**Chapter 1**

**Managerial Accounting Concepts and Principles**

**QUESTIONS**

**1. The managerial accountant plays an important role in preparing the information necessary for effective planning and control decisions. One example is the budget, which is a quantitative expression of a company’s long-run and short-run plans. The budget is used to compare actual results to planned performance. With this type of information provided by the managerial accountant, management strives to continuously improve a business.**

**2.**

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|  | **Financial Accounting** | **Managerial Accounting** |
| **(a) Users and decision**  **makers** | | **Investors, creditors, and other users external to the organization** | **Managers, employees, and decision makers internal to the organization** | |
| **(b) Purpose of information** | | **Assist external users in making investment, credit, and other decisions** | **Assist managers in making planning and control decisions** | |
| **(c) Flexibility of practice** | | **Structured and often controlled by GAAP** | **Relatively flexible (no GAAP)** | |
| **(d) Time dimension** | | **Historical information with minimum predictions** | **Many projections and estimates; historical information also presented** | |
| **(e) Focus of information** | | **Emphasis on whole organization** | **Emphasis on projects, processes, and subdivision of an organization** | |
| **(f) Nature of information** | | **Monetary information** | **Mostly monetary; but also nonmonetary information** | |

1. **A customer orientation has led companies to adopt the principles of the lean business model in response to consumer demands. The essence of customer orientation is that all managers and employees should be sensitive to the wants and needs of customers, attempting to develop flexible product designs and production processes that are responsive to changes in customer demands along with minimization of defects. They are increasingly adopting management practices such as total quality management (TQM), just-in-time (JIT) manufacturing, and continuous improvement (CI).**
2. **Direct labor refers to the efforts of employees who physically convert materials to finished product. Indirect labor refers to the efforts of factory employees who do not work specifically on converting direct materials into finished products and whose efforts are not clearly associated (or traceable) with specific units or batches of product.**
3. **Factory overhead is limited to indirect costs that are incurred in the production process. That is, it consists of activities that support the production process, such as indirect material, indirect labor, heat, and related factory utilities. Selling and administrative overhead costs do not pertain to the production process. Instead, selling and administrative overhead are activities involved with selling the product and running the business. Accordingly, selling and administrative overhead costs are expensed as period costs.**
4. **Direct materials are raw materials that physically become part of the product and can be clearly traced to specific units or batches of product. Indirect materials are used in the production process but either do not become a part of the product or are not easily traceable to units or batches of product. Some materials are identified as indirect because they are of insignificant value or it is not cost beneficial to trace them to finished products.**

**7. Direct labor is both a prime cost and a conversion cost.**

**8. Direct costs of iPhones include: costs of materials such as smartphone cameras, memory chips, screens, and processors, as well as the labor of workers who assemble the products.**

**Indirect costs include: cost of supervisors’ salaries, factory lighting, factory heat, wages of maintenance workers, depreciation of factory equipment, insurance on the factory buildings, and property taxes on the factory buildings. *Note*: Other answers are possible as these lists are not comprehensive.**

**9. The production manager should likely not be evaluated on the basis of operating expenses. Operating expenses are not under the influence of production managers, and they should not be held accountable for them.**

**10. Management usually must be able to predict financial performance to be successful. Therefore, understanding how costs behave under different market conditions and production schedules enables them to better predict financial performance and to plan accordingly.**

1. **Product costs are capitalized because they represent a future value (an asset) to the business. Period costs are expensed because they are consumed in the current period.**
2. **A manufacturing business produces a product, whereas in a merchandising or service business this is not the case. In making a product, the manufacturing business must control and measure three types of inventories: raw materials, work in process, and finished goods. A merchandising business, on the other hand, must control and measure only merchandise inventory, and a service firm typically does not control and measure any inventory.**

**13. To run a successful business, management must make predictions and estimates about what will occur in the future. Thus, managerial accountants must project how the numbers will look under different possibilities.**

**14. A manufacturing firm converts raw materials into finished products. A manufacturing company would report three types of inventories on its balance sheet: raw materials, work in process, and finished goods. The finished goods are included on the income statement as part of cost of goods sold. A merchandising company purchases inventories to resell. A merchandising company would report only one inventory item (merchandise inventory) on its balance sheet, and would include the merchandise inventory on the income statement as part of cost of goods sold. (*Note*: The manufacturer would add cost of goods manufactured to the beginning finished goods to determine the goods available for sale. The merchandising firm adds purchases to its beginning merchandise inventory to determine the goods available for sale.)**

**15. Manufacturers’ balance sheets usually include small tools, factory buildings, factory machinery, and patents that are used to produce finished goods. For example, the “Plant Assets” category will often include factory machinery and factory building. A merchandising company would usually not own these assets.**

**16. Manufacturing firms have inventories at various states of completion. Manufacturing a product requires raw materials, which are converted to finished goods. Manufacturing companies maintain raw materials inventory so that they have materials available to produce goods. Any unfinished product is classified as work in process. Work in process inventory may be maintained to keep the factory running. Finished goods inventory is maintained to supply to customers when they place orders. (*Note*: A JIT system attempts to minimize all three types of inventory.)**

1. **Manufacturing activities of a company are described in the Schedule of Cost of Goods Manufactured. This schedule summarizes the types and amounts of costs incurred in a company’s manufacturing *process (or activities)*.**
2. **The three categories of manufacturing costs are: direct materials, direct labor, and factory overhead.**
3. **Examples of factory overhead costs include: indirect materials, indirect labor, depreciation of the factory equipment and plant, amortization of patents, the cost of small tools used, factory utilities, insurance on the factory and equipment, property taxes on plant and equipment, property taxes on materials and work in process inventories, and repairs and maintenance on the factory building and equipment. More generally, all costs associated with manufacturing a good that are not classified as direct material or direct labor are included in overhead.**

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| **20.** | **Components of Schedule of COGM** | **Apple Examples** |
| **Direct material** | **Processors, chips, covers** |
| **Direct labor** | **Wages of production employees** |
| **Factory overhead** | **Factory heat, factory lighting** |
| **Computation of cost of goods manufactured** | **Computation (see Exhibit 14.16)** |

|  |  |
| --- | --- |
| **21.** | **Google** |
|  | **Schedule of Cost of Goods Manufactured** |
|  | **For Year Ended December 31, 2017** |

**The date matches the period of the income statement. The “schedule of cost of goods manufactured” supports the income statement in computing cost of goods available for sale for the cost of goods sold section.**

**22. The income statement describes the revenues and expenses for the year. Included in the calculation of the cost of goods sold is a line item identified as the cost of goods manufactured. This amount is calculated and reported as the bottom line of the schedule of cost of goods manufactured. The schedule often includes a component line item showing only the *total* amount of factory overhead cost for the period. When this is done, a table of factory overhead costs explains the details underlying this single item on the schedule of cost of goods manufactured.**

**23. Raw materials inventory turnover and days’ sales in raw materials inventory can be used to assess raw materials inventory management. Raw materials inventory turnover is computed as raw materials used divided by average raw materials inventory, and it measures how often a company turns over (sells) its raw materials inventory during a period. Days’ sales in raw materials inventory is computed as ending raw materials inventory divided by raw materials used, all multiplied by 365. It measures how long (in days) it will take to use raw materials inventory in production.**

**24. The triple bottom line reports on an organization’s financial, social, and environmental performance.**

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| **25.** | **Inventory Components ($ millions)** | **3M Co. (December 31, 2014)** |
| **Finished goods** | **$1,723** |
| **Work in process** | **1,081** |
| **Raw materials and supplies** | **902** |
| **Total inventories** | **$3,706** |

**QUICK STUDIES**

**Quick Study 1-1 (5 minutes)**

|  |  |
| --- | --- |
| 1. **Its primary users are company managers.** | **Managerial** |
| 1. **Its information is often available only after an audit is complete.** | **Financial** |
| 1. **Its primary focus is on the organization as a whole.** | **Financial** |
| 1. **Its principles and practices are very flexible.** | **Managerial** |
| 1. **It focuses mainly on past results.** | **Financial** |

