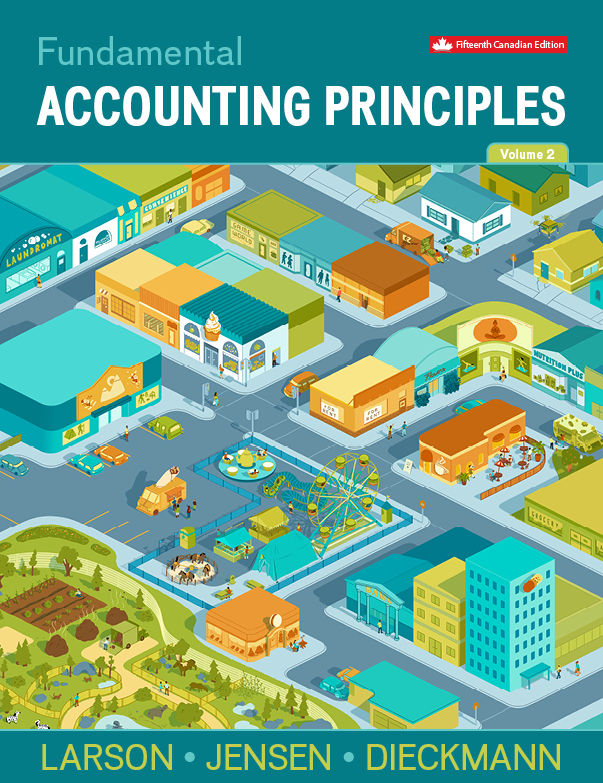
**SOLUTIONS MANUAL**

to accompany

***Fundamental Accounting Principles,* Volume 2**

**15thCanadian Edition**

**by Larson/Jensen/Dieckmann**

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**Chapter 9 Property, Plant and Equipment and Intangibles**

**Chapter Opening Critical Thinking Challenge Questions\***

You are asked by the CFO of YVR to evaluate the newest capital asset, the Airside Operations Building at YVR, and to break it into major components for depreciation purposes. Identify at least five major components and determine an expected life for each of those components.

Components of the Airside Operations Building could include:

1. Building exterior walls 40 years
2. Roofing 25 years
3. Pavement 15 years
4. Landscaping 10 years
5. Electrical Components 15 years
6. Flooring 15 years
7. Plumbing 15 years
8. Furniture and Fixtures 15 years
9. Fire Equipment 20 years
10. Snow Removal Equipment 20 years

**\*The Chapter 9 Critical Thinking Challenge questions are asked at the beginning of this chapter. Students are reminded at the conclusion of the chapter to refer to the Critical Thinking Challenge questions at the beginning of the chapter. The solutions to the Critical Thinking Challenge questions are available here in the Solutions Manual and accessible to students at Connect. Concept Review Questions**

**1. A property, plant and equipment asset is long-lived in that it has a service life of longer than one accounting period; it is used in the production or sale of products or services. It is different from other assets such as receivables or inventory in that the property, plant and equipment is used within the operations of business to generate profit, whereas inventory is purchased or manufactured for resale. Receivables represent the amounts due from customers based on past transactions.**

**2. Land held for future expansion is classified as a long-term investment. It is not a property, plant and equipment asset because it is not being used in the production or sale of other assets or services.**

**3. The cost of a property, plant and equipment asset includes all normal, reasonable, and necessary costs of getting the asset in place and ready to use. For example, cost includes such items as the invoice price paid, freight costs, non refundable sales taxes (PST, HST) and all costs incurred related to installing and testing an asset before it is put into use.**

**4. Land is an asset with an unlimited life and, therefore, is not subject to depreciation. Land improvements refer to items such as fencing, parking lots surfaces, landscape lighting and have limited lives and are depreciated over their useful lives.**

**5. No. The Accumulated Depreciation, Machinery account is a contra asset account with a credit balance that does not represent cash or any other funds. Funds available for buying machinery would be shown on the balance sheet as liquid assets with debit balances, such as the account Cash and Cash Equivalents. The balance of the Accumulated Depreciation, Machinery account shows the portion of the machinery's original cost that has been charged to depreciation expense, and gives some indication of how soon the asset will need to be replaced.**

**6. Revenue expenditures, such as repairs, are made to keep a plant and equipment asset in normal, good operating condition, and should be charged to expense of the current period. Capital expenditures are made to extend the service potential or the life of a plant and equipment asset beyond the original estimated life and are charged to the plant and equipment asset account. After incurring a capital expenditure, a depreciation policy also needs to be established. 7. Because the $75 cost of the plant and equipment asset is not likely to be material to the users of the financial statements, the materiality principle justifies charging it to expense.**

**8. Danier Leather did not report any gains or losses on disposal of assets for its year ended June 28, 2014. However, the corporation did have an Impairment loss on property and equipment of $663,000.**

**9. A company might sell or exchange an asset when it reaches the end of its useful life, or if it becomes inadequate or obsolete, or because the company has changed its business plans. An asset may also be damaged or destroyed by fire or some other accident.**

**10. An intangible asset has no physical existence. Its value comes from the unique legal and contractual rights held by its owner.**

**11. Types of intangible assets are patents, copyrights, leaseholds, drilling rights, and trademarks.**

**12. WestJet reported $60,623,000 as Intangible assets at December 31, 2014.**

**13. A business can only record goodwill when the price paid for a company being purchased exceeds the fair market value of this company’s net assets (assets minus liabilities) if purchased separately.**

**14. Westjet did not report any Goodwill at December 31, 2014.**

**15. When an asset is constructed, such as the development of a new runway, all costs for construction-related materials and labour costs can be capitalized. Also any electricity and utilities consumed relating to the project, plus a reasonable amount for depreciation on any equipment used during construction. Other permitted costs include design fees, building materials and any interest charges on debt outstanding during the period of construction incurred to finance the project.**

Quick Study

**Quick Study 9-1 (5 minutes)**

**$18,000 + $180,000 + $3,000 + $600 = $201,600**

**Quick Study 9-2 (10 minutes)**

1. (a) R

**(b) C**

**(c) R**

**(d) C**

2.

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** |  |  |  |
| Mar. 15 | **Repairs Expense** | **120** |  |
|  | **Accounts Payable** |  | **120** |
|  | ***To record repairs.*** |  |  |
| **(b)** |  |  |  |
| **Mar. 15** | **Refrigeration Equipment** | **40,000** |  |
|  | **Accounts Payable** |  | **40,000** |
|  | ***To record capital expenditure.*** |  |  |
| **(c)** |  |  |  |
| **Mar. 15** | **Repairs Expense** | **200** |  |
|  | **Accounts Payable** |  | **200** |
|  | ***To record repairs.*** |  |  |
| **(d)** |  |  |  |
| **Mar. 15** | **Office Building** | **175,000** |  |
|  | **Accounts Payable** |  | **175,000** |
|  | ***To record capital expenditure.*** |  |  |

**Quick Study 9-3 (10 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***(a)*** | ***(b)*** | ***(c)*** |
| **PPE Item** | **Appraised Values** | **Ratio of Individual Appraised Value to Total Appraised Value**   1. ÷ ***Total Appraised Value*** | **Cost Allocation**  ***(b) x Total Actual Cost*** |
| Land | **$ 320,000** | **320,000 ÷ 500,000 = .64 or 64%** | **$ 345,6001** |
| **Building** | **180,000** | **180,000 ÷ 500,000 = .36 or 36%** | **194,4002** |
| **Totals** | **$ 500,000** |  | **$ 540,000** |
|  |  |  |  |

1. ***64% x 540,000 = 345,600***
2. ***36% x 540,000 = 194,400***

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Apr. 14** | **Land** | **345,600** |  |
|  | **Building** | **194,400** |  |
|  | **Cash** |  | **85,000** |
|  | **Notes Payable** |  | **455,000** |
|  | ***To record purchase of land and***  ***building.*** |  |  |

**Quick Study 9-4 (10 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TechCom**  **Partial Balance Sheet**  **October 31, 2017** | | | | |
| Assets | | | | | |
| **Current assets:** | | | | |
|  | **Cash** |  | **$ 9,000** |  |
|  | **Accounts receivable** | **$16,400** |  |  |
|  | **Less: Allowance for doubtful accounts** | **800** | **15,600** |  |
|  | **Total current assets** |  |  | **$ 24,600** |
| **Property, plant and equipment:** | | | | |
|  | **Land** |  | **$48,000** |  |
|  | **Vehicles** | **$62,000** |  |  |
|  | **Less: Accumulated depreciation** | **13,800** | **48,200** |  |
|  | **Equipment** | **$25,000** |  |  |
|  | **Less: Accumulated depreciation** | **3,800** | **21,200** |  |
|  | **Total property, plant and equipment** |  |  | **117,400** |
| **Intangible assets:** | |  |  |  |
|  | Patent | **$20,100** |  |  |
|  | Less: Accumulated amortization, patent | **3,100** |  | **17,000** |
| Total assets | |  |  | **$159,000** |

Quick Study 9-5 (10 minutes)

($55,900 – $1,900)/4 = $13,500/year

Quick Study 9-6 (10 minutes)

Rate per copy = ($45,000 – $5,000)/4,000,000 copies = $0.01/copy

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Calculation | | Annual Depreciation | |
| 2017 | $.01 × 650,000 | = | $6,500 |
| 2018 | $.01 × 798,000 | = | 7,980 |
| 2019 | $.01 × 424,000 | = | 4,240 |
| 2020 | $.01 × 935,000 | = | 9,350 |
| 2021 | $.01 × 1,193,000 | = | 11,930 |
|  |  | | $40,000 |

Quick Study 9-7 (10 minutes)

Annual rate of depreciation = 2/5 = .40 or 40% per year

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | | | Calculation | | Annual Depreciation | | |  | |
| 2017 | | | 40% × $86,000 = | | $34,400 | |  | | |
| 2018 | | | 40% × ($86,000 – $34,400) = | | 20,640 | |  | | |
| 2019 | | | 40% × ($86,000 – $34,400 – $20,640) = | | 12,384 | |  | | |
| 2020 | | | 40% × ($86,000 – $34,400 – $20,640 – $12,384) = | | 2,576 | | \* | | |
| 2021 | |  | | 0 | |  | | |
|  | |  | | $70,000 | |  | | |

\* The calculation shows $7,430 of depreciation but that amount would cause accumulated depreciation to exceed the maximum allowed of cost less residual ($86,000 – $16,000 = $70,000). Therefore, the depreciation for 2020 must be adjusted to $2,576.

