Direct labor  |  | 100,000 |
|  | Manufacturing overhead: |  |  |
|  |  Indirect material  | $ 5,000 |  |
|  |  Indirect labor  | 7,500 |  |
|  |  Utilities: plant  | 20,000 |  |
|  |  Depreciation: plant and equipment  | 30,000 |  |
|  |  Other  |   40,000 |  |
|  |  Total manufacturing overhead  |  | 102,500 |
|  | Total manufacturing costs  |  | $300,000 |
|  | Add: Work-in-process inventory, January 1  |  |   20,000 |
|  | Subtotal  |  | $320,000 |
|  | Deduct: Work-in-process inventory, December 31  |  |  15,000 |
|  | Cost of goods manufactured  |  | $305,000 |
|  |  |  |  |
| 2. | Laredo Luggage CompanySchedule of Cost of Goods SoldFor the Year Ended December 31, 20x2 |
|  |
|  |
|  |  |  |
|  | Finished goods inventory, January 1  | $ 10,000 |
|  | Add: Cost of goods manufactured  | 305,000 |
|  | Cost of goods available for sale  | $315,000 |
|  | Deduct: Finished-goods inventory, December 31  |  25,000 |
|  | Cost of goods sold  | $290,000 |

## Problem 2-43 (Continued)

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| --- | --- |
| 3. | Laredo Luggage CompanyIncome StatementFor the Year Ended December 31, 20x2 |
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|  |  |  |
|  | Sales revenue  | $475,000 |
|  | Less: Cost of goods sold  |  290,000 |
|  | Gross margin  | $185,000 |
|  | Selling and administrative expenses  |  75,000 |
|   | Income before taxes  | $110,000 |
|  | Income tax expense  |  45,000 |
|  | Net income  | $65,000 |

**PROBLEM 2-44**

1. Manufacturing overhead:

|  |  |
| --- | --- |
| Indirect labor………………………………. | $ 218,000 |
| Building depreciation ($160,000 x 75%).. |  120,000 |
| Other factory costs……………………….. |  688,000 |
| Total……………………………………... | $1,026,000 |

2. Cost of goods manufactured:

|  |  |  |
| --- | --- | --- |
| Direct material: |  |  |
| Raw-material inventory, Jan. 1……………… | $ 31,600 |  |
| Add: Purchases of raw material…………….. | 350,000 |  |
| Raw material available for use………………. | $381,600 |  |
| Deduct: Raw-material inventory, Dec. 31…. |  36,400 |  |
| Raw material used…………………………….. |  | $ 345,200 |
| Direct labor………………………………………….. |  | 508,000 |
| Manufacturing overhead………………………….. |  | 1,026,000 |
| Total manufacturing costs……………………….. |  | $1,879,200 |
| Add: Work-in-process inventory, Jan. 1………. |  |  71,400 |
| Subtotal………………………………………….. |  | $1,950,600 |
| Deduct: Work-in-process inventory, Dec. 31…. |  |  124,200 |
| Cost of goods manufactured…………………….. |  | $1,826,400 |

3. Cost of goods sold:

|  |  |
| --- | --- |
| Finished-goods inventory, Jan. 1…………….. | $ 222,200 |
| Add: Cost of goods manufactured…………… | 1,826,400 |
| Cost of goods available for sale………………. | $2,048,600 |
| Deduct: Finished-goods inventory, Dec. 31… |  195,800 |
| Cost of goods sold………………………………. | $1,852,800 |

4. Net income:

|  |  |  |
| --- | --- | --- |
| Sales revenue…………………………………….. |  | $2,990,000 |
| Less: Cost of goods sold………………………. |  | 1,852,800 |
| Gross margin……………………………………... |  | $1,137,200 |
| Selling and administrative expenses: |  |  |
| Salaries………………………………………... | $266,000 |  |
| Building depreciation ($160,000 x 25%)…... |  40,000 |  |
| Other…………………………………………… |  380,000 |  686,000 |
| Income before taxes…………………………….. |  | $ 451,200 |
| Income tax expense ($451,200 x 40%)……….. |  |  180,480 |
| Net income………………………………………... |  | $ 270,720 |

5. Surgical Products, Inc. sold 11,500 units during the year ($2,990,000 ÷ $260). Since 160 of the units came from finished-goods inventory (1,350 – 1,190), the company would have manufactured 11,340 units (11,500 – 160).