**Quick Study 1-2 (5 minutes)**

1. **At her normal usage, your sister’s total cost with Plan A is $80 (fixed). Under Plan B, her total cost is $500, computed as ($0.20 x 1,700) + ($0.10 x 1,600).**
2. **If her usage doubles, your sister’s total cost remains fixed at $80 under Plan A, but doubles to $1,000 under Plan B.**

**Quick Study 1-3 (5 minutes)**

**1. V 2. F 3. V 4. V 5. F 6. F**

**Quick Study 1-4 (5 minutes)**

**1. Indirect cost**

**2. Direct cost**

**3. Indirect cost**

**4. Indirect cost**

**5. Direct cost**

**Quick Study 1-5 (10 minutes)**

**1. Direct materials**

**2. Factory overhead**

**3. Direct labor**

**4. Factory overhead**

**5. Factory overhead**

**6. Direct materials**

**Quick Study 1-6 (10 minutes)**

**1. Product cost**

**2. Period cost**

**3. Product cost**

**4. Period cost**

**5. Product cost**

**6. Period cost**

**7. Period cost**

**8. Product cost**

**Quick Study 1-7 (5 minutes)**

**Ending work in process inventory is computed as:**

|  |  |
| --- | --- |
| **Direct materials used in production** | **$74,300** |
| **Direct labor used in production** | **55,000** |
| **Factory overhead used in production** | **95,700** |
| **Total manufacturing costs** | **225,000** |
| **Add work in process inventory, beginning of year** | **26,500** |
| **Total cost of work in process**  **Less cost of goods manufactured** | **251,500**  **221,800** |
| **Work in process inventory, end of year** | **$ 29,700** |

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**Quick Study 1-8 (5 minutes)**

**Total manufacturing cost is computed as:**

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| --- | --- |
| **Direct materials used in production** | **$53,750** |
| **Direct labor used in production** | **12,000** |
| **Factory overhead used in production\*** | **12,750** |
| **Total manufacturing costs** | **$78,500** |

**\*$8,000 + $3,500 + $1,250**

**Quick Study 1-9 (10 minutes)**

**Cost of goods sold is computed as:**

|  |  |
| --- | --- |
| **Beginning finished goods inventory** | **$ 500** |
| **Cost of goods manufactured** | **4,000** |
| **Goods available for sale** | **4,500** |
| **Ending finished goods inventory** | **750** |
| **Cost of goods sold** | **$3,750** |

**Quick Study 1-10 (10 minutes)**

|  |  |
| --- | --- |
| **Finished goods inventory, December 31, 2016** | **$ 345,000** |
| **Plus cost of goods manufactured** | **918,700** |
| **Cost of goods available for sale** | **1,263,700** |
| **Less finished goods inventory, December 31, 2017…………** | **283,600** |
| **Cost of goods sold** | **$ 980,100** |
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**Quick Study 1-11 (15 minutes)**

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| --- | --- |
| **Barton Company** | |
| **Schedule of Cost of Goods Manufactured** | |
| **For Year Ended December 31, 2017** | |
| **Direct materials** | **$190,500** |
| **Direct labor** | **63,150** |
| **Factory overhead costs** | **24,000** |
| **Total manufacturing costs** | **277,650** |
| **Add work in process, December 31, 2016** | **157,600** |
| **Total cost of work in process** | **435,250** |
| **Less work in process, December 31, 2017** | **142,750** |
| **Cost of goods manufactured** | **$292,500** |

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**Quick Study 1-12 (5 minutes)**

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| **Raw materials inventory, beginning** | **$ 6,000** |
| **Plus raw materials purchased** | **123,500** |
| **Raw materials available for use** | **129,500** |
| **Less raw materials inventory, ending** | **7,500** |
| **Raw materials used** | **$122,000** |

**Quick Study 1-13 (10 minutes)**

**1. E**

**2. C**

**3. B**

**4. A**

**5. D**

**Quick Study 1-14 (5 minutes)**

**(Amounts in $ millions)**

|  |  |
| --- | --- |
| **Raw materials inventory, beginning** | **902** |
| **Plus raw materials purchased** | **3,646** |
| **Raw materials available for use** | **4,548** |
| **Less raw materials inventory, ending** | **856** |
| **Raw materials used** | **3,692** |

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**Quick Study 1-15 (10 minutes)**

**(in $ millions)**

|  |  |  |
| --- | --- | --- |
| **Cost of raw materials used** | **$3,692** |  |
| **Beginning raw materials inventory** | **902** |  |
| **Ending raw materials inventory** | **856** |  |
| **Total beginning plus ending raw materials inventory** | **1,758** |  |
| **Average raw materials inventory (Total / 2)** | **879** |  |
|  |  |  |
| **Inventory turnover (RM used / Average inventory)** | **4.2** |  |
| **Days’ sales in inventory [(Ending inv./RM used\*) x 365]** | **85\*** |  |

**\*Rounded**

**Quick Study 1-16 (5 minutes)**

**(Amounts in millions of Swiss francs)**

|  |  |
| --- | --- |
| **Raw materials inventory, beginning** | **3,815** |
| **Plus raw materials purchased** | **13,860** |
| **Raw materials available for use** | **17,675** |
| **Less raw materials inventory, ending** | **3,499** |
| **Raw materials used** | **14,176** |

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**Quick Study 1-17 (10 minutes)**

**(in millions of Swiss francs)**

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| --- | --- | --- |
| **Cost of raw materials used** | **14,176** |  |
| **Beginning raw materials inventory** | **3,815** |  |
| **Ending raw materials inventory** | **3,499** |  |
| **Total beginning plus ending raw materials inventory** | **7,314** |  |
| **Average raw materials inventory (Total / 2)** | **3,657** |  |
|  |  |  |
| **Inventory turnover (RM used / Average inventory)** | **3.88\*** |  |
| **Days’ sales in inventory [(Ending inv./RM used\*) x 365]** | **90\*** |  |

**\*Rounded**

**EXERCISES**

**Exercise 1-1 (10 minutes)**

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**Exercise 1-2 (20 minutes)**

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**Most fixed costs are indirect. Fixed costs normally are resources acquired to support the production process rather than being traceable to individual products or batches of product. However, not all indirect costs are fixed. Some, like indirect materials, are variable.**

**For example, as production increases, the total cost of the laces consumed in production increases. These laces might be classified as direct materials. But since their value is low compared to the total value of the soccer ball, it is not worth the effort to try and trace the amount that goes into each ball. This is why they are treated as indirect.**

**In addition, the direct costs—direct materials and direct labor—are variable. They are identified with specific items or batches of items, and the total cost of the raw materials and labor consumed increases as production increases.**

**Exercise 1-3 (10 minutes)**

**1. Fixed, indirect**

**2. Fixed, indirect**

**3. Variable, direct**

**4. Fixed, indirect**

**5. Fixed, indirect**

**6. Variable, direct**

**Exercise 1-4 (20 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cost** | **Variable** | **Fixed** | **Direct** | **Indirect** |
| **1. Advertising** |  | **X** |  | **X** |
| **2. Beverages and snacks** | **X** |  | **X** |  |
| **3. Regional VP salary** |  | **X** |  | **X** |
| **4. Depreciation on ground equip.** |  | **X** |  | **X** |
| **5. Fuel and oil used in planes** | **X** |  | **X** |  |
| **6. Flight attendant wages** | **X** |  | **X** |  |
| **7. Pilot wages** | **X** |  | **X** |  |
| **8. Maintenance mgr. salary** |  | **X** |  | **X** |
| **9. Customer service salaries** |  | **X** |  | **X** |