Quick Study 9-8 (10 minutes)

Computer panel:

$4,000/8 years = $500 depreciation

Dry-cleaning drum:

$70,000 - $5,000 = $65,000/400,000 garments = $0.1625/garment;

$0.1625/garment × 62,000 garments = $10,075 depreciation

Stainless steel housing:

$85,000 - $10,000 = $75,000/20 years = $3,750 depreciation

Miscellaneous parts:

$26,000/2 years = $13,000 depreciation

Total depreciation on the dry cleaning equipment for 2017= $500 + $10,075 + $3,750 + $13,000 = $27,325

Quick Study 9-9 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2017 | 2018 |
| a. | $5,000 | $6,000 |
| b. | $3,000 | $6,000 |

*Calculations:*

a. 60,000 - 0 = 6,000/year x 10/12 = 5,000

10 years

b. 6,000/year x 6/12 = 3,000

Quick Study 9-10 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2017 | 2018 |
| a. | $10,000 | $10,000 |
| b. | $6,000 | $10,800 |

*Calculations:*

a. 2/10 = .2 or 20%; 20% x 60,000 = 12,000 x 10/12 = 10,000 for 2017

20% x (60,000 – 10,000) = 10,000 for 2018

b. 20% x 60,000 = 12,000 x 6/12 = 6,000 for 2017

20% x (60,000 – 6,000) = 10,800 for 2018

Quick Study 9-11 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2017 | 2018 |
| a. | 10,000 | 14,000 |
| b. | 10,000 | 14,000 |

*Calculations:*

75,000 – 15,000 = 60,000/120,000 = $0.50 depreciation expense per unit produced

$0.50 x 20,000 = $10,000 for 2017; $0.50 x 28,000 = $14,000 for 2018

*NOTE: The units-of-production method is a usage-based method as opposed to a time-based method (such as straight-line and double-declining-balance) and therefore partial periods do not affect the calculations.*

Quick Study 9-12 (10 minutes)

[($35,720 – $11,8201) – $1,570]/ 72 years remaining = $3,190

1. ($35,720 – $4,200)/8 = $3,940/year × 3 years = $11,820

2.10 – 3 = 7

Quick Study 9-13 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Jan. 3 | Barbecue – Rotisserie…………………………………… | 1,000 |  |
|  | Cash………………………………………………….. |  | 1,000 |
|  | *To record the purchase of electronic rotisserie.* | |  |
|  |  |  |  |
| Dec. 31 | Depreciation Expense, Barbecue……………………… | 1,560 |  |
|  | Accumulated Depreciation, Barbecue………… |  | 1,560 |
|  | *To record revised depreciation on the barbecue caused by the addition*  *of a rotisserie; $7,000 - $200 = $6,800 ÷ 5 years = $1,360 PLUS*  *$1,000 ÷5 years = $200; Total depreciation = $1,360 + $200 = $1,560.* | | |

Quick Study 9-14 (10 minutes)

Impairment losses occurred on the computer and the furniture in the amounts of $1,500 and $21,000, respectively.

*Calculations:*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Asset | Cost | Accumulated Depreciation | Book Value | Recoverable Amount | Impairment Loss |
| Building | $1,200,000 | $465,000 | $735,000 | $735,000 | N/A |
| Computer | 3,500 | 1,800 | 1,700 | 200 | $ 1,500 |
| Furniture | 79,000 | 53,000 | 26,000 | 5,000 | 21,000 |
| Land | 630,000 | 0 | 630,000 | 790,000 | N/A |
| Machine | 284,000 | 117,000 | 167,000 | 172,000 | N/A |

Quick Study 9-15 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  |  |  |
| 2017 |  |  |  |
| Oct. 1 | Accumulated Depreciation, Equipment | 39,000 |  |
|  | Cash | 17,000 |  |
|  | Equipment |  | 56,000 |
|  | *To record sale of equipment.* |  |  |
| b. |  |  |  |
| Oct. 1 | Accumulated Depreciation, Machinery | 96,000 |  |
|  | Cash | 27,000 |  |
|  | Machinery |  | 109,000 |
|  | Gain on Disposal |  | 14,000 |
|  | *To record sale of equipment.* |  |  |
| c. |  |  |  |
| Oct. 1 | Accumulated Depreciation, Truck | 33,000 |  |
|  | Cash | 11,000 |  |
|  | Loss on disposal | 4,000 |  |
|  | Delivery truck |  | 48,000 |
|  | *To record sale of equipment.* |  |  |
| d. |  |  |  |
| Oct. 1 | Accumulated Depreciation, Furniture | 21,000 |  |
|  | Loss on disposal | 5,000 |  |
|  | Furniture |  | 26,000 |
|  | *To record disposal of equipment.* |  |  |

Quick Study 9-16 (10 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2017 |  |  |  | |
| Dec 31 | Accumulated Depreciation, Automobile | 13,500 |  | |
|  | Computer\* | 5,800 |  | |
|  | Automobile |  | 15,000 |
|  | Cash |  | 2,750 |
|  | Gain on Disposal |  | 1,550 |
|  | *To record exchange.* |  |  | |

\*Computer = FV of assets received= $5,800 as given

Quick Study 9-17 (15 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2017 |  |  |  | |
| Mar. 1 | Accumulated Depreciation, Machine (old) | 36,000 |  |
|  | Machine (new)2 | 117,000 |  |
|  | Cash1 |  | 63,000 |
|  | Machine (old) |  | 90,000 |
|  | *To record exchange of machines.* |  |  | |

*1. Cash paid = $123,000 - $60,000 = $63,000*

*2. Machine (new) = $63,000 cash paid + $54,000 book value of old = $117,000*

Quick Study 9-18 (10 minutes)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2017 |  |  | |  | |
| Jan. 4 | Franchise | 95,000 | |  | |
|  | Cash |  | | 95,000 | |
|  | *To record purchase of franchise.* |  | |  | |
|  |  |  | |  | |
| Dec. 31 | Amortization Expense, Franchise | 9,500 | |  | |
|  | Accumulated Amortization, Franchise |  | | 9,500 | |
|  | *To record amortization of franchise;*  *$95,000/10 years = $9,500 per year* | |  | |  | |

Quick Study 9-19 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Oct. 1 | Mineral Rights | 35,000,000 |  |
|  | Water Rights | 4,000,000 |  |
|  | Cash |  | 9,000,000 |
|  | Long-Term Note Payable |  | 30,000,000 |
|  | *To record the purchase of intangibles.* |  |  |
|  |  |  |  |
| Dec. 31 | Amortization Expense, Mineral Rights | 875,000 |  |
|  | Accumulated Amortization, Mineral Rights |  | 875,000 |
|  | *To record amortization of mineral rights;*  *$35,000,000 ÷ 10 years = $3,500,000/year;*  *$3,500,000/year × 3/12 = $875,000.* |  |  |
|  |  |  |  |
| 31 | Amortization Expense, Water Rights | 100,000 |  |
|  | Accumulated Amortization, Water Rights |  | 100,000 |
|  | *To record amortization of water rights;*  *$4,000,000 ÷ 10 years = $400,000/year;*  *$400,000/year × 3/12 = $100,000.* |  |  |

\*Quick Study 9-20 (20 minutes)

|  |  |  |
| --- | --- | --- |
| Motor (old) | $45,000 - $5,000 = $40,000 ÷ 10 yrs× 8/12 = | $ 2,667 |
| Motor (new) | $60,000 - $10,000 = $50,000 ÷ 8 yrs × 4/12 = | 2,083 |
| Metal housing | $68,000 - $15,000 = $53,000 ÷ 25 yrs = | 2,120 |
| Misc. parts | $15,000 ÷ 5 yrs = | 3,000 |
| Total depreciation expense to be recorded on the machine for 2017 = | | $ 9,870 |

EXERCISES

Exercise 9-1 (10 minutes)

|  |  |
| --- | --- |
| Invoice cost | $15,000 |
| Freight costs | 260 |
| Steel mounting | 795 |
| Assembly | 375 |
| Raw materials for testing | 120 |
| Less: discount ($15,000 × 2%) | 300 |
| Total acquisition costs | $16,250 |

*Note: The $190 repairs are an expense and therefore not capitalized.*

Exercise 9-2 (15 minutes)

Cost of land:

|  |  |  |
| --- | --- | --- |
| Purchase price for land | | $1,200,000 |
| Purchase price for old building | | 480,000 |
| Demolition costs for old building | | 75,000 |
| Levelling the lot | | 105,000 |
| Total cost of land | $1,860,000 |

Cost of new building:

|  |  |  |
| --- | --- | --- |
| Construction costs | | $2,880,000 |
| Less: Cost of land improvements\* | | 215,000 |
| Cost of new building | $2,665,000 |
| *\*The land improvements are a distinct PPE asset that depreciates at a different rate than the building. Therefore it should be debited to an account separate from the building.* | |

Journal entry:

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Mar. 10 | Land | 1,860,000 |  |
|  | Land Improvements | 215,000 |  |
|  | Building | 2,665,000 |  |
|  | Cash |  | 4,740,000 |
|  | *To record costs of plant assets.* |  |  |

**Exercise 9-3 (15 minutes)**

**Allocation of total cost:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***(a)*** | ***(b)*** | ***(c)*** |
| **PPE Asset** | **Appraised Values** | **Ratio of Individual Appraised Value to Total Appraised Value**  ***(a) ÷ Total Appraised Value*** | **Cost Allocation**  ***(b) x Total Actual Cost*** |
| **Land** | **$249,480** | **249,480 ÷594,000 = .42 or 42%** | **$ 244,3462** |
| **Land Imprv.** | **83,160** | **83,160 ÷594,000 = .14 or 14%** | **81,4483** |
| **Building** | **261,360** | **261,360 ÷594,000 = .44 or 44%** | **255,9814** |
| **Totals** | **$594,000** |  | **$ 581,7751** |

1. **552,375 + 29,400 = 581,775**
2. **42% x 581,775 = 244,346**
3. **14% x 581,775 = 81,448**
4. **44% x 581,775 = 255,981**

**Journal entry:**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Apr. 12** | **Land** | **244,346** |  |
|  | **Land Improvements** | **81,448** |  |
|  | **Building** | **255,981** |  |
|  | **Cash** |  | **581,775** |
|  | ***To record costs of lump-sum purchase.*** |  |  |

**Exercise 9-4 (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| **Jan. 1** | **Land** | **1,296,000** |  |
|  | **Building** | **1,512,000** |  |
|  | **Equipment** | **1,123,200** |  |
|  | **Tools** | **388,800** |  |
|  | **Cash** |  | **1,104,000** |
|  | **Notes Payable** |  | **3,216,000** |
|  | ***To record lump-sum purchase.*** |  |  |

***Calculations:***

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***(a)*** | ***(b)*** | ***(c)*** |
| **PPE Asset** | **Appraised Values** | **Ratio of Individual Appraised Value to Total Appraised Value**  ***(a) ÷ Total Appraised Value*** | **Cost Allocation**  ***(b) x Total Actual Cost*** |
| **Land** | **$ 1,152,000** | **1,152,000 ÷3,840,000 = .30 or 30%** | **$ 1,296,0001** |
| **Building** | **1,344,000** | **1,344,000 ÷3,840,000 = .35 or 35%** | **1,512,0002** |
| **Equipment** | **998,400** | **998,400 ÷3,840,000 = .26 or 26%** | **1,123,2003** |
| **Tools** | **345,600** | **345,600 ÷3,840,000 = .09 or 9%** | **388,8004** |
| **Totals** | **$ 3,840,000** |  | **$ 4,320,000** |

1. **30% x 4,320,000 = 1,296,000**
2. **35% x 4,320,000 = 1,512,000**
3. **26% x 4,320,000 = 1,123,200**
4. **9% x 4,320,000 = 388,800**

**Exercise 9-5 (10 minutes)**

**2017**

**Jan 1 Truck 63,000**

**Cash 63,000**

***Calculation:***

**37,500 + 13,500 + 6,750 + 5,250 = 63,000**

**Jan 4 Prepaid insurance 3,600**

**Gas expense 180**

**Cash 3,780**

**2017**

**Dec. 31 Depreciation Expense, Truck 11,100**

**Accumulated Depreciation, Truck 11,100**

***To record depreciation.***

***Calculation:***

**[(37,500 + 13,500 + 6,750 + 5,250) – 7,500] / 5 years = 11,100**

**Note: Insurance expense entries could also be made, to move from prepaid insurance, although not required in question.**

**Exercise 9-6 (15 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | (a) | | **(b)** | **(c)** |
| **Year** | **Straight-line** | | **Double-declining-balance**  **(Rate = 2/4 = .50 or 50%)** | **Units-of-production**  **(Rate = [(169,200 – 24,000)/181,500] = .80/unit)** |
| **2017** | **36,300** | **1** | **50% × 169,200 = 84,600** | **30,640 (.80 × 38,300)** |
| **2018** | **36,300** |  | **50% × (169,200 – 84,600) = 42,300** | **32,920 (.80 × 41,150)** |
| **2019** | **36,300** |  | **$18,3002** | **42,080 (.80 × 52,600)** |
| **2020** | **36,300** |  | **0** | **39,5603** |

**1. (169,200 – 24,000)/4 = 36,300/year**

2. Maximum depreciation is limited to $145,200 which is cost less residual ($169,200 – $24,000) therefore depreciation

for 2019is $18,300 calculated as $145,200 – $126,900 accumulated depreciation recorded to date.