**Exercise 1-5 (15 minutes)**

**1. Direct material**

**2. Factory overhead**

**3. Direct labor**

**4. General and administrative expense**

**5. Factory overhead**

**6. Factory overhead**

**7. Selling expense**

**8. Factory overhead**

**Exercise 1-6 (20 minutes)**

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**Exercise 1-7 (20 minutes)**

***Part 1***

**Company 1, Sunrise Foods, is a merchandising firm with only one inventory item, merchandise inventory. Company 2, Rayzer Skis Mfg., is a manufacturing company with three inventory categories (raw materials, work in process, and finished goods).**

**Exercise 1-7 (*concluded*)**

**Part *2***

|  |  |
| --- | --- |
| **Company 1**  **Sunrise Foods**  **Balance Sheet--Current Assets Section**  **December 31, 2017** | |
| **Cash** | **$ 7,000** |
| **Accounts receivable** | **62,000** |
| **Merchandise inventory** | **45,000** |
| **Prepaid expenses** | **1,500** |
| **Total current assets** | **$115,500** |

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| **Company 2**  **Rayzer Skis Mfg.**  **Balance Sheet--Current Assets Section**  **December 31, 2017** | |
| **Cash** | **$ 5,000** |
| **Accounts receivable** | **75,000** |
| **Raw materials inventory** | **42,000** |
| **Work in process inventory** | **30,000** |
| **Finished goods inventory** | **50,000** |
| **Prepaid expenses** | **900** |
| **Total current assets** | **$202,900** |

**Discussion: The current assets section of the balance sheet for these two companies differs because one is a merchandiser and one is a manufacturer. Sunrise Foods purchases items for resale, so it has only one type of inventory. Rayzer Mfg., on the other hand, must report its inventories at the various stages of completion: Raw materials are items not yet put into the process; work in process are items started but not complete; and finished goods are ready for sale.**

**Exercise 1-8 (30 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | | **Garcon Company** | | **Pepper**  **Company** |
| **1. Cost Of Goods Manufactured** | | | | |
| **Direct materials** | |  | |  |
| **Beginning raw materials inventory** | | **$ 7,250** | | **$ 9,000** |
| **Raw materials purchases** | | **33,000** | | **52,000** |
| **Raw materials available for use** | | **40,250** | | **61,000** |
| **Less ending raw materials inventory** | | **5,300** | | **7,200** |
| **Direct materials used** | | **34,950** | | **53,800** |
| **Direct labor** | | **19,000** | | **35,000** |
| **Factory overhead** | |  | |  |
| **Rental cost on factory equipment** | | **27,000** | | **22,750** |
| **Factory utilities** | | **9,000** | | **12,000** |
| **Factory supplies used** | | **8,200** | | **3,200** |
| **Indirect labor** | | **1,250** | | **7,660** |
| **Repairs—Factory equipment** | | **4,780** | | **1,500** |
| **Total factory overhead** | | **50,230** | | **47,110** |
| **Total manufacturing costs** | | **104,180** | | **135,910** |
| **Beginning work in process inventory** | | **14,500** | | **19,950** |
| **Total cost of work in process** | | **118,680** | | **155,860** |
| **Less ending work in process inventory** | | **22,000** | **16,000** |
| **Cost of goods manufactured** | | **$ 96,680** | | **$139,860** |
|  | | | | |
| **2. Cost Of Goods Sold** | | | | |
| **Beginning finished goods inventory** | | **$ 12,000** | | **$ 16,450** |
| **Cost of goods manufactured** | | **96,680** | | **139,860** |
| **Cost of goods available for sale** | | **108,680** | | **156,310** |
| **Less ending finished goods inventory** | | **17,650** | | **13,300** |
| **Cost of goods sold** | **$ 91,030** | | **$143,010** |

**E EExercise 1-9 (30 minutes)**

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| **GARCON COMPANY** | |
| **Income Statement** | |
| **For Year Ended December 31, 2017** | |
| **Sales** | **$195,030** |
| **Cost of goods sold (from Ex. 14-8)** | **91,030** |
| **Gross profit** | **104,000** |
| **Operating expenses**  **Selling expenses**  **General and administrative expenses** | **50,000**  **21,000** |
| **Income before tax** | **$ 33,000** |

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| **PEPPER COMPANY** | |
| **Income Statement** | |
| **For Year Ended December 31, 2017** | |
| **Sales** | **$290,010** |
| **Cost of goods sold (from Ex. 14-8)** | **143,010** |
| **Gross profit** | **147,000** |
| **Operating expenses**  **Selling expenses**  **General and administrative expenses** | **46,000**  **43,000** |
| **Income before tax** | **$ 58,000** |

**Exercise 1-9 (*continued*)**

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| **GARCON COMPANY** | | |
| **Partial Balance Sheet** | | |
| **As of December 31, 2017** | | |
| **Cash** |  | **$20,000** |
| **Accounts receivable, net** |  | **13,200** |
| **Inventories**  **Raw materials inventory** | **$ 5,300** |  |
| **Work in process inventory** | **22,000** |  |
| **Finished goods inventory** | **17,650** | **44,950** |
| **Total current assets** |  | **$78,150** |

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| **PEPPER COMPANY** | | |
| **Partial Balance Sheet** | | |
| **As of December 31, 2017** | | |
| **Cash** |  | **$15,700** |
| **Accounts receivable, net** |  | **19,450** |
| **Inventories**  **Raw materials inventory** | **$ 7,200** |  |
| **Work in process inventory** | **16,000** |  |
| **Finished goods inventory** | **13,300** | **36,500** |
| **Total current assets** |  | **$71,650** |

**Exercise 1-10 (20 minutes)**

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|  | **Garcon Company** | **Pepper**  **Company** |
| **1. Prime Costs** | | |
| **Direct materials** |  |  |
| **Beginning raw materials inventory** | **$ 7,250** | **$ 9,000** |
| **Raw materials purchases** | **33,000** | **52,000** |
| **Raw materials available for use** | **40,250** | **61,000** |
| **Less ending raw materials inventory** | **5,300** | **7,200** |
| **Direct materials used** | **34,950** | **53,800** |
| **Direct labor** | **19,000** | **35,000** |
| **Total prime costs**  **2. Conversion Costs**  **Direct labor**  **Factory overhead** | **$53,950**  **$19,000** | **$88,800**  **$35,000** |
| **Rental cost on factory equipment** | **27,000** | **22,750** |
| **Factory utilities** | **9,000** | **12,000** |
| **Factory supplies used** | **8,200** | **3,200** |
| **Indirect labor** | **1,250** | **7,660** |
| **Repairs—Factory equipment** | **4,780** | **1,500** |
| **Total factory overhead** | **50,230** | **47,110** |
| **Total conversion costs** | **$69,230** | **$82,110** |

**Exercise 1-11 (20 minutes)**

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| **Merchandising Business** | |
| **UNIMART** | |
| **Partial Income Statement** | |
| **For Year Ended December 31, 2017** | |
| **Cost of goods sold** |  |
| **Merchandise inventory, December 31, 2016** | **$275,000** |
| **Merchandise purchases** | **500,000** |
| **Goods available for sale** | **775,000** |
| **Less merchandise inventory, December 31, 2017** | **115,000** |
| **Cost of goods sold** | **$660,000** |

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**Exercise 1-11 (*concluded*)**

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| **Manufacturing Business** | |
| **PRECISION MANUFACTURING** | |
| **Partial Income Statement** | |
| **For Year Ended December 31, 2017** | |
| **Cost of goods sold** |  |
| **Finished goods inventory, December 31, 2016** | **$ 450,000** |
| **Cost of goods manufactured** | **900,000** |
| **Goods available for sale** | **1,350,000** |
| **Less finished goods inventory, December 31, 2017** | **375,000** |
| **Cost of goods sold** | **$ 975,000** |