3. Maximum depreciation is limited to $145,200 which is cost less residual ($169,200 – $24,000) therefore depreciation

for 2020is $39,560 calculated as $145,200 – $105,640 accumulated depreciation recorded to date.

**Exercise 9-7 (15 minutes)**

**a. (238,400 – 46,400)/5 = $38,400**

**b. Rate = 2/5 = .40 or 40%**

**40% × 238,400 = $95,360**

**c. Rate = (238,400 – 46,400)/240,000 km = $0.80/km**

**$0.80/km × 38,000 km = $30,400**

***Analysis component:***

**The units-of-production method will produce the highest profit in 2017because it is the lowest depreciation expense for 2017.**

**Exercise 9-8 (30 minutes)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Straight-Line1** | | **Double-Declining-Balance2** | | **Units-of-Production3** | |
| **Year** | **Depreciation Expense** | **Book Value at December 31** | **Depreciation Expense** | **Book Value at December 31** | **Depreciation Expense** | **Book Value at December 31** |
| **2017** | **21,250** | **104,000** | **50,100** | **75,150** | **16,875** | **108,375** |
| **2018** | **21,250** | **82,750** | **30,060** | **45,090** | **22,250** | **86,125** |
| **2019** | **21,250** | **61,500** | **18,036** | **27,054** | **30,000** | **56,125** |
| **2020** | **21,250** | **40,250** | **8,054** | **19,000** | **37,125** | **19,000** |
| **2021** | **21,250** | **19,000** | **0** | **19,000** | **0** | **19,000** |

***Calculations:***

1. **125,250 – 19,000 = 106,250/5 = 21,250**
2. **2/5 = .4 or 40%; .4 x 125,250 = 50,100; .4 x (125,250 – 50,100) = 30,060;**

**.4 x (125,250 – 50,100 – 30,060) = 18,036;**

**.4 x (125,250 – 50,100 – 30,060 – 18,036) = 10,822; maximum = 8,054 calculated as cost less residual = 125,250 – 19,000 = 106,250 less total deprec. taken of 98,196 = 8,054.**

1. **125,250 – 19,000 = 106,250/8,500 = $12.50/hour;**

**2017– 12.50 x 1,350 = 16,875;**

**2018– 12.50 x 1,780 = 22,250;**

**2019– 12.50 x 2,400 = 30,000;**

**2020– 12.50 x 2,980 = 37,250; maximum = 37,125; calculated as cost less residual = 125,250 – 19,000 = 106,250 less total deprec. taken of 69,125 = 37,125.**

***Analysis component:***

**a. 2017– Units-of-production; 2020– Straight-line**

**b. 2017– Double-declining-balance; 2020– Units-of-production**

**Exercise 9-9 (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | ***(a)*** | ***(b)*** | ***(c)*** |
| **PPE Asset** | **Appraised Values** | **Ratio of Individual Appraised Value to Total Appraised Value**  ***(a) ÷ Total Appraised Value*** | **Cost Allocation**  ***(b) x Total Actual Cost*** |
| Land | **$ 700,000** | **700,000 ÷2,100,000 = .33 or 33.33%** | **$ 840,0001** |
| Building | **1,120,000** | **1,120,000 ÷2,100,000 = .533 or 53.33%** | **1,344,0002** |
| Equipment | **210,000** | **210,000 ÷2,100,000 = .10 or 10%** | **252,0003** |
| **Tools** | **70,000** | **70,000 ÷2,100,000 = .033 or 3.33%** | **84,0004** |
| **Totals** | **$ 2,100,000** |  | **$ 2,520,000** |

1. ***33.33% x 2,520,000 = 840,000***
2. ***53.33% x 2,520,000 = 1,344,000***
3. ***10.00% x 2,520,000 = 252,000***
4. ***3.33% x 2,520,000 = 84,000***

|  |  |  |  |
| --- | --- | --- | --- |
| **PPE Asset** | **Cost** | **2017Depreciation** | **2018Depreciation** |
| Land | **$ 840,000** | **N/A5** | **N/A5** |
| Building | **1,344,000** | **1,344,000 × 2/10 = 268,800** | **(1,344,000 – 268,800) × 2/10 = 215,040** |
| Equipment | **252,000** | **252,000 × 2/5 = 100,800** | **(252,000 – 100,800) × 2/5 = 60,480** |
| **Tools** | **84,000** | **84,000 × 2/3 = 56,000** | **(84,000 – 56,000) × 2/3 = 18,667** |

1. **Land is not depreciated as it has an unlimited life and is not consumed when used.**

***Analysis component:***

**We do not depreciate the cost of land as it has an unlimited life and is not consumed when used.**

**Exercise 9-10 (20 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation** | | |
| **Description** | **Date of Purchase** | **Depreciation Method** | **Cost** | **Residual** | **Life** | **Balance of Accum. Deprec.**  **Dec. 31, 2016** | **Depreciation Expense for 2017** | **Balance of Accum. Deprec.**  **Dec. 31, 2017** |
| **Building** | **2 May 2011** | **S/L** | **$650,000** | **$250,000** | **10 yr.** | **$226,667** | **$40,0001** | **$266,6672** |
| **Modular Furniture** | **2 May 2011** | **S/L** | **72,000** | **0** | **6 yr.** | **68,000** | **4,0003** | **72,0004** |
| **Truck** | **25 Jan 2014** | **DDB** | **80,000** | **10,000** | **8 yr.** | **45,313** | **8,6725** | **53,9856** |

1. **(650,000 – 250,000)/10 = 40,000/year**
2. **226,667 + 40,000 = 266,667**
3. **(72,000 – 0)/6 = 12,000 per year; however the maximum accumulated depreciation = 72,000; 72,000 less total depreciation taken of 68,000(8,000 in 2011 [(72,000 – 0)/6 = $12,000 per year X 8/12] plus 12,000 in years 2012– 2016) = 4,000**
4. **68,000 + 4,000 = 72,000**
5. **Rate = 2/8 = .25 or 25%**

25% × (80,000 – 45,313) = 8,672

**6. 45,313 + 8,672 = 53,985**

***Analysis component:***

**Depreciation is the process of allocating an asset’s cost to expense over its useful life. It should be done using a rational and systematic manner. Dynamic uses the straight-line method and the double-declining balance method for its assets, which are both acceptable under GAAP. Dynamic has likely chosen different methods for depreciating its assets to better reflect the usage pattern of each asset, which is acceptable under GAAP.**

Exercise 9-11 (15 minutes)

DYNAMICEXPLORATION

Partial Balance Sheet

December 31, 2016

Assets

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Current assets | | | |  | | $338,000 |
| Property, plant and equipment: | | | | | | | |
|  | Furniture | $72,000 |  | |  | |
|  | Less: Accumulated depreciation | 68,000 | $4,000 | |  | |
|  | Building | $650,000 |  | |  | |
|  | Less: Accumulated depreciation | 226,667 | 423,333 | |  | |
|  | Truck | $ 80,000 |  | |  | |
|  | Less: Accumulated depreciation | 45,313 | 34,687 | |  | |
|  | Total property, plant and equipment |  |  | | 462,020 | |
| Total assets | |  |  | | $800,020 | |

**Exercise 9-12 (15 minutes)**

**a. Straight-line depreciation:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **5-Year Totals** |
| **Profit before   depreciation** | **$171,000** | **$171,000** | **$171,000** | **$171,000** | **$171,000** | **$855,000** |
| **Depreciation expense1** | **73,080** | **73,080** | **73,080** | **73,080** | **73,080** | **365,400** |
| **Profit** | **$97,920** | **$97,920** | **$97,920** | **$97,920** | **$97,920** | **$489,600** |

b. Double-declining-balance depreciation:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **5-Year Totals** |
| **Profit before   depreciation** | **$171,000** | **$171,000** | **$171,000** | **$171,000** | **$171,000** | **$855,000** |
| **Depreciation expense2** | **188,160** | **112,896** | **64,344** | **0** | **0** | **365,400** |
| **Profit (loss)** | **$(17,160)** | **$58,104** | **$106,656** | **$171,000** | **$171,000** | **$489,600** |

1. **(470,400 – 105,000)/5 = 73,080**
2. **Rate = 2/5 = .40 or 40%**

**Year 1: 470,400 × 40% = 188,160**

**Year 2: (470,400 – 188,160) × 40% = 112,896**

**Year 3: 64,344 max. depreciation expense (calculated as 470,400 – 105,000 – 188,160 – 112,896 = 64,344)**

***Analysis component:***

**Kenartha Oil will choose straight-line depreciation to depreciate the equipment if its goal is to show the highest value possible for the equipment on the Year 1 balance sheet. Straight-line will result in lower depreciation than double declining balance in Year 1. The lower the depreciation, the greater the net book value of the asset (cost less accumulated depreciation appearing in the balance sheet).**

**Exercise 9-13 (15 minutes)**

|  |  |  |
| --- | --- | --- |
|  | **Depreciation** | |
| **Year** | **Straight-Line1** | **Units-of-Production3** |
| **2017** | **7,200** | **20,088** |
| **2018** | **21,600** | **43,416** |
| **2019** | **21,600** | **33,696** |

**1. 156,000 – 26,400 = 129,600/6 = 21,600 x 4/12 = 7,200**

**2. 156,000 – 26,400 = 129,600/200,000 = $0.648/unit;**

**.648 x 31,000 = 20,088; .648 x 67,000 = 43,416; .648 x 52,000 = 33,696**

***Analysis component:***

**If depreciation is not recorded, expenses are understated and net income is overstated on the income statement and on the balance sheet, assets and equity would be overstated.**

**Exercise 9-14 (25 minutes)**

|  |  |  |
| --- | --- | --- |
|  | **Depreciation** | |
| **Year** | **Straight-Line1** | **Double-Declining-Balance2** |
| **2017** | **11,000** | **22,000** |
| **2018** | **22,000** | **35,200** |
| **2019** | **22,000** | **21,120** |

***Calculations:***

1. **110,000/5 = 22,000 x 6/12 =11,000**
2. **2/5 = .4 or 40%; .4 x 110,000 x 6/12 = 22,000;**

**.4 x (110,000 – 22,000) = 35,200; .4 x (110,000 – 22,000 – 35,200) = 21,120**

***Analysis component:***

**If the furniture had been debited to an expense account in 2017when purchased instead of being recorded as a PPE asset, expenses would have been overstated and net income would have been understated on the income statement in 2017while assets and equity would have been understated on the balance sheet for the same year.**

**Exercise 9-15 (10 minutes)**

|  |  |  |
| --- | --- | --- |
|  | **(a)** | **(b)** |
| **Year** | **Straight-Line** | **Double-Declining-Balance** |
| **2017** | **(125,000 – 12,500)/5 = 22,500 x 9/12 = 16,875** | **Rate = 2/5 = .40 or 40%**  **125,000 × 40% × 9/12 = 37,500** |
| **2018** | **(125,000 – 12,500)/5 = 22,500** | **(125,000 – 37,500) × 40% =35,000** |

**Exercise 9-16 (10 minutes)**

**1. (43,500 – 5,000)/4 = 9,625/year × 2 years = 19,250 accumulated depreciation**

**Book value = 43,500 – 19,250 = 24,250**

**2. [(43,500 – 19,250) – 3,850]/3 = 6,800**

**Exercise 9-17 (15 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine** | **7,624** |  |
|  | **Accumulated Depreciation, Machine** |  | **7,624** |
|  | ***To record depreciation.*** |  |  |