**Exercise 1-12 (25 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Account** | **Balance Sheet** | **Income Statement** | **Schedule of COGM** | **Overhead**  **Report** |
| **Accounts receivable** | **✓** |  |  |  |
| **Computer supplies used in office** |  | **✓** |  |  |
| **Beginning finished goods inventory** |  | **✓** |  |  |
| **Beginning work in process inventory** |  |  | **✓** |  |
| **Cash** | **✓** |  |  |  |
| **Depreciation expense—Factory building** |  |  |  | **✓** |
| **Depreciation expense—Office building** |  | **✓** |  |  |
| **Direct labor** |  |  | **✓** |  |
| **Ending work in process inventory** | **✓** |  | **✓** |  |
| **Ending raw materials inventory** | **✓** |  | **✓** |  |
| **Factory maintenance wages** |  |  |  | **✓** |
| **Income taxes** |  | **✓** |  |  |
| **Insurance on factory building** |  |  |  | **✓** |
| **Property taxes on factory building** |  |  |  | **✓** |
| **Raw materials purchases** |  |  | **✓** |  |
| **Sales** |  | **✓** |  |  |

**Exercise 1-13 (25 minutes)**

|  |  |  |
| --- | --- | --- |
| **DELRAY MFG.** | | |
| **Schedule of Cost of Goods Manufactured** | | |
| **For Year Ended December 31, 2017** | | |
| **Direct materials** |  |  |
| **Raw materials inventory, December 31, 2016** | **$ 37,000** |  |
| **Raw materials purchases** | **175,600** |  |
| **Raw materials available for use** | **212,600** |  |
| **Less raw materials inventory, December 31, 2017** | **42,700** |  |
| **Direct materials used** |  | **$169,900** |
| **Direct labor** |  | **225,000** |
| **Factory overhead** |  |  |
| **Factory computer supplies used** | **17,840** |  |
| **Indirect labor** | **47,000** |  |
| **Repairs—Factory equipment** | **5,250** |  |
| **Rent cost of factory building** | **57,000** |  |
| **Total factory overhead costs** |  | **127,090** |
| **Total manufacturing costs** |  | **521,990** |
| **Work in process inventory, December 31, 2016** |  | **53,900** |
| **Total cost of work in process** |  | **575,890** |
| **Less work in process inventory, December 31, 2017** |  | **41,500** |
| **Cost of goods manufactured** |  | **$534,390** |

**Exercise 1-14 (20 minutes)**

|  |  |  |
| --- | --- | --- |
| **DELRAY MFG.** | | |
| **Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Sales** |  | **$1,250,000** |
| **Cost of goods sold** |  |  |
| **Finished goods inventory, December 31, 2016** | **$ 62,750** |  |
| **Cost of goods manufactured** | **534,390** |  |
| **Cost of goods available for sale** | **597,140** |  |
| **Less finished goods inventory, December 31, 2017** | **67,300** |  |
| **Cost of goods sold** |  | **529,840** |
| **Gross profit** |  | **720,160** |
| **Operating expenses** |  |  |
| **Advertising expense** | **94,000** |  |
| **General and administrative expenses** | **129,300** |  |
| **Total operating expenses** |  | **223,300** |
| **Operating income** |  | **$ 496,860** |

**Exercise 1-15 (25 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Beck Manufacturing** | | | | |
| **Schedule of Cost of Goods Manufactured** | | | | |
| **For Year Ended December 31, 2017** | | | | |
| **Direct materials** | | | | **$ 46,500** |
| **Direct labor** | | | | **27,500** |
| **Factory overhead costs** | | | | **55,000** |
| **Total manufacturing costs** | | | | **129,000** |
| **Add work in process, December 31, 2016** | | | | **14,000** |
| **Total cost of work in process** | | | | **143,000** |
| **Less work in process, December 31, 2017** | | | | **12,000** |
| **Cost of goods manufactured** | | | | **$131,000** |
|  | | | |  |
| **Beck Manufacturing** | | | | |
| **Partial Income Statement** | | | | |
| **For Year Ended December 31, 2017** | | | | |
| **Cost of goods sold** |  | | | |
| **Finished goods inventory, December 31, 2016** | | **$ 16,000** | | |
| **Cost of goods manufactured** | | **131,000** | | |
| **Goods available for sale** | | **147,000** | | |
| **Less finished goods inventory, December 31, 2017** | | **18,000** | | |
| **Cost of goods sold** | | **$129,000** | | |

**Exercise 1-16 (15 minutes)**

****

**Exercise 1-17 (10 minutes)**

**1. C 4. A**

**2. A 5. C**

**3. C 6. B**

**Exercise 1-18 (10 minutes)**

|  |  |
| --- | --- |
| **1. Sales revenue** | **Profit** |
| **2. Coffee purchases from ethical growers** | **People** |
| **3. Reduced water consumption** | **Planet** |
| **4. Reduced energy consumption** | **Planet** |
| **5. Operating income** | **Profit** |
| **6. Increased energy from renewable sources** | **Planet** |
| **7. New stores built with green techniques** | **Planet** |
| **8. Decreased amounts of packaging materials** | **Planet** |
| **9. Discontinued working with some factories** | **People** |

**Exercise 1-19 (10 minutes)**

|  |  |
| --- | --- |
| **1. Sales revenue** | **Profit** |
| **2. Women in management positions** | **People** |
| **3. Reduced water consumption** | **Planet** |
| **4. Invested in career programs** | **People** |
| **5. Operating cash flows** | **Profit** |
| **6. Awards for LGBT workforce** | **People** |
| **7. Recycling efforts** | **Planet** |
| **8. Reading programs for young students** | **People** |
| **9. Focus on long-term shareholder value** | **Profit** |

**PROBLEM SET A**

**Problem 1-1A (45 minutes)**

***Part 1* Cost classification and amounts**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Costs** | | **Variable** | | **Fixed** | | **Product** | | **Period** | |
| **1.** | **Plastic for casing—$17,000** | | **$17,000** | |  | | **$17,000** | |  | |
| **2.** | **Wages of assembly workers—$82,000** | | **82,000** | |  | | **82,000** | |  | |
| **3.** | **Property taxes on factory—$5,000** | |  | | **$ 5,000** | | **5,000** | |  | |
| **4.** | **Accounting staff salaries—$35,000** | |  | | **35,000** | |  | | **$35,000** | |
| **5.** | **Drum stands (1,000 stands purchased)—$26,000** | | **26,000** | |  | | **26,000** | |  | |
| **6.** | **Rent cost of equipment for sales staff—$10,000** | |  | | **10,000** | |  | | **10,000** | |
| **7.** | **Upper mgmt. salaries—$125,000** | |  | | **125,000** | |  | | **125,000** | |
| **8.** | **Annual flat fee paid for factory maintenance service—$10,000** | |  | | **10,000** | | **10,000** | |  | |
| **9.** | **Sales commissions—$15 per unit** | | **$15 x units sold** | |  | |  | | **$15 x units sold** | |
| **10.** | **Machinery depreciation, straight-line—$40,000** | |  | | **40,000** | | **40,000** | |  | |

***Part 2***

|  |  |  |  |
| --- | --- | --- | --- |
| **TrueBeat**  **Calculation of Manufacturing Cost per Drum Set**  **For Year Ended December 31, 2017** | | | |
| **Item** | **Total cost**  **(at 1,000 units)** | **Per unit cost**  **(Total / 1,000)** |  |
| **Variable production costs** |  |  |  |
| **Plastic for casing** | **$ 17,000** | **$ 17** |  |
| **Wages of assembly workers** | **82,000** | **82** |  |
| **Drum stands** | **26,000** | **26** |  |
| **Total variable production costs** | **125,000** | **125** |  |
| **Fixed production costs** |  |  |  |
| **Property taxes on factory** | **5,000** | **5** |  |
| **Annual fee for maintenance service** | **10,000** | **10** |  |
| **Machinery depreciation** | **40,000** | **40** |  |
| **Total fixed production costs** | **55,000** | **55** |  |
| **Total production cost** | **$180,000** | **$180** |  |