*Calculations:*

**Revised depreciation = (71,200 – 30,800\*) – 8,000 = 7,624/year**

7 – 2 9/12 = 4.25 yrs

**\*2017depreciation = 8,400 (71,200 – 15,200)/5 = 11,200 × 9/12**

**2018depreciation = 11,200**

**2019depreciation = 11,200**

**Accumulated**

**depreciation 30,800**

**Exercise 9-18 (20 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Jan. 5** | **Warehouse – Door………………………** | **25,500** |  |
|  | **Accounts Payable………………………** |  | **25,500** |
|  | ***To record addition of door on East wall of warehouse.*** | |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Warehouse ………………** | **14,700** |  |
|  | **Accumulated Depreciation, Warehouse….** |  | **14,700** |
|  | ***To record revised depreciation on warehouse;***  ***$292,500 – $90,000 = $202,500; $202,500 ÷ 15 yrs = $13,500***  ***PLUS $25,500 - $7,500 = $18,000; $18,000 ÷ 15 yrs = $1,200;***  ***Total depreciation on the warehouse = $13,500 + $1,200 = $14,700.*** | | |

**Exercise 9-19 (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Dec. 31** | **Impairment Loss** | **13,500** |  |
|  | **Equipment** |  | **12,000** |
|  | **Office Building** |  | **1,500** |
|  | ***To record impairment loss on equipment and office building.*** |  |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2018** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Equipment** | **1,800** |  |
|  | **Accumulated Depreciation, Equipment** |  | **1,800** |
|  | ***To record revised depreciation on equipment.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Furniture** | **491** |  |
|  | **Accumulated Depreciation, Furniture** |  | **491** |
|  | ***To record depreciation on furniture.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Office Building** | **3,838** |  |
|  | **Accumulated Depreciation, Office Building** |  | **3,838** |
|  | ***To record depreciation on office building*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Warehouse** | **2,250** |  |
|  | **Accumulated Depreciation, Warehouse** |  | **2,250** |
|  | ***To record depreciation on warehouse.*** |  |  |

***Calculations:***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Asset** | **Cost** | **Accum. Deprec.** | **Book Value** | **Recoverable Amount** | **Impairment Loss** | **2018Dep. Exp.** |
| **Equipment** | **$40,000** | **$20,000** | **$20,000** | **$ 8,000** | **$12,000** | **1,8001** |
| **Furniture** | **12,000** | **9,509** | **2,491** | **2,950** | **N/A** | **4912** |
| **Land** | **85,000** | **N/A** | **85,000** | **101,800** | **N/A** | **N/A** |
| **Office Bldng** | **77,000** | **23,000** | **54,000** | **52,500** | **1,500** | **3,8383** |
| **Warehouse** | **55,000** | **12,938** | **42,062** | **45,100** | **N/A** | **2,2504** |

1. **[40,000 – 5,000)/7,000] = $5.00/unit; 20,000 accum. dep. ÷ $5.00/unit = 4,000 units; 7,000 units in original useful life less 4,000 units depreciated to date equals 3,000 remaining units; 40,000 – 12,000 = 28,000 revised cost; 28,000 – 20,000 accum. dep. = 8,000 revised book value; 8,000 – 5,000 residual value = 3,000; 3,000 ÷ 3,000 remaining units = $1.00/unit revised depreciation rate; 1.00/unit × 1,800 units = 1,800**
2. **12,000 – 9,509 = 2,491; 2,491 × 2/8 = 623 which exceeds maximum allowable; maximum allowable = 2,491 remaining book value – 2,000 residual = 491**
3. **77,000 – 1,500 = 75,500 revised cost of office building; 75,500 – 23,000 = 52,500 remaining book value; (52,500 – 17,000) ÷ 9.25 yrs remaining useful life = 3,838**

4. 55,000 – 10,000 = 45,000; 45,000 ÷ 20 yrs = 2,250

Exercise 9-20 (20 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** |  |  |  |
| **2017** |  |  |  |
| **Mar. 1** | **Accumulated Depreciation, Truck** | **21,850** |  |
|  | **Cash** | **20,150** |  |
|  | **Truck** |  | **42,000** |
|  | ***To record the sale of the truck for $20,150.*** |  |  |
|  |  |  |  |
| **b.** |  |  |  |
| **Mar. 1** | **Accumulated Depreciation, Truck** | **21,850** |  |
|  | **Cash** | **21,600** |  |
|  | **Truck** |  | **42,000** |
|  | **Gain on Disposal** |  | **1,450** |
|  | ***To record the sale of the truck for $21,600.*** |  |  |
|  |  |  |  |
| **c.** |  |  |  |
| **Mar. 1** | **Accumulated Depreciation, Truck** | **21,850** |  |
|  | **Cash** | **19,200** |  |
|  | **Loss on Disposal** | **950** |  |
|  | **Truck** |  | **42,000** |
|  | ***To record the sale of the truck for $19,200.*** |  |  |
|  |  |  |  |
| **d.** |  |  |  |
| **Mar. 1** | **Accumulated Depreciation, Truck** | **21,850** |  |
|  | **Loss on Disposal** | **20,150** |  |
|  | **Truck** |  | **42,000** |
|  | ***To record the sale of the truck for $0; it was***  ***scrapped.*** |  |  |

**Exercise 9-21 (15 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| To record partial year’s depreciation in 2021: | | | |
|  |  |  |  |
| 2021 |  |  |  |
| **July 1** | **Depreciation Expense** | **21,200** |  |
|  | **Accumulated Depreciation, Machine** |  | **21,200** |
|  | ***To record partial year depreciation in***  ***year of disposal; (296,800/7) × 6/12 = 21,200.*** |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **(a)** | | | | | | | |
| **July 1** | | **Accumulated Depreciation, Machine** | **190,800** | | \* | |  |
|  | | **Cash** | **112,000** | |  | |  |
|  | | **Machine** |  | |  | | **296,800** |
|  | | **Gain on Disposal** |  | |  | | **6,000** |
|  | | ***To record sale of machine for 112,000.*** | | |  | |  | | |
|  | |  |  | |  | |  |
| **(b)** | | | | | | | |
| **1** | | **Accumulated Depreciation, Machine** | **190,800** | | **\*** | |  |
|  | | **Cash** | **96,000** | |  | |  |
|  | | **Loss on Disposal** | **10,000** | |  | |  |
|  | | **Machine** |  | |  | | **296,800** |
|  | | ***To record receipt of $96,000 from insurance settlement.*** | | | | |  | | |
|  | |  |  | |  | |  |
| **\*(296,800/7) × 4.5 years = 190,800** | | | | | | | |

**Exercise 9-22 (10 minutes)**

**a. 190,000 – 105,000 = 85,000 book value**

**b. Book value of the assets given up = (85,000 + 164,000) = 249,000**

**Less: Fair value of assets given up (56,000 + 164,000) = 220,000**

**Loss on exchange   29,000**

1. **220,000**

**d.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2017** |  |  |  |  |
| **Oct. 6** | **Tractor (new)\*** | **220,000** |  |  |
|  | **Accumulated Depreciation, Tractor (old)** | **105,000** |  |  |
|  | **Loss on Exchange** | **29,000** |  |  |
|  | **Cash** |  |  | **164,000** |
|  | **Tractor (old)** |  |  | **190,000** |
|  | ***To record exchange of old tractor for a new one.*** |  |  |  |
|  | **\*$56,000 + $164,000 = $220,000.** |  |  |  |

Exercise 9-23 (20 minutes)

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Nov. 3** | **Accumulated Depreciation, Computer (old)** | **65,000** |  |
|  | **Computer (new)1** | **175,000** |  |
|  | **Computer (old)** |  | **150,000** |
|  | **Cash** |  | **90,000** |
|  | ***To record exchange of computers.*** |  |  |

1. **Computer (new) = Cash paid + Book Value of asset given up**

**= $90,000 + $85,000 = $175,000**

**b.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Nov. 3** | **Accumulated Depreciation, Computer (old)** | **65,000** |  |
|  | **Computer (new)1** | **174,000** |  |
|  | **Loss on Disposal2** | **1,000** |  |
|  | **Computer (old)** |  | **150,000** |
|  | **Cash** |  | **90,000** |
|  | ***To record exchange of computers.*** |  |  |

**1. Computer (new) = Fair Value of Assets Received**

**= $174,000**

**2. Loss on Disposal = Proceeds – Book Value of assets given up**

**= $174,000 – [($150,000 – $65,000) + $90,000] = $1,000**

***Analysis component:***

**The dollar value that will be used to depreciate the new computer is $174,000 because the Cost Principle requires that all transactions are to be recorded at their original cost. $174,000 was determined to be the cost.**

**Exercise 9-24 (25 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **(a)** | | | |
|  |  |  |  |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **45,250** |  |
|  | **Cash** | **32,500** |  |
|  | **Loss on Disposal** | **6,250** |  |
|  | **Machine** |  | **84,000** |
|  | ***To record sale of machine;***  ***32,500 – (84,000 – 45,250) = 6,250 loss.*** |  |  |
|  |  |  |  |
| **(b)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **45,250** |  |
|  | **Tools** | **115,750** |  |
|  | **Cash** |  | **77,000** |
|  | **Machine** |  | **84,000** |
|  | ***To record exchange of machine;***  ***Value of assets given up = $77,000 cash + $38,750***  ***book value of the old machine = $115,750.*** |  |  |
|  |  |  |  |
| **(c)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **45,250** |  |
|  | **Van** | **104,000** |  |
|  | **Loss on Disposal** | **2,750** |  |
|  | **Cash** |  | **68,000** |
|  | **Machine** |  | **84,000** |
|  | ***To record exchange of machine;***  ***104,000 – (68,000 + 38,750) = 2,750 loss.*** |  |  |
|  |  |  |  |
| **(d)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **45,250** |  |
|  | **Land** | **75,000** |  |
|  | **Machine** |  | **84,000** |
|  | **Cash** |  | **25,000** |
|  | **Gain on Disposal** |  | **11,250** |
|  | ***To record exchange;***  ***75,000 – (25,000 + 38,750) = 11,250 gain.*** |  |  |

**Exercise 9-25 (10 minutes)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2017** | |  | |  |  |
| **Jan. 1** | | **Copyrights** | | **177,480** |  |
|  | **Cash** | |  | **177,480** |
|  | ***To record purchase of copyright.*** | |  |  |
|  |  | |  |  |
| **Dec. 31** | **Amortization Expense, Copyrights** | | **14,790** |  |
|  | | **Accumulated Amortization, Copyrights** |  | **14,790** |
|  | | ***To record amortization of copyright;***  ***177,480/12 = 14,790*** |  |  |

**Exercise 9-26 (15 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Sept. 5** | **Timber Rights** | **432,000** |  |
|  | **Cash** |  | **96,000** |
|  | **Long-Term Notes Payable** |  | **336,000** |
|  | ***To record purchase of timber rights.*** |  |  |
|  |  |  |  |
| **27** | **Patent** | **148,000** |  |
|  | **Accounts Payable** |  | **148,000** |
|  | ***To record purchase of patent.*** |  |  |

**Part 2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2017** |  |  | |  |
| **Dec. 31** | **Amortization Expense, Timber Rights** | **48,000** | |  |
|  | **Accumulated Amort., Timber Rights** |  | | **48,000** |
|  | ***To record amortization of timber rights;***  ***$432,000 ÷ 3 yrs = $144,000/year × 4/12 = $48,000.*** | | |  |
|  |  |  | |  |
| **31** | **Amortization Expense, Patent** | **3,700** | |  |
|  | **Accumulated Amortization, Patent** |  | | **3,700** |
|  | ***To record amortization of patent;***  ***$148,000 ÷ 10 yrs = $14,800/year × 3/12 = $3,700.*** | | |  |
| **2018** |  | |  |  |
| **Dec. 31** | **Amortization Expense, Timber Rights** | | **144,000** |  |
|  | **Accumulated Amortization, Timber Rights** | |  | **144,000** |
|  | ***To record amortization of timber rights;***  ***$432,000 ÷ 3 yrs = $144,000/year.*** | | |  |
|  |  |  | |  |
| **31** | **Amortization Expense, Patent** | **14,800** | |  |
|  | **Accumulated Amortization, Patent** |  | | **14,800** |
|  | ***To record amortization of patent;***  ***$148,000 ÷ 10 yrs = $14,800/year.*** | | |  |