**Problem 1-1A *(continued)***

***Part 3***

**If 1,200 drum sets are produced, we would expect the cost of the plastic for the casings to increase to $20,400 (1,200 drum sets x $17/set), but the cost per unit will stay at $17 per drum set. Variable costs increase in total as the number of units produced increases, but the unit cost remains constant.**

***Part 4***

**If 1,200 drum sets are produced, we would expect the cost of the property taxes to remain at $5,000 in total because it is a fixed cost. However, the cost per unit will decrease to $4.17/drum set ($5,000 drum sets / 1,200 sets). Fixed costs in total do not change as production increases, but the unit cost will decrease as production increases.**

**Problem 1-2A (30 minutes)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Costs** | **Product Cost** | **Dir. Mtls.** | **Dir. Labor** | **Over-head** | **Period Cost** | **Selling** | **Gen. & Admin** |
| **Advertising expense** |  |  |  |  | **X** | **X** |  |
| **Depr. expense-Office equip.** |  |  |  |  | **X** |  | **X** |
| **Depr. expense-Selling equip.** |  |  |  |  | **X** | **X** |  |
| **Depr. expense-Factory equip.** | **X** |  |  | **X** |  |  |  |
| **Factory supervision** | **X** |  |  | **X** |  |  |  |
| **Factory supplies used** | **X** |  |  | **X** |  |  |  |
| **Factory utilities** | **X** |  |  | **X** |  |  |  |
| **Direct labor** | **X** |  | **X** |  |  |  |  |
| **Indirect labor** | **X** |  |  | **X** |  |  |  |
| **Misc. production costs** | **X** |  |  | **X** |  |  |  |
| **Office salaries expense** |  |  |  |  | **X** |  | **X** |
| **Raw materials purchases** | **X** | **X** |  |  |  |  |  |
| **Rent expense-Office space** |  |  |  |  | **X** |  | **X** |
| **Rent expense-Selling space** |  |  |  |  | **X** | **X** |  |
| **Rent expense-Factory bldg.** | **X** |  |  | **X** |  |  |  |
| **Maint. expense-Factory equip.** | **X** |  |  | **X** |  |  |  |
| **Sales salaries expense** |  |  |  |  | **X** | **X** |  |

**Problem 1-3A (75 minutes)**

***Part 1***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LEONE COMPANY** | | | | | | | |
| **Schedule of Cost of Goods Manufactured** | | | | | | | |
| **For Year Ended December 31, 2017** | | | | | | | |
| **Direct materials** | |  | |  | | | |
| **Raw materials inventory, December 31, 2016** | | **$ 166,850** | |  | |
| **Raw materials purchases** | | **925,000** | |  | |
| **Raw materials available for use** | | **1,091,850** | |  | |
| **Less raw materials inventory, December 31, 2017** | | **182,000** | |  | |
| **Direct materials used** | |  | | **$ 909,850** | |
| **Direct labor** | |  | | **675,480** | |
| **Factory overhead** | |  | |  | |
| **Depreciation expense—Factory equipment** | | **33,550** | |  | |
| **Factory supervision** | | **102,600** | |  | |
| **Factory supplies used** | | **7,350** | |  | |
| **Factory utilities** | | **33,000** | |  | |
| **Indirect labor** | | **56,875** | |  | |
| **Miscellaneous production costs** | | **8,425** | |  | |
| **Rent expense—Factory building** | | **76,800** | |  | |
| **Maintenance expense—Factory equipment** | | **35,400** | |  | |
| **Total factory overhead costs** | |  | | **354,000** | |
| **Total manufacturing costs** | |  | | **1,939,330** | |
| **Work in process inventory, December 31, 2016** | |  | | **15,700** | |
| **Total cost of work in process** | |  | | **1,955,030** | |
| **Less work in process inventory, December 31, 2017** | |  | | **19,380** | |
| **Cost of goods manufactured** | |  | | **$1,935,650** | |

**Problem 1-3A *(Continued)***

***Part 2***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **LEONE COMPANY** | | | | |
| **Income Statement** | | | | |
| **For Year Ended December 31, 2017** | | | | |
| **Sales** | |  | **$4,462,500** | |
| **Cost of goods sold** | |  |  | |
| **Finished goods inventory, December 31, 2016** | | **$ 167,350** |  | |
| **Cost of goods manufactured** | | **1,935,650** |  | |
| **Goods available for sale** | | **2,103,000** |  | |
| **Less finished goods inventory, December 31, 2017** | | **136,490** |  | |
| **Cost of goods sold** | |  | **1,966,510** | |
| **Gross profit from sales** | |  | **2,495,990** | |
| **Operating expenses** | |  |  | |
| **Selling expenses** | |  |  | |
| **Advertising expense** | | **28,750** |  | |
| **Depreciation expense—Selling equipment** | | **8,600** |  | |
| **Rent expense—Selling space** | | **26,100** |  | |
| **Sales salaries expense** | | **392,560** |  | |
| **Total selling expenses** | |  | **456,010** | |
| **General and administrative expenses** | |  |  | |
| **Depreciation expense—Office equipment** | | **7,250** |  | |
| **Office salaries expense** | | **63,000** |  | |
| **Rent expense—Office space** | | **22,000** |  | |
| **Total general and administrative expenses** | |  | **92,250** | |
| **Total operating expenses** | |  | **548,260** | |
| **Income before taxes…………………………………** | |  | **1,947,730** | |
| **Income taxes expense** | |  | **233,725** | |
| **Net income** |  | | **$1,714,005** |

**Problem 1-3A *(Continued)***

***Part 3***

|  |  |  |
| --- | --- | --- |
|  | **Raw Materials** | **Finished Goods** |
| **Cost of raw materials used** | **$909,850** |  |
| **Cost of goods sold** |  | **$1,966,510** |
|  |  |  |
| **Beginning inventory** | **$166,850** | **$ 167,350** |
| **Ending inventory** | **182,000** | **136,490** |
| **Total beginning plus ending inventory** | **$348,850** | **$ 303,840** |
| **Average inventory (Total / 2)** | **$174,425** | **$ 151,920** |
|  |  |  |
| **Inventory turnover (COGS\* / Average inventory)** | **5.2** | **12.9** |
| **Days’ sales in inventory [(Ending inv./COGS\*) x 365]** | **73.0** | **25.3** |

**\* To calculate the turnover and days’ sales in inventory for raw materials, use raw materials used rather than cost of goods sold.**

**Discussion: The inventory turnover ratio for the raw materials inventory is significantly lower than the turnover ratio for finished goods.**

**One reason for the difference could be that source of supply for raw materials is relatively undependable, so that management believes it is necessary to carry a larger inventory to sustain operations through periods when the supply might be interrupted. Another possible reason is that significant volume discounts can be obtained by making larger purchases of the raw materials. It is also possible that management has been carrying too much in the inventory of raw materials, and could reduce the level without harming the company’s ability to operate. On the other hand, the turnover ratio for finished goods might be higher because the market for the product is so active that items are sold very quickly after they are available. This implies that the demand for the product is very strong. It is also possible that the finished goods turnover ratio is too high and that the company is risking lost sales by not having enough product on hand.**

**Similar inferences are drawn from the days’ sales in inventory ratio results. In particular, the company is carrying 73.0 days’ supply of raw materials inventory. Note that the company carries fewer days’ supply (25.3 days) in its finished goods inventory.**

**Problem 1-4A (40 minutes)**

***Part 1***

**Units and dollar amounts of raw materials inventory in heels**

|  |  |  |
| --- | --- | --- |
|  |  |  |

**Note: 16,600 pairs of boots manufactured require 33,200 heels.**

***Part 2* Analysis Component**

**Topics of discussion for this memorandum include:**

1. **Description (general) of the JIT inventory system and how it operates.**
2. **Cutting the heel inventory in half would free up $12,000 of working capital (3,000 units x ½ x $8 cost).**
3. **The funds freed up could be used to reduce debt, train employees, or purchase new equipment.**
4. **The company would save on insurance, tracking, warehouse space, time, and material handling costs, if inventory is reduced.**
5. **Additional costs from a JIT system would arise from more frequent ordering, deliveries, and possibly handling.**

**Problem 1-5A (40 minutes)**

***Part 1***

|  |  |  |
| --- | --- | --- |
| **Merchandising Business** | | |
| **music world retail** | | |
| **Partial Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Cost of goods sold** |  | |
| **Merchandise inventory, December 31, 2016** | | **$ 200,000** |
| **Merchandise purchases** | | **300,000** |
| **Goods available for sale** | | **500,000** |
| **Less merchandise inventory, December 31, 2017** | | **175,000** |
| **Cost of goods sold** | | **$ 325,000** |

|  |  |  |
| --- | --- | --- |
| **Manufacturing Business** | | |
| **wave-board mfg.** | | |
| **Partial Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Cost of goods sold** |  | |
| **Finished goods inventory, December 31, 2016** | | **$ 500,000** |
| **Cost of goods manufactured** | | **875,000** |
| **Goods available for sale** | | **1,375,000** |
| **Less finished goods inventory, December 31, 2017** | | **225,000** |
| **Cost of goods sold** | | **$1,150,000** |

***Part 2***

|  |
| --- |
| **MEMORANDUM** |
| **TO:** |
| **FROM:** |
| **DATE:** |
| **SUBJECT:** |
|  |
| **The answers will vary but should include:** |
| 1. **The Merchandise Inventory account on December 31 for Music World and the Finished Goods Inventory account on December 31 for Wave-Board are computed and reported on the income statement as part of cost of goods sold.** |
| 1. **The inventory accounts must also be included in the current asset section of the balance sheet. Since Wave-Board is a manufacturer, it will also have raw materials and work in process inventory accounts.** |

**PROBLEM SET B**

**Problem 1-1B (45 minutes)**

***Part 1* Cost classification and amounts**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | **Cost by Behavior** | | | **Cost by Function** | | |
|  | **Costs** | | **Variable** | | **Fixed** | **Product** | **Period** | |
| **1.** | **Plastic for BDs—$1,500** | **$ 1,500** | |  | | **$ 1,500** | |  |
| **2.** | **Wages of assembly workers—$30,000** | **30,000** | |  | | **30,000** | |  |
| **3.** | **Cost of factory rent—$6,750** |  | | **$ 6,750** | | **6,750** | |  |
| **4.** | **Systems staff salary—$15,000** |  | | **15,000** | |  | | **$ 15,000** |
| **5.** | **Labeling ($0.25 per BD)** | **3,750** | |  | | **3,750** | |  |
| **6.** | **Cost of office equipment rent—$1,050** |  | | **1,050** | |  | | **1,050** |
| **7.** | **Upper management salaries—$120,000** |  | | **120,000** | |  | | **120,000** |
| **8.** | **Annual fees for cleaning service—$4,520** |  | | **4,520** | |  | | **4,520** |
| **9.** | **Sales commissions—$0.50 per BD** | **$0.50 x # BDs sold** | |  | |  | | **$0.50 x # BDs sold** |
| **10.** | **Machinery depreciation, straight-line—$18,000** |  | | **18,000** | | **18,000** | |  |

**Problem 1-1B *(continued)***

***Part 2***

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Maxwell**  **Calculation of Manufacturing Cost per BD**  **For Year Ended December 31, 2017** | | | | | | | | |
| **Item** | | **Total cost**  **(at 15,000 units)** | | **Per unit cost \*** | | |  | |
| **Variable production costs** | |  | |  |  | |
| **Plastic for BDs** | | **$ 1,500** | | **$ 0.10** | | |  | |
| **Wages of assembly workers** | | **30,000** | | **2.00** | | |  | |
| **Labeling** | | **3,750** | | **0.25** | | |  | |
| **Total variable production costs** | | **35,250** | | **2.35** | | |  | |
| **Fixed production costs** | |  | |  | | |  | |
| **Cost of factory rent** | | **6,750** | | **0.45** | | |  | |
| **Machinery depreciation** | | **18,000** | | **1.20** | | |  | |
| **Total fixed production costs** | | **24,750** | | **1.65** | | |  | |
| **Total production costs** | | **$60,000** | | **$4.00** | | |  | |

**\* Total cost / 15,000 BDs.**

***Part 3***

**If 10,000 BDs are produced, we would expect the cost of the plastic for the BDs to decrease to $1,000 (10,000 BDs x $0.10/BD), but the cost per unit will stay at $0.10 per BD. Variable costs decrease in total as the number of units produced decreases, but the unit cost remains constant.**

***Part 4***

**If 10,000 BDs are produced, we would expect the cost of the factory rent to remain at $6,750 in total because it is a fixed cost. However, the cost per unit will increase to $0.675 per BD ($6,750 / 10,000 BDs). Fixed costs do not change in total as production decreases, but the unit cost will increase as production decreases.**

**Problem 1-2B (30 minutes)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Costs** | **Product Cost** | **Dir. Mtls.** | **Dir. Labor** | **Over-head** | **Period Cost** | **Selling** | **Gen. & Admin** |
| **Advertising expense** |  |  |  |  | **X** | **X** |  |
| **Depr. expense-Office equip.** |  |  |  |  | **X** |  | **X** |
| **Depr. expense-Selling equip.** |  |  |  |  | **X** | **X** |  |
| **Depr. expense-Factory equip.** | **X** |  |  | **X** |  |  |  |
| **Factory supervision** | **X** |  |  | **X** |  |  |  |
| **Factory supplies used** | **X** |  |  | **X** |  |  |  |
| **Factory utilities** | **X** |  |  | **X** |  |  |  |
| **Direct labor** | **X** |  | **X** |  |  |  |  |
| **Indirect labor** | **X** |  |  | **X** |  |  |  |
| **Misc. production costs** | **X** |  |  | **X** |  |  |  |
| **Office salaries expense** |  |  |  |  | **X** |  | **X** |
| **Raw materials purchases** | **X** | **X** |  |  |  |  |  |
| **Rent expense-Office space** |  |  |  |  | **X** |  | **X** |
| **Rent expense-Selling space** |  |  |  |  | **X** | **X** |  |
| **Rent expense-Factory equip.** | **X** |  |  | **X** |  |  |  |
| **Maint. expense-Factory equip.** | **X** |  |  | **X** |  |  |  |
| **Sales salaries expense** |  |  |  |  | **X** | **X** |  |

**Problem 1-3B (75 minutes)**

***Part 1***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **BEST BIKES** | | | | | |
| **Schedule of Cost of Goods Manufactured** | | | | | |
| **For Year Ended December 31, 2017** | | | | | |
| **Direct materials** | |  |  | | |
| **Raw materials inventory, December 31, 2016** | | **$ 40,375** |  | | |
| **Raw materials purchases** | | **894,375** |  | | |
| **Raw materials available for use** | | **934,750** |  |
| **Less raw materials inventory, December 31, 2017** | | **70,430** |  |
| **Direct materials used** | |  | **$ 864,320** |
| **Direct labor** | |  | **562,500** |
| **Factory overhead** | |  |  |
| **Depreciation expense—Factory equipment** | | **35,400** |  |
| **Factory supervision** | | **121,500** |  |
| **Factory supplies used** | | **6,060** |  |
| **Factory utilities** | | **37,500** |  |
| **Indirect labor** | | **59,000** |  |
| **Miscellaneous production costs** | | **8,440** |  |
| **Rent expense—Factory building** | | **93,500** |  |
| **Maintenance expense—Factory equipment** | | **30,375** |  |
| **Total factory overhead costs** | |  | **391,775** |
| **Total manufacturing costs** | |  | **1,818,595** |
| **Work in process inventory, December 31, 2016** | |  | **12,500** |
| **Total cost of work in process** | |  | **1,831,095** |
| **Less work in process inventory, December 31, 2017** | |  | **14,100** |
| **Cost of goods manufactured** |  | **$1,816,995** | |