**Exercise 9-27 (25 minutes)**

**Huang Resources  
Balance Sheet  
October 31, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 9,600** |  |
| **Accounts receivable** | **$ 27,200** |  |  |
| **Less: Allowance for doubtful accounts** | **1,920** | **25,280** |  |
| **Total current assets** |  |  | **$ 34,880** |
| **Property, plant and equipment:** |  |  |  |
| **Land** |  | **$ 89,600** |  |
| **Building** | **$ 147,200** |  |  |
| **Less: Accumulated depreciation** | **81,600** | **65,600** |  |
| **Equipment** | **$184,000** |  |  |
| **Less: Accumulated depreciation** | **110,400** | **73,600** |  |
| **Total property, plant and equipment** |  |  | **228,800** |
| **Intangible assets:** |  |  |  |
| **Mineral rights** | **$ 57,600** |  |  |
| **Less: Accumulated amortization** | **30,400** | **$ 27,200** |  |
| **Trademark** | **$ 33,600** |  |  |
| **Less: Accumulated amortization** | **22,400** | **11,200** |  |
| **Total intangible assets** |  |  | **38,400** |
| **Total assets** |  |  | **$302,080** |
| ***Liabilities*** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$18,400** |  |  |
| **Current portion of long-term note** | **34,000** |  |  |
| **Total current liabilities** |  | **$ 52,400** |  |
| **Non-current liabilities:** |  |  |  |
| **Note payable, less current portion** |  | **38,000** |  |
| **Total liabilities** |  |  | **$ 90,400** |
| ***Equity*** |  |  |  |
| **Ave Huang, capital** |  |  | **211,6801** |
| **Total liabilities and equity** |  |  | **$302,080** |

***Calculations:***

1. **221,280 adjusted capital balance + 1,433,600 revenues – 1,443,200 expenses = 211,680 post-closing capital balance**

**Exercise 9-28 (35 minutes)**

**Montalvo Bionics  
Balance Sheet  
April 30, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 9,000** |  |
| **Accounts receivable** | **$16,200** |  |  |
| **Less: Allowance for doubtful accounts** | **900** | **15,300** |  |
| **Prepaid rent** |  | **1,0801** |  |
| **Total current assets** |  |  | **$ 25,380** |
| **Property, plant and equipment:** |  |  |  |
| **Furniture** | **$21,600** |  |  |
| **Less: Accumulated depreciation** | **14,4002** | **$ 7,200** |  |
| **Machinery** | **$48,600** |  |  |
| **Less: Accumulated depreciation** | **21,6003** | **27,000** |  |
| **Total property, plant and equipment** |  |  | **34,200** |
| **Intangible assets:** |  |  |  |
| **Patent** |  | **$21,600** |  |
| **Less: Accumulated amortization** |  | **7204** | **20,880** |
| **Total assets** |  |  | **$80,460** |
| ***Liabilities*** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$4,860** |  |  |
| **Unearned revenues** | **5,760** |  |  |
| **Current portion of long-term note** | **5,400** |  |  |
| **Total current liabilities** |  | **$ 16,020** |  |
| **Non-current liabilities:** |  |  |  |
| **Note payable, less current portion** |  | **8,100** |  |
| **Total liabilities** |  |  | **$24,120** |
| ***Equity*** |  |  |  |
| **Josh Montalvo, capital** |  |  | **56,3405** |
| **Total liabilities and equity** |  |  | **$80,460** |

***Calculations:***

1. **12,960 × 11/12 = 11,880 rent used; 12,960 – 11,880 = 1,080 remaining in Prepaid Rent**
2. **21,600 ÷ 5 = 4,320; 4,320 + 10,080 = 14,400 accum. dep.**
3. **48,600 – 20,088 = 28,512; 28,512 × 2/10 = 5,702; maximum depreciation is 48,600 – 27,000 = 21,600 therefore 2017 depreciation expense is 1,512 and accum. dep. is 20,088 + 1,512 = 21,600.**
4. **21,600 ÷ 15 = 1,440/year; 1,440 × 6/12 = 720.**
5. **22,572 unadjusted capital + 223,200 revenues – 82,800 withdrawals – 88,200 expenses – 4,320 dep. furniture – 1,512 dep. machinery – 720 amort. patent – 11,880 rent expense = 56,340 post-closing capital**

**Exercise 9-29**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2015** |  | | |  | |  | | |
| **April 1** | **Food Truck** | | | **52,000** | |  | | |
|  | **Oven** | | | **6,000** | |  | | |
|  | **Prepaid Insurance** | | | **3,600** | |  | | |
|  | **Cash** | | |  | | **61,600** | | |
|  | ***To record the purchase of food truck, oven and insurance.*** | | | | |  | | |
|  |  | | |  | |  | | |
| **Oct 1** | **Repairs Expense** | | | **1,800** | |  | | |
|  | **Cash** | | |  | | **1,800** | | |
|  | ***To record repairs for truck*** | | | | |  | | |
|  |  | | |  | |  | | |
| **Dec 31** | **Insurance Expense** | | | **2,700** | |  | | |
|  | **Prepaid Insurance** | | |  | | **2,700** | | |
|  | ***To record 9 months of insurance expense*** | | |  | |  | | |
|  |  | | |  | |  | | |
| **Dec 31** | **Depreciation Expense, Truck** | | | **6,300** | |  | | |
|  | **Accumulated Depreciation, Truck** | | |  | | **6,300** | | |
|  | ***To record depreciation of truck;***  ***Calculation:***  **[(48,000 + 4,000) – 10,000] / 5 years = 8,400 *× 9/12 = $6,300.*** | | |  | |  | | |
|  |  | | |  | |  | | |
| **31** | **Depreciation Expense, Oven** | | | **750** | |  | | |
|  | **Accumulated Depreciation, Oven** | | |  | | **750** | | |
|  | ***To record depreciation of oven;***  ***($6,000-1000) ÷ 5 yrs = $1,000/year × 9/12 = $750.*** | | | | |  | | |
| **2016** |  | | |  | |  | | |
| **April 1** | **Repair Expense** | | | **2,100** | |  | | |
|  | **Prepaid Insurance** | | | **3,600** | |  | | |
|  | **Cash** | | |  | | **5,700** | | |
|  | ***To record purchase of tires and insurance for year*** | | | | |  | | |
|  |  | | |  | |  | | |
| **Dec 31** | **Insurance Expense** | | | **3,600** | |  | | |
|  | **Prepaid Insurance** | | |  | | **3,600** | | |
|  | ***To record 1 year of insurance expense.*** | | |  | |  | | |
|  |  | | |  | |  | | |
| **Dec 31** | **Depreciation Expense, Truck** | | | **8,400** | |  | | |
|  | **Accumulated Depreciation, Truck** | | |  | | **8,400** | | |
|  | ***To record depreciation of truck;***  ***Calculation:***  **[(48,000 + 4,000) – 10,000] / 5 years = 8,400** | | |  | |  | | |
|  |  | | |  | |  | | |
| **31** | **Depreciation Expense, Oven** | | | **1,000** | |  | | |
|  | **Accumulated Depreciation, Oven** | | |  | | **1,000** | | |
|  | ***To record depreciation of oven;***  ***($6,000-1000) ÷ 5 yrs = $1,000/year*** | | | | |  | | |
|  |  | | |  | |  | | |
| **2017** |  | | |  | |  | | |
| **Mar 31** | | **Depreciation Expense** | **2,100** | | | |  |
|  | | **Accumulated Depreciation, Truck** |  | | | | **2,100** |
|  | | ***To record partial year depreciation in***  ***year of disposal; 8,400 × 3/12 = 2,100.*** |  | | | |  |
|  | |  |  | | | |  |
| **Mar 31** | | **Depreciation Expense** | **250** | | | |  |
|  | | **Accumulated Depreciation, Oven** |  | | | | **250** |
|  | | ***To record partial year depreciation in***  ***year of disposal; 1000 × 3/12 = 250.*** |  | | | |  |
|  | |  | | |  | |  |
|  | |  | | |  | |  |
| **Mar 31** | | **Accumulated Depreciation, Truck** | | | **16,800** | |  |
|  | | **Accumulated Depreciation, Oven** | | | **2,000** | |  |
|  | | **Cash** | | | **21,000** | |  |
|  | | **Truck** | | |  | | **52,000** |
|  | | **Oven** | | |  | | **6,000** |
|  | | **Loss on Disposal** | | | **18,200** | |  |
|  | | ***To record loss on sale of truck;***  ***16,800+2,000+21,000-52,000-6,000=18,200*** | | |  | |  |

\***Exercise 9-30 (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Jul. 3** | **Truck – Tool Carrier** | **9,600** |  |
|  | **Cash** |  | **9,600** |
|  | ***To record installation of new component to truck.*** | |  |

**Part 2**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Truck:** | | | | | | | |
| **Component** | **Date of Purchase** | **Cost** | **Est.**  **Resid.** | **Est.**  **Life** | **Accum.**  **Dep. at**  **Dec 31/16** | **Dep. Exp. Dec 31/17** | **Dep. Exp. Dec 31/18** |
| **Truck body** | **Jul 7/15** | **$ 28,000** | **-0-** | **10 yr** | **$ 4,200** | **$ 2,8001** | **$ 2,8001** |
| **Motor** | **Jul 7/15** | **8,000** | **-0-** | **10 yr** | **1,200** | **8002** | **8002** |
| **Tool Carrier** | **Jul 3/17** | **9,600** | **-0-** | **8 yr** | **-0-** | **6003** | **1,2003** |
|  |  | **$ 45,600** |  |  | **$ 5,400** | **$4,200** | **$4,800** |

***Calculations:***

**1. 28,000 ÷ 10 yrs = 2,800/yr**

**2. 8,000 ÷ 10 yrs = 800/yr**

**3. 9,600 ÷ 8 yrs = 1,200/yr × 6/12 = 600 for partial period in 2017**

**Part 3**

**Book value of truck at December 31, 2017:**

**$45,600 total cost – ($5,400 + $4,200 = $9,600) = $36,000**

**Book value of truck at December 31, 2018:**

**$36,000 - $4,800 = $31,200**

PROBLEMS

**Problem 9-1A (25 minutes)**

***Part 1***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ***Land*** | ***Building Two*** | ***Building Three*** | ***Land Impmnts. One*** | ***Land Impmnts. Two*** |
| **Purchase price\*** | **$2,867,200** | **$985,600** |  | **$627,200** |  |
| **Demolition** | **676,160** |  |  |  |  |
| **Landscaping** | **267,520** |  |  |  |  |
| **New building** |  |  | **$3,230,400** |  |  |
| **New improvements** |  |  |  |  | **$252,800** |
| **Totals** | **$3,810,880** | **$985,600** | **$3,230,400** | **$627,200** | **$252,800** |

\*Allocation of purchase price:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ***Appraised Value*** | | ***Percent of Total*** | | | | | ***Apportioned Cost*** | |
| **Land** | **$2,984,960** | **64** | | % | | | **$2,867,200** | |
| **Building Two** | **1,026,080** | **22** | |  | | | **985,600** | |
| **Land Improvements One** | **652,960** | **14** | |  | | | **627,200** | |
| **Totals** | **$4,664,000** | **100** | | | **%** | **$4,480,000** | | |

***Part 2***

|  |  |  |  |
| --- | --- | --- | --- |
| **Mar. 31** | **Land** | **3,810,880** |  |
|  | **Building Two** | **985,600** |  |
|  | **Building Three** | **3,230,400** |  |
|  | **Land Improvements One** | **627,200** |  |
|  | **Land Improvements Two** | **252,800** |  |
|  | **Cash** |  | **8,906,880** |
|  | ***To record costs of plant assets.*** |  |  |