**Problem 1-3B *(Continued)***

***Part 2***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **BEST BIKES** | | | | |
| **Income Statement** | | | | |
| **For Year Ended December 31, 2017** | | | | |
| **Sales** | |  | **$4,942,625** | |
| **Cost of goods sold** | |  |  | |
| **Finished goods inventory, December 31, 2016** | | **$ 177,200** |  | |
| **Cost of goods manufactured** | | **1,816,995** |  | |
| **Goods available for sale** | | **1,994,195** |  | |
| **Less finished goods inventory, December 31, 2017** | | **141,750** |  | |
| **Cost of goods sold** | |  | **1,852,445** | |
| **Gross profit from sales** | |  | **3,090,180** | |
| **Operating expenses** | |  |  | |
| **Selling expenses** | |  |  | |
| **Advertising expense** | | **20,250** |  | |
| **Depreciation expense—Selling equipment** | | **10,125** |  | |
| **Rent expense—Selling space** | | **27,000** |  | |
| **Sales salaries expense** | | **295,300** |  | |
| **Total selling expenses** | |  | **352,675** | |
| **General and administrative expenses** | |  |  | |
| **Depreciation expense—Office equipment** | | **8,440** |  | |
| **Office salaries expense** | | **70,875** |  | |
| **Rent expense—Office space** | | **23,625** |  | |
| **Total general and administrative expenses** | |  | **102,940** | |
| **Total operating expenses** | |  | **455,615** | |
| **Income before taxes** | |  | **2,634,565** | |
| **Income taxes expense** | |  | **136,700** | |
| **Net income** |  | | **$2,497,865** |

**Problem 1-3B *(Concluded)***

***Part 3***

|  |  |  |
| --- | --- | --- |
|  | **Raw Materials** | **Finished Goods** |
| **Cost of raw materials used** | **$864,320** |  |
| **Cost of goods sold** |  | **$1,852,445** |
|  |  |  |
| **Beginning inventory** | **$ 40,375** | **$ 177,200** |
| **Ending inventory** | **70,430** | **141,750** |
| **Total beginning plus ending inventory** | **$110,805** | **$ 318,950** |
| **Average inventory (Total / 2)** | **$ 55,403** | **$ 159,475** |
|  |  |  |
| **Turnover ratios (COGS\* / Average inventory)** | **15.6** | **11.6** |
| **Days’ sales in inventory [(Ending inv./COGS\*) x 365]** | **29.7** | **27.9** |
|  |  |  |

**\* To calculate the turnover and days’ sales in inventory for raw materials, use raw materials used rather than cost of goods sold.**

**Discussion: The inventory turnover ratio for the raw materials inventory is higher than the turnover ratio for finished goods. One reason for the difference could be that source of supply for raw materials is relatively dependable, so that the management believes it is not necessary to carry a larger inventory to sustain operations through periods when the supply might be interrupted.**

**The company is carrying 29.7 days supply of raw materials inventory and 27.9 days of finished goods inventory. During the year, the company increased its inventory of raw materials by 74% but decreased its inventory of finished goods by 20%.**

**Problem 1-4B (40 minutes)**

***Part 1***

**Unit and dollar amounts of raw materials inventory in blades**

****

**Note: 20,750 pairs of skates require 41,500 blades.**

***Part 2***

**Topics of discussion for the memorandum include:**

1. **General description of the JIT inventory system and how it operates.**
2. **Cutting the blade inventory in half would free up $60,000 of working capital (6,000 units x ½ x $20).**
3. **The funds freed up could be used to reduce debt, train employees, or purchase new equipment.**
4. **The company would save on insurance, tracking, warehouse space, time, and material handling costs if inventory is reduced.**
5. **Additional costs from a JIT system would arise from more frequent ordering, deliveries, and possibly handling.**

**Problem 1-5B (40 minutes)**

***Part 1***

|  |  |  |
| --- | --- | --- |
| **Merchandising Business** | | |
| **TEEMART** | | |
| **Partial Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Cost of goods sold** |  | |
| **Merchandise inventory, December 31, 2016** | | **$100,000** |
| **Merchandise purchases** | | **250,000** |
| **Goods available for sale** | | **350,000** |
| **Less merchandise inventory, December 31, 2017** | | **150,000** |
| **Cost of goods sold** | | **$200,000** |

|  |  |  |
| --- | --- | --- |
| **Manufacturing Business** | | |
| **AIM LABS** | | |
| **Partial Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Cost of goods sold** |  | |
| **Finished goods inventory, December 31, 2016** | | **$300,000** |
| **Cost of goods manufactured** | | **586,000** |
| **Goods available for sale** | | **886,000** |
| **Less finished goods inventory, December 31, 2017** | | **200,000** |
| **Cost of goods sold** | | **$686,000** |

***Part 2***

|  |
| --- |
| MEMORANDUM |
| **TO:** |
| **FROM:** |
| **DATE:** |
| **SUBJECT:** |
|  |
| **The answers will vary slightly but should include:** |
| 1. **The Merchandise Inventory account on December 31 for TeeMart and the Finished Goods Inventory account on December 31 for Aim Labs are computed and reported on the income statement as part of cost of goods sold.** |
| 1. **The inventory accounts must also be included in the current asset section of the balance sheet. Since Aim Labs is a manufacturer, it will also have raw materials and work in process inventory accounts.** |

**Serial Problem — SP 1**

**Serial Problem, Business Solutions (50 minutes)**

**1.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Product Costs** | **Variable** | **Fixed** | **Direct** | **Indirect** |
| **1. Monthly flat fee to clean workshop** |  | **X** |  | **X** |
| **2. Laminate coverings for desktops** | **X** |  | **X** |  |
| **3. Taxes on assembly workshop** |  | **X** |  | **X** |
| **4. Glue to assemble workstation component parts** | **X** |  |  | **X** |
| **5. Wages of desk assembler** | **X** |  | **X** |  |
| **6. Electricity for workshop** | **X** |  |  | **X** |
| **7. Depreciation on tools** |  | **X** |  | **X** |

**2.**

|  |  |
| --- | --- |
| **Business Solutions** | |
| **Schedule of Cost of Goods Manufactured** | |
| **For Month Ended January 31, 2018** | |
| **Direct materials** | **$2,200** |
| **Direct labor** | **900** |
| **Factory overhead costs** | **490** |
| **Total manufacturing costs** | **3,590** |
| **Add work in process, December 31, 2017** | **0** |
| **Total cost of work in process** | **3,590** |
| **Less work in process, January 31, 2018** | **540** |
| **Cost of goods manufactured** | **$3,050** |

**3.**

|  |  |
| --- | --- |
| **Business Solutions** | |
| **Partial Income Statement** | |
| **For Month Ended January 31, 2018** | |
| **Cost of goods sold** |  |
| **Finished goods inventory, December 31, 2017** | **$ 0** |
| **Cost of goods manufactured** | **3,050** |
| **Goods available for sale** | **3,050** |
| **Less finished goods inventory, January 31, 2018** | **350** |
| **Cost of goods sold** | **$2,700** |

**Reporting in Action — BTN 1-1**

**1. From its 2015 10-K report, Apple reports warranty expense (“accruals for product warranty”) of $5,022 for 2015. (Amount in millions of U.S. dollars.)**

**2. For 2015 Apple reports warranty payments (“cost of warranty claims”) of $4,401 (in millions).**

**3. At the end of 2015 Apple reports an accrued warranty liability of $4,780 (in millions).**

**Comparative Analysis — BTN 1-2**

1. **The purpose of Apple’s audit committee is to:**
   1. **Assist the Board in oversight and monitoring of:**
      1. **the Corporation’s financial statements and other financial information provided to shareholders and others;**
      2. **compliance with legal, regulatory, and public disclosure requirements;**
      3. **the independent auditors, including their qualifications and independence;**
      4. **the system of internal controls, including Internal Audit;**
      5. **treasury and finance matters;**
      6. **enterprise risk management, privacy, and data security; and,**
      7. **the auditing, accounting, and financial reporting process.**
   2. **Prepare the report required under SEC rules to be included in the Corporation’s annual proxy statement.**
2. **The purpose of Google’s (Alphabet) audit committee is to:**
   1. **Oversee Alphabet’s accounting and financial reporting processes.**
   2. **Oversee Alphabet’s relationship with its independent auditors, including appointing or changing auditors and ensuring their independence.**
   3. **Provide oversight regarding significant financial matters, including tax planning, treasury policies, currency exposure, dividends and share issuance and repurchase.**
3. **Management accountants would be involved in:**

* **Ensuring compliance with regulations.**
* **Helping to maintain an adequate system of internal controls.**
* **Assisting in enterprise risk management and data security issues.**

**Management accountants might also be involved in other aspects of the financial reporting and disclosure process.**

**Ethics Challenge — BTN 1-3**

**1. Raw materials are part of inventory and should be capitalized (set up as assets). Their costs are subsequently reported as part of cost of goods sold when the finished goods that require these materials are sold. If the CD raw materials were expensed in the current period, the financial statements would not be in conformance with GAAP, nor with standard practices in managerial accounting.**

**2. The challenge is how to handle a request to use one’s accounting skills in an inappropriate manner. It is important to remember that the behavior of the managerial accountant is governed by rules of ethical behavior. This means that one’s response to the chief financial officer can rely on the rules of ethical behavior by the managerial accounting profession (these guidelines are available at www.IMAnet.org or www.aicpa.org). Moreover, it is better that the managerial accountant not make an argument of “me versus CFO.” That is, it is much more difficult for the chief financial officer to argue against a profession compared to an individual.**

**Communicating in Practice — BTN 1-4**

**Instructor note: The solution to this project depends on the database and career fields reviewed.**

**The objective of this Communicating in Practice project is to make students aware of the earnings potential of different professions—particularly, the often higher salaries of accounting professionals with several years of experience. It also directs them to the school’s career services and placement office or relevant information in the library or on the Web. Finally, it provides useful experience in effectively communicating financial information in memorandum format.**

**Taking It to the Net — BTN 1-5**

**1. Standards of Ethical Conduct for Management Accountants are posted at the Web site: http://www.IMAnet.org.**

**These standards (in abbreviated form) are:**

**Competence – maintain an appropriate level of professional competence.**

**Confidentiality – refrain from disclosing confidential information.**

**Integrity – professional behavior at all times; for example, avoid conflict of interest situations.**

**Objectivity – communicate information fairly and objectively.**

**2. The four overarching principles are: Honesty, Fairness, Objectivity, and Responsibility.**

**3. The IMA suggests first trying to resolve ethical conflicts by applying the policies of your organization. If this is unsuccessful, contact your immediate supervisor (unless he or she is involved in the ethical conflict). Continue presenting the issue to the next supervisory level until the conflict is resolved. Communicating information to authorities or others not employed or engaged by the organization is not appropriate unless there is a clear violation of the law. For additional help you might seek advice from an IMA Ethics Counselor, an impartial advisor, and/or your personal attorney.**

**Teamwork in Action — BTN 1-6**

***Part 1***

|  |  |  |  |
| --- | --- | --- | --- |
| **a. Materials used** | **= Beg. Materials** | **+ Materials purchased** | **- End. materials** |
|  | **= $177,500** | **+ $872,500** | **- $168,125** |
|  | **= $881,875** |  |  |

**b. Factory overhead**

**= Depreciation on factory equipment + factory supervision + factory supplies used + factory utilities + Indirect labor + Miscellaneous production costs + Rent on factory building + Maintenance on factory equipment**

**= $32,500 + $122,500 + $15,750 + $36,250 + $60,000 + $8,500 + $79,750 + $27,875**

**= $383,125**

**c. Total manufacturing costs**

**= Materials used (from a) + Direct labor + Factory overhead (from b)**

**= $881,875 + $650,750 + $383,125**

**= $1,915,750**

**d. Total cost of work in process**

**= Beg. WIP Inv. + Total manufacturing costs (from c)**

**= $15,875 + $1,915,750**

**= $1,931,625**

**e. Cost of goods manufactured**

**= Total cost of work in process (from d) - Ending WIP Inventory**

**= $1,931,625 - $14,000**

**= $1,917,625**

***Part 2***

**Requires that the team check answer to part (1e) with instructor before proceeding to part (3).**

**Teamwork in Action *(Continued)***

***Part 3***

**a. Net sales**

**= Sales - Sales discounts**

**= $3,275,000 - $57,500**

**= $3,217,500**

**b. Cost of goods sold**

**= Beg. finished goods + Cost of goods manuf. (from 1e) - End. finished goods**

**= $164,375 + $1,917,625 - $129,000**

**= $1,953,000**

**c. Gross profit**

**= Net sales (from a) - Cost of goods sold (from b)**

**= $3,217,500 - $1,953,000**

**= $1,264,500**

**d. Total operating expenses**

**= Advertising expense + Depreciation expense on office equipment + Depreciation expense on selling equipment + Office salaries expense + Rent expense on office space + Rent expense on selling space + Sales salaries expense**

**= $19,125 + $8,750 + $10,000 + $100,875 + $21,125 + $25,750 + $286,250**

**= $471,875**

**e. Net income before taxes**

**= Gross profit (from c) - Total operating expenses (from d)**

**= $1,264,500 - $471,875**

**= $792,625**

**Entrepreneurial Decision — BTN 1-7**

**1. Manufacturing costs for NatureBox include (a) direct materials such as nuts, dried fruits, cheese, pretzels, oatmeal (b) direct labor to mix snacks and pack in bags, and (c) factory overhead such as building insurance, depreciation on machines to sort and pack snack bags, and utilities.**

**Gautam Gupta and Ken Chen must monitor each of these manufacturing cost components and control them for the company to be most efficient and profitable.**

**2. Four goals of a total quality management (TQM) process include reduced waste, better inventory control, fewer defects, and continuous improvement. NatureBox can use TQM to ensure its key raw materials are of the highest quality. The company can also provide workers with clear training and supervision. These efforts will reduce waste throughout the production process and yield a higher quantity of finished goods that meet customer’s standards.**

**Hitting the Road — BTN 1-8**

**Instructor note: Student responses will vary depending on the restaurant chosen.**

**The general framework of a good response includes:**

1. **The usual activities are**

* **serving customer at counter**
* **serving customer at drive-up**
* **preparing food**
* **taking orders**
* **clean-up**
* **miscellaneous “others”**

1. **Costs associated with each activity include**

* **Direct and indirect materials – such as meat, bread, pickles, and other direct and indirect material costs.**
* **Direct and indirect labor**
* **Overhead—such as rent, heat, and electricity**

**The student should observe that most available cost information is classified by function such as rent, wages, and cleaning supplies. This makes it difficult to understand the cost behavior of each process. We will see in a later chapter how activity-based costing can help measure the costs of each process.**

1. **Answers will vary because classification of fixed or variable depends on the costs identified in part 2.**

**Global Decision — BTN 1-9**

**1. From its 2015 annual report, Samsung reports a warranty expense (“credited to the statement of income’’) of ₩1,805,253 and warranty payments of ₩1,918,849. (Amounts in millions of Korean won.)**

**2. From its 2015 10-K report, Apple reports warranty expense (“accruals for product warranty”) of $5,022 and warranty payments (“cost of warranty claims”) of $4,401. (Amounts in millions of U.S. dollars.)**

**3. Based on this one year of data, Samsung was more accurate in estimating warranty expense. Samsung’s warranty expense for the year was very close to its warranty claims paid during the year. Apple’s warranty expense for the year was much higher than its warranty claims during the year. This might be because Apple’s management expects higher warranty claims in future years.**