**Problem 9-2A (25 minutes)**

**Derlak Enterprises**

**Balance Sheet**

**December 31**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2017** | | **2016** | |
| **Assets** |  |  |  |  |
| **Current assets:** |  |  |  |  |
| **Cash** | **$ 12,000** |  | **$ 28,800** |  |
| **Prepaid rent** | **40,000** |  | **48,000** |  |
| **Office supplies** | **2,400** |  | **2,320** |  |
| **Total current assets** |  | **$ 54,400** |  | **$ 79,120** |
| **Property, plant and equipment:** |  |  |  |  |
| **Equipment** | **$184,000** |  | **$100,000** |  |
| **Less: Accumulated depreciation** | **72,800** | **111,200** | **64,800** | **35,200** |
| **Tools** | **$143,920** |  | **$100,800** |  |
| **Less: Accumulated depreciation** | **44,800** | **99,120** | **42,400** | **58,400** |
| **Vehicles** | **$252,800** |  | **$252,800** |  |
| **Less: Accumulated depreciation** | **108,800** | **144,000** | **97,600** | **155,200** |
| **Total property, plant and equipment** |  | **354,320** |  | **248,800** |
| **Intangible assets:** |  |  |  |  |
| **Franchise** | **$ 41,600** |  | **$ 41,600** |  |
| **Less: Accumulated amortization** | **19,200** | **22,400** | **11,200** | **30,400** |
| **Patent** | **$ 16,000** |  | **$ 16,000** |  |
| **Less: Accumulated amortization** | **4,000** | **12,000** | **2,400** | **13,600** |
| **Total intangible assets** |  | **34,400** |  | **44,000** |
| **Total assets** |  | **$443,120** |  | **$371,920** |
|  |  |  |  |  |
| **Liabilities** |  |  |  |  |
| **Current liabilities:** |  |  |  |  |
| **Accounts payable** | **$ 56,800** |  | **$ 9,600** |  |
| **Salaries payable** | **32,800** |  | **26,400** |  |
| **Total current liabilities** |  | **$ 89,600** |  | **$ 36,000** |
| **Non-current liabilities:** |  |  |  |  |
| **Notes payable, due in 2023** |  | **240,000** |  | **129,600** |
| **Total liabilities** |  | **$329,600** |  | **$165,600** |
| **Equity** |  |  |  |  |
| **Lee Derlak, capital** |  | **113,520** | **\*** | **206,320** |
| **Total liabilities and equity** |  | **$443,120** |  | **$371,920** |

***\*206,320 – 32,000 – 780,800 + 720,000 = 113,520***

***Analysis component:***

**Derlak’s assets are financed mainly by equity in 2016. In 2017, the assets are financed largely by debt. The change from 2016to 2017in how assets were mainly financed (from equity to debt) is unfavourable because the greater the debt the greater the risk associated with debt (is/will Derlak be in a position to pay the interest and principal as it comes due).Problem 9-3A (25 minutes)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1. Purchased January 1, 2017** | | **2017** |  | **2018** |  | **2019** |
| **A. Double-declining-balance method** | |  |  |  |  |  |
|  | |  |  |  |  |  |
| **Equipment** | **$375,000** |  | **$375,000** |  | **$375,000** |
| **Less: Accumulated depreciation** | **93,750** |  | **164,063** |  | **216,797** |
| **Year-end book value** | **$281,250** |  | **$210,937** |  | **$158,203** |
| **Depreciation expense for the year1** | **$93,750** |  | **$70,313** |  | **$52,734** |
|  |  |  |  |  |  |
| **B. Straight-line method** | | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Equipment** | **$375,000** |  | **$375,000** |  | **$375,000** |
| **Less: Accumulated depreciation** | **39,063** |  | **78,126** |  | **117,189** |
| **Year-end book value** | **$335,937** |  | **$296,874** |  | **$257,811** |
| **Depreciation expense for the year** | **$39,0632** |  | **$39,063** |  | **$39,063** |

1. **Rate = 2/8 = 0.25 or 25%**

**2017: 0.25 × 375,000 = 93,750**

**2018: 0.25 × (375,000 – 93,750) = 70,313**

**2019: 0.25 × (375,000 – 93,750 – 70,313) = 52,734**

1. **(375,000 – 62,500)/8 = 39,063 = 39,063**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **2. Purchased July 1, 2017** | | **2017** |  | **2018** |  | **2019** |
| **A. Double-declining-balance method** | |  |  |  |  |  |
|  | |  |  |  |  |  |
| **Equipment** | **$375,000** |  | **$375,000** |  | **$375,000** |
| **Less: Accumulated depreciation** | **46,875** |  | **128,906** |  | **190,430** |
| **Year-end book value** | **$328,125** |  | **$246,094** |  | **$184,570** |
| **Depreciation expense for the year3** | **$46,875** |  | **$82,031** |  | **$61,524** |
|  |  |  |  |  |  |
| **B. Straight-line method** | | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Equipment** | **$375,000** |  | **$375,000** |  | **$375,000** |
| **Less: Accumulated depreciation** | **19,532** |  | **58,594** |  | **97,657** |
| **Year-end book value** | **$355,468** |  | **$316,405** |  | **$277,342** |
| **Depreciation expense for the year** | **$19,5324** |  | **$39,063** |  | **$39,063** |

1. **Rate = 2/8 = 0.25 or 25%**

**2017: 0.25 × 375,000 × 6/12 = 46,875**

**2018: 0.25 × (375,000 – 46,875) = 82,031**

**2019: 0.25 × (375,000 – 46,875 – 82,031) = 61,524**

1. **(375,000 – 62,500)/8 = 39,063 × 6/12 = 19,532**

**Problem 9-4A (25 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method1:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production2** |
| **2017** | **(828,000 – 192,000)/10 = 63,600/year × 10/12 = 53,000** | **Rate = 2/10 = .20 or 20%**  **828,000 × 20% × 10/12 =**  **138,000** | **Rate = (828,000 – 192,000)/13,250 = 48/hour**  **48 × 720 =**  **34,560** |
| **2018** | **63,600** | **(828,000 – 138,000) × 20% =**  **138,000** | **48 × 1,780 =**  **85,440** |
| **2019** | **63,600** | **(828,000 – 138,000 – 138,000) × 20% =**  **110,400** | **48 × 1,535 =**  **73,680** |

1. ***Depreciation is calculated to the nearest month.***
2. ***Assume actual hours of service were: 2017: 720; 2018: 1,780; 2019: 1,535.***

***Analysis component:***

**If you could ignore the matching principle, you might record the purchase of the boats as a revenue expenditure which means the entire cost of $828,000 would have been expensed in 2017, the year of purchase. This would have resulted in the net income being understated in 2017and, because of depreciation expense not being recorded, net income would be overstated in the remaining years of the asset’s useful life as well. On the balance sheet, recording the purchase of the boats as a revenue expenditure would have caused assets and equity to be understated in each year of the asset’s life. It is interesting to note that the error would self-correct by the end of the asset’s life if it would have gone undetected.**

**Problem 9-5A (25 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method1:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production2** |
| **2017** | **(828,000 – 192,000)/10 = 63,600/year × 6/12 =**  **31,800** | **Rate = 2/10 = .20 or 20%**  **828,000 × 20% × 6/12 =**  **82,800** | **Same as Problem 9-4A; Units-of-production is usage based and not affected by time**  **34,560** |
| **2018** | **63,600** | **(828,000 – 82,800) × 20% =**  **149,040** | **85,440** |
| **2019** | **63,600** | **(828,000 – 82,800 – 149,040) × 20% =**  **119,232** | **73,680** |

1. ***Depreciation is calculated using the half-year convention.***
2. ***Assume actual hours of service were: 2017: 720; 2018: 1,780; 2019: 1,535.***

**Problem 9-6A (15 minutes)**

**1.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| Apr. 30 | **Depreciation Expense, Building** | **65,000** |  |
|  | **Accumulated Depreciation, Building** |  | **65,000** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***975,000/15 = 65,000.*** |  |  |
|  |  |  |  |
| **30** | **Depreciation Expense, Equipment** | **86,400** |  |
|  | **Accumulated Depreciation, Equipment** |  | **86,400** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***Rate = 2/10 = .20 or 20%;*** |  |  |
|  | ***432,000 × 20% = 86,400.*** |  |  |

**2.**

**BigSkyFarms**

**Partial Balance Sheet**

**April 30, 2018**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property, plant and equipment:** | | | | |
|  | **Land** |  |  | **$650,000** |
|  |  |  |  |  |
|  | **Building** | **$975,000** |  |  |
|  | **Less: Accumulated depreciation** | **780,000** |  | **195,000** |
|  |  |  |  |  |
|  | **Equipment** | **750,000** |  |  |
|  | **Less: Accumulated depreciation** | **404,400** |  | **345,600** |
|  | **Total property, plant and equipment** |  |  | **$1,190,600** |

**Problem 9-7A (50 minutes)**

***Part 1***

***Market Percentage Apportioned***

***Value  of Total   Cost***

**Building $652,800 48% $604,800**

**Land 462,400 34 428,400**

**Land improvements 68,000 5 63,000**

**Vehicles 176,800 13 163,800**

**Total $1,360,000 100% $1,260,000**

**2017**

|  |  |  |  |
| --- | --- | --- | --- |
| **Mar. 1** | Building | **604,800** |  |
|  | **Land** | **428,400** |  |
|  | **Land Improvements** | **63,000** |  |
|  | **Vehicles** | **163,800** |  |
|  | **Cash** |  | **1,260,000** |
|  | ***To record asset purchases.*** |  |  |

***Part 2* 2017straight-line depreciation on building:**

**($604,800 – $41,040)/15 × 10/12 = $31,320**

***Part 3*2017double-declining-balance depreciation on land**

**improvements:**

**Rate = 2/5 = .40 or 40%**

**$63,000 × 40% × 10/12 = $21,000**

***Analysis component:***

**If the assets purchased on March 1, 2017were put into service on May 23, 2017the depreciation expense calculated in parts 2 and 3 above would be based on 7 months instead of 10 months because straight-line and double-declining-balance depreciation are both based on the time the assets are actually USED during the period.**

**Problem 9-8A (30 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Year*** | ***Straight- Linea*** | | | ***Units-of-***  ***Productionb*** | | ***Double- Declining- Balancec*** | | |
| **2017** | | **$ 38,000** | **$ 20,544** | | **$ 84,000** | |  |
| **2018** | | **114,000** | **117,504** | | **210,000** | |  |
| **2019** | | **114,000** | **114,816** | | **105,000** | |  |
| **2020** | | **114,000** | **113,472** | | **52,500** | |  |
| **2021** | | **76,000** | **89,664** | | **4,500** | |  |
| **Totals** | | **$456,000** | **$456,000** | | **$456,000** | |  |

**aStraight-line:**

## Cost per year = (504,000 – 48,000)/4 years = $114,000 per year × 4/12

= 38,000

**bUnits-of-production:**

**Cost per unit = (504,000 – 48,000)/475,000 units = $0.96 per unit**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***Year*** | ***Units*** | | ***Unit Cost*** | | ***Depreciation*** | |  |
| **2017** | **21,400** | **$0.96** | | **$ 20,544** | |  | | |
| **2018** | **122,400** | **0.96** | | **117,504** | |  | | |
| **2019** | **119,600** | **0.96** | | **114,816** | |  | | |
| **2020** | **118,200** | **0.96** | | **113,472** | |  | | |
| **2021** | **102,000** | **0.96** | | **89,664** | | **\*** | | |
| **Total** |  | |  | **$456,000** | |  | | |

***\*Take only enough depreciation in Year 2021to reach the maximum***

*accumulated depreciation of $456,000 (which is cost less residual).*

**cDouble-declining-balance:**

**Rate = 2/4 = .50 or 50%**

**2017: 50% × 504,000 × 4/12 = 84,000**

**2018: 50% × (504,000 – 84,000) = 210,000**

**2019: 50% × (504,000 – 84,000 – 210,000) = 105,000**

**2020: 50% × (504,000 – 84,000 – 210,000 – 105,000) = 52,500**

**2021: 456,000 – 451,500\* = 4,500**

***\*Take only enough depreciation in Year 2021to reach the maximum***

***accumulated depreciation of $456,000 (which is cost less residual).***

**Problem 9-9A (30 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation** | | |
| **Description** | **Date of Purchase** | **Depreciation**  **Method** | **Cost** | **Residual** | **Life** | **Balance of Accum. Deprec.**  **Dec. 31, 2017** | **Deprec. Expense for 2018** | **Balance of Accum. Deprec.**  **Dec. 31, 2018** |
| **Office equipment** | **March 27/14** | **Straight-line** | **$52,000** | **$14,000** | **10 yr.** | **14,2501** | **3,8002** | **18,0503** |
| **Machinery** | **June 4/14** | **Double-declining balance** | **$275,000** | **$46,000** | **6 yr.** | **209,3624** | **19,6385** | **229,0006** |
| **Truck** | **Nov. 13/17** | **Units-of-production** | **$113,000** | **$26,000** | **250,000 km.** | **4,8727** | **23,6648** | **28,5369** |

**1. (52,000 – 14,000)/10 = 3,800/year × 3 9/12 = 14,250**

**2. (52,000 – 14,000)/10 = 3,800/year**

**3. 14,250 + 3,800 = 18,050**

**4. Rate = 2/6 = .3333 or 33.33%**

**2014: 33.33% × 275,000 × 7/12 = 53,472**

**2015: 33.33% × (275,000 – 53,472) = 73,843**

**2016: 33.33% × (275,000 – 53,472 – 73,843) = 49,228**

**2017: 33.33% × (275,000 – 53,472 – 73,843 – 49,228) = 32,819**

**Accumulated depreciation at Dec. 31, 2017= $209,362**

**5. 20185: (275,000 – 46,000) – 209,362 = 19,638**

**6. 209,362 + 19,638 = 229,000**

**7. Rate = (113,000 – 26,000)/250,000 = $0.348/km; 14,000 × 0.348 = 4,872**

**8. 68,000 × 0.348 = 23,664**

**9. 4,872 + 23,664 = 28,536**

**Problem 9-10A (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Mar. 26 | **Delivery Truck** | **102,900** |  |
|  | **Cash** |  | **102,900** |
|  | ***To record purchase of new truck;***  ***$97,075 plus $5,825freight costs.*** |  |  |
|  |  |  |  |
| Dec. 31 | **Depreciation Expense, Delivery Truck1** | **13,185** |  |
|  | **Accumulated Depreciation, Delivery Truck** |  | **13,185** |
|  | ***To record depreciation from Mar. 26 to***  ***Dec. 31, 2017.*** |  |  |
|  |  |  |  |
| 2018 |  |  |  |
| Dec. 31 | **Depreciation Expense, Delivery Truck2** | **22,220** |  |
|  | **Accumulated Depreciation, Delivery Truck** |  | **22,220** |
|  | ***To record depreciation.*** |  |  |

1. **(102,900 – 15,000)/5 × 9/12 = 13,185**

**2. 102,900 – 13,185 – 17,500 = 22,220**

**4 – 9/12 = 3.25**

Problem 9-11A (30 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2018 |  |  |  |
| Dec. 31 | **Depreciation Expense, Machinery1** | **95,200** |  |
|  | **Accumulated Depreciation, Machinery** |  | **95,200** |
|  | ***To record annual depreciation.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Office Furniture2** | **11,733** |  |
|  | **Accumulated Depreciation, Office Furniture** |  | **11,733** |
|  | ***To record annual depreciation.*** |  |  |

***Calculations:***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Cost** | **Accumulated Depreciation** | **Residual** |  |  |
| **1.** | **556,800 –** | **246,400 –** | **120,000** | **= 95,200** |  |
|  |  | **2** |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Cost** | **Accumulated Depreciation** | | **Residual** |  |
| **2.** | **89,600 –** | **49,600 –** | | **(11,200 – 6,400)** | **= 11,733** |
|  |  | | **5 – 2 = 3** |  |  |

**Problem 9-12A (20 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Jan. 7** | **Machine #5027 – Blade (new)** | **10,400** |  |
|  | **Accumulated Depreciation, Machine #5027 – Blade** | **2,6881** |  |
|  | **Loss on Disposal** | **5,032** |  |
|  | **Machine #5027 – Blade (old)** |  | **7,720** |
|  | **Cash** |  | **10,400** |
|  | ***To record installation of replacement blade.*** |  |  |

***Calculations:***

1. **7,720 – 1,000 = 6,720; 6,720 ÷ 5 yrs = 1,344 deprec. for 2015;**

**1,344+ 1,344 deprec. for 2016= 2,688 accum. deprec. at Dec. 31, 2016.**

**Part 2**

|  |  |  |
| --- | --- | --- |
| **Metal Housing** | **44,000 – 8,000 = 36,000; 36,000 ÷ 15 yrs = 2,400 for 2015*PLUS*2,400 for 2016= 4,800 accum. deprec. at Dec. 31/2016;**  **Revised deprec. = 44,000 – 4,800 = 39,200 book value;**  **39,200 – 8,600 residual = 30,600 depreciable cost;**  **30,600 ÷ 18 years\* =**  ***\*20 years – 2 yrs already depreciated = 18 yr remaining life*** | **$1,700** |
| **Motor** | **2015: 26,000 × 2/10 = 5,200**  **2016: 26,000 – 5,200 = 20,800 × 2/10 = 4,160**  **2017: 20,800 – 4,160 = 16,640 × 2/10 =** | **3,328** |
| **Blade** | **10,400 – 1,000 = 9,400; 9,400 ÷ 5 yrs =** | **1,880** |
| **Total depreciation expense to be recorded on Machine #5027 for 2017=** | | **$6,908** |

**Problem 9-13A (40 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Oct. 31** | **Impairment Loss** | **24,200** |  |
|  | **Equipment** |  | **24,200** |
|  | ***To record impairment loss on equipment.*** |  |  |
|  |  |  |  |
| **31** | **Impairment Loss** | **14,300** |  |
|  | **Furniture** |  | **14,300** |
|  | ***To record impairment loss on furniture.*** |  |  |

***\*Calculations:***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Book Value** | **Recoverable Value** | **Impairment Loss** |
| **Land** | **$105,600** | **$136,400** | **NA** |
| **Building** | **57,200** | **105,600** | **NA** |
| **Equipment** | **52,800** | **28,600** | **$24,200** |
| **Furniture** | **29,700** | **15,400** | **14,300** |

**Problem 9-13A (*concluded*)**

**Part 2**

**Safety-First Company  
Balance Sheet  
October 31, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 11,000** |  |
| **Accounts receivable** | **$ 19,800** |  |  |
| **Less: Allowance for doubtful accounts** | **880** | **18,920** |  |
| **Merchandise inventory** |  | **35,200** |  |
| **Total current assets** |  |  | **$ 65,120** |
| **Property, plant and equipment:** |  |  |  |
| **Land** |  | **$105,600** |  |
| **Building** | **$136,400** |  |  |
| **Less: Accumulated depreciation** | **79,200** | **57,200** |  |
| **Equipment** | **$66,0001** |  |  |
| **Less: Accumulated depreciation** | **37,400** | **28,600** |  |
| **Furniture** | **$36,3002** |  |  |
| **Less: Accumulated depreciation** | **20,900** | **15,400** |  |
| **Total property, plant and equipment** |  |  | **206,800** |
| **Total assets** |  |  | **$271,920** |
| ***Liabilities*** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$ 11,220** |  |  |
| **Unearned revenues** | **7,920** |  |  |
| **Current portion of long-term note** | **26,400** |  |  |
| **Total current liabilities** |  | **$ 45,540** |  |
| **Non-current liabilities:** |  |  |  |
| **Note payable, less current portion** |  | **59,400** |  |
| **Total liabilities** |  |  | **$104,940** |
| ***Equity*** |  |  |  |
| **Tarifa Sharma, capital** |  |  | **166,9803** |
| **Total liabilities and equity** |  |  | **$271,920** |

***Calculations:***

1. **90,200 cost – 24,200 impairment loss = 66,000**
2. **50,600 cost – 14,300 impairment loss = 36,300**
3. **62,480 adjusted capital balance + 904,200 sales – 761,200 expenses – 24,200 impairment loss, equip. – 14,300 impairment loss, furn. = 166,980 post-closing capital balance**

***Analysis component:***

**An impairment loss causes net income to decrease on the income statement. On the balance sheet, an impairment loss causes total assets to decrease because of the decrease in property, plant and equipment. Equity also decreases on the balance sheet as a result of the decreased net income.Problem 9-14A (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. |  |  |  |
| 2018 |  |  |  |
| Sept. 27 | **Depreciation Expense, Building** | **4,950** |  |
|  | **Accumulated Depreciation, Building1** |  | **4,950** |
|  | ***To record building depreciation for 2018.*** |  |  |
| 27 | **Cash** | **592,000** |  |
|  | **Accumulated Depreciation, Building2** | **398,550** |  |
|  | **Gain on Disposal** |  | **67,350** |
|  | **Land** |  | **396,800** |
|  | **Building** |  | **526,400** |
|  | ***To record sale of land and building.*** |  |  |
|  |  |  |  |
| **2.** |  |  |  |
| Nov. 2 | **Depreciation Expense, Equipment** | **16,133** |  |
|  | **Accumulated Depreciation, Equipment3** |  | **16,133** |
|  | ***To record equipment depreciation for 2018.*** |  |  |
| 2 | **Cash** | **56,800** |  |
|  | **Accumulated Depreciation, Equipment4** | **90,533** |  |
|  | **Loss on Disposal** | **23,867** |  |
|  | **Equipment** |  | **171,200** |
|  | ***To record sale of equipment.*** |  |  |

1. **Depreciation from Jan. 1, 2018to Sept. 27, 2018**

**[(526,400 – 393,600) – 80,000]/8 = 6,600/year × 9/12 = 4,950**

**2. Accumulated Depreciation, Building =**

**4,950 + 393,600 = 398,550**

**3. Depreciation from Jan. 1, 2018to Nov. 2, 2018**

**Rate = 2/10 = .20 or 20%**

**171,200 – 74,400 = 96,800 × 20% = 19,360 × 10/12 = 16,133**

**4. Accumulated Depreciation, Equipment =**

**16,133 + 74,400 = 90,533**

**Problem 9-15A (45 minutes)**

**1.**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Jan. 2 | **Machine** | **116,900** |  |
|  | **Cash** |  | **116,900** |
|  | ***To record purchase of machine.*** |  |  |
|  |  |  |  |
| **3** | **Machine** | **4,788** |  |
|  | **Cash** |  | **4,788** |
|  | ***To record capital repairs on machine.*** |  |  |
|  |  |  |  |
| **3** | **Machine** | **1,512** |  |
|  | **Cash** |  | **1,512** |
|  | ***To record installation of machine.*** |  |  |
| **2.** |  |  |  |
| 2017 |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine** | **17,080** |  |
|  | **Accumulated Depreciation, Machine** |  | **17,080** |
|  | ***To record depreciation;***  ***(123,200 – 20,720)/6 = 17,080.*** |  |  |
|  |  |  |  |
| **2022** |  |  |  |
| **Sept. 30** | **Depreciation Expense, Machine** | **12,810** |  |
|  | **Accumulated Depreciation, Machine** |  | **12,810** |
|  | ***To record partial year’s depreciation;*** |  |  |
|  | ***17,080 × 9/12 = 12,810.*** |  |  |
| **3(a).** |  |  |  |
| **30** | **Accumulated Depreciation, Machine1** | **98,210** |  |
|  | **Cash** | **21,000** |  |
|  | **Loss on Disposal2** | **3,990** |  |
|  | **Machine** |  | **123,200** |
|  | ***Sold machine for $21,000.*** |  |  |
| **3(b).** |  |  |  |
| **30** | **Accumulated Depreciation, Machine** | **98,210** |  |
|  | **Cash** | **27,300** |  |
|  | **Machine** |  | **123,200** |
|  | **Gain on Disposal3** |  | **2,310** |
|  | ***Sold machine for $27,300.*** |  |  |
| **3(c).** |  |  |  |
| **30** | **Accumulated Depreciation, Machine** | **98,210** |  |
|  | **Cash** | **25,760** |  |
|  | **Machine** |  | **123,200** |
|  | **Gain on Disposal4** |  | **770** |
|  | ***Received insurance settlement.*** |  |  |

**Problem 9-15A *(continued)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Deprec. for 2017,2018,  2019, 2020, and 2021.** | **Accum. Deprec. for 2022.** |  |

1. **Accumulated depreciation = (17,080 × 5 years) + 12,810 = 98,210**
2. **Gain (Loss) = Cash Proceeds – Book Value**

**= 21,000 – (123,200 – 98,210) = (3,990)**

1. **Gain (Loss) = Cash Proceeds – Book Value**

**= 27,300 – (123,200 – 98,210) = 2,310**

1. **Gain (Loss) = Cash Proceeds – Book Value**

**= 25,760 – (123,200 – 98,210) = 770**

**Problem 9-16A (15 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| July 5 | **Accumulated Depreciation, Truck** | **6,000** |  |
|  | **Loss on Disposal\*** | **10,500** |  |
|  | **Furniture** | **45,100** |  |
|  | **Truck** |  | **36,000** |
|  | **Cash** |  | **25,600** |
|  | ***To record exchange.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Depreciation Expense, Furniture** | **3,236** |  |
|  | **Accumulated Depreciation, Furniture** |  | **3,236** |
|  | ***To record depreciation;***  ***(45,100 – 6,268)/6 × 6/12 = 3,236.*** |  |  |

\* Gain (Loss) = Proceeds – Book Value of Assets Given Up

**= 45,100 – [25,600 + (36,000 – 6,000)**

**= 45,100 – 55,600**

**= (10,500)**

**Problem 9-17A (45 minutes)**

1. **Depreciation expense on first December 31 of each machine’s life**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine 15501** | **6,075** |  |
|  | **Accumulated Depreciation, Machine 1550** |  | **6,075** |
|  | ***To record depreciation.*** |  |  |
| **2020** |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine 17953** | **22,646** |  |
|  | **Accumulated Depreciation, Machine 1795** |  | **22,646** |
|  | ***To record depreciation.*** |  |  |
| **2021** |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine BT-3115** | **77,810** |  |
|  | **Accumulated Depreciation,**  **Machine BT-311** |  | **77,810** |
|  | ***To record depreciation.*** |  |  |

**b. Purchase/exchange/disposal of each machine.**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Apr. 1 | **Machine 1550** | **52,900** |  |
|  | **Cash** |  | **52,900** |
|  | ***To record purchase of Machine 15-50.*** |  |  |
| 2020 |  |  |  |
| Mar. 29 | **Machine 1795 (= assets given up)** | **60,390** |  |
|  | **Accumulated Depreciation, Machine 15502** | **24,300** |  |
|  | **Machine 1550** |  | **52,900** |
|  | **Cash** |  | **31,790** |
|  | ***To record exchange of Machine 1550.*** |  |  |
| 2021 |  |  |  |
| Oct. 2 | **Machine BT-311** | **537,000** |  |
|  | **Accumulated Depreciation, Machine 17954** | **36,800** |  |
|  | **Loss on Disposal** | **3,590** |  |
|  | **Machine 1795** |  | **60,390** |
|  | **Cash** |  | **517,000** |
|  | ***To record exchange of Machine 1795.*** |  |  |
| **2024** |  |  |  |
| Aug. 21 | **Cash** | **81,200** |  |
|  | **Accumulated Depreciation, Machine BT-3116** | **348,890** |  |
|  | **Loss on Disposal** | **106,910** |  |
|  | **Machine BT-311** |  | **537,000** |
|  | ***To record sale of Machine BT-311.*** |  |  |
|  |  |  |  |

**Problem 9-17A *(continued)***

***Calculations:***

1. **52,900 – 4,300 = 8,100/year × 9/12 = 6,075**

6

1. Depreciation 2017: 6,075

**2018: 8,100**

**2019: 8,100**

**2020: 2,025 (8,100× 3/12)**

**Accum. Deprec. 24,300**

**Book Value 52,900 – 24,300= 28,600**

**Cash Paid 62,000 – 30,210 = 31,790**

**Book Value 28,600 plus cash paid 31,790 = 60,390**

1. **Rate = 2/4 = .50 or 50%**

**50% × 60,390 × 9/12 = 22,646 (deprec. for 2017)**

1. **50% × (60,390 – 22,646) × 9/12 = 14,154 (deprec. for 2021)**

**+ 22,646 (deprec. for 2020)**

**36,800 (accum. deprec.)**

1. **(537,000 – 35,000)/200,000 = 2.51/unit**

**2021: 31,000 units × 2.51/unit = 77,810**

1. **Depreciation for Jan. 1/2022to August 21/2024**

**= 108,000 units × 2.51/unit = 271,080**

**+77,810 (2021)**

**348,890 (accum. deprec.)**

**Problem 9-18A (10 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **(a)** |  |  |
| **2017** |  |  |  |
| **Oct. 1** | **Copyright** | **288,000** |  |
|  | **Cash** |  | **288,000** |
|  | ***To record purchase of copyright.*** |  |  |
|  |  |  |  |
|  | **(b)** |  |  |
| **Dec. 31** | Amortization Expense | **24,000** |  |
|  | **Accumulated Amortization, Copyright** |  | **24,000** |
|  | ***To record amortization of copyright;***  ***288,000/3 × 3/12 = 24,000.*** |  |  |

**Problem 9-19A (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Dec. 31** | **Amortization Expense, Mineral Rights** | **13,000** |  |
|  | **Accumulated Amortization, Mineral Rights** |  | **13,000** |
|  | ***To record amortization on the mineral rights;***  ***$62,400 ÷ 4 years = $15,600/year × 10/12 = $13,000.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Equipment** | **51,000** |  |
|  | **Accumulated Depreciation, Equipment** |  | **51,000** |
|  | ***To record depreciation on the equipment;***  ***$244,800 ÷ 4 years = $61,200/year × 10/12 = $51,000.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Truck** | **19,875** |  |
|  | **Accumulated Depreciation, Truck** |  | **19,875** |
|  | ***To record depreciation on the truck;***  ***$95,400 ÷ 4 years = $23,850/year × 10/12 = $19,875.*** |  |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **Oct. 31** | **Accumulated Amortization, Mineral Rights** | **57,200** |  |
|  | **Loss on Disposal** | **5,200** |  |
|  | **Mineral Rights** |  | **62,400** |
|  | ***To record disposal of the mineral rights;***  ***$13,000 + $15,600 + $15,600 + 13,000 = $57,200 accum. amortization.*** |  |  |
|  |  |  |  |
| **31** | **Accumulated Depreciation, Equipment** | **224,400** |  |
|  | **Loss on Disposal** | **20,400** |  |
|  | **Equipment** |  | **244,800** |
|  | ***To record disposal of the equipment;***  ***$51,000 + $61,200 + $61,200 + $51,000 = $224,400***  ***accum. depreciation.*** |  |  |
|  |  |  |  |
| **31** | **Accumulated Depreciation, Truck** | **87,450** |  |
|  | **Loss on Disposal** | **7,950** |  |
|  | **Truck** |  | **95,400** |
|  | ***To record disposal of the truck;***  ***$19,875+ $23,850 + $23,850 + $19,875 = $87,450***  ***accum. depreciation.*** |  |  |

\***Problem 9-20A (30 minutes)**

**Part 1**

**a.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2017** |  | |  |  |
| **Jun. 27** | **Depreciation Expense, Boat – Motor** | | **2,660** |  |
|  | **Accumulated Depreciation, Boat – Motor** | |  | **2,660** |
|  | ***To update depreciation in 2017 regarding***  ***motor being replaced.*** | |  |  |
|  |  | |  |  |
|  |  | |  |  |
| **27** | **Boat – Motor (new)** | | **63,000** |  |
|  | **Accumulated Depreciation, Boat – Motor** | | **43,8901** |  |
|  | **Loss on Disposal** | | **9,310** |  |
|  | **Boat – Motor (old)** | |  | **53,200** |
|  | **Cash** | |  | **63,000** |
|  | ***To record replacement of motor.*** | |  |  |
| **b.** |  | |  |  |
| **Dec. 31** | **Depreciation Expense, Boat** | | **3,1132** |  |
|  | **Accumulated Depreciation, Boat** | |  | **3,113** |
|  | | ***To record revised depreciation for 2017 on the boat (boat body***  ***plus motor).*** | | |

***Calculations:***

1. **53,200 ÷ 10 years = 5,320/year; 5,320 × 9/12 = 3,990 depreciation for 2009; 5,320 × 7 years for 2010thru 2016= 37,240; 5,320/ year × 6/12 = 2,660 deprec. from Jan. 1/17to June 27/17; 37,240 + 3,990 + 2,660 = 43,890 accumulated depreciation at June 27, 2017;**

|  |  |  |  |
| --- | --- | --- | --- |
| **2.** | **Body:** | **Accumulated depreciation at Dec. 31, 2016:**  **23,800 – 7,000 = 16,800; 16,800 ÷ 15 years = 1,120/year; 1,120 × 9/12 = 840 depreciation for 2009; 1,120 × 7 years (2010thru 2016) = 7,840; 7,840 + 840 = 8,680**  **Revised depreciation at Dec. 31, 2017(rounded):**  **23,800 – 8,680 – 7,000 = 8,120 remaining depreciable cost; 8,120 ÷ 12.251 years =**  ***1 20 – 7 9/12 = 12 3/12 or 12.25 years remaining useful life*** | **$ 663\*** |
|  | **Motor:** | **63,000 – 4,200 = 58,800; 58,800 ÷ 12 years = 4,900/yr × 6/12 =** | **2,450** |
|  |  |  | **$3,113** |

**\*rounded to the nearest whole dollar since depreciation is based on estimates.**

**Part 2**

**Total 2017depreciation = $2,660 + $3,113 = $5,773ALTERNATE PROBLEMS**

**Problem 9-1B (25 minutes)**

***Part 1***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | ***Land*** | ***Building B*** | ***Building C*** | ***Land Imprmnts. B*** | ***Land Imprmnts. C*** |
| Purchase price\* | **$307,800** | **$183,600** |  | **$48,600** |  |
| **Demolition** | **46,800** |  |  |  |  |
| **Landscaping** | **69,000** |  |  |  |  |
| **New building** |  |  | **$542,400** |  |  |
| **New improvements** |  |  |  |  | **$40,500** |
| **Totals** | **$423,600** | **$183,600** | **$542,400** | **$48,600** | **$40,500** |

**\*Allocation of purchase price:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | ***Appraised Value*** | | ***Percent of Total*** | | | ***Apportioned Cost*** | |
| **Land** | **$317,034** | | **57** | | % | | **$307,800** |
| **Building B** | **189,108** | | **34** | |  | | **183,600** |
| **Land Improvements B** | **50,058** | | **9** | |  | | **48,600** |
| **Totals** | **$556,200** | | **100 %**  **%** | | | **$540,000** | |

***Part 2***

|  |  |  |  |
| --- | --- | --- | --- |
| **June 1** | **Land** | **423,600** |  |
|  | **Building B** | **183,600** |  |
|  | **Building C** | **542,400** |  |
|  | **Land Improvements B** | **48,600** |  |
|  | **Land Improvements C** | **40,500** |  |
|  | **Cash** |  | **1,238,700** |
|  | ***To record costs of plant assets.*** |  |  |

**Problem 9-2B (25 minutes)**

**Xentel Interactive**

**Balance Sheet**

**September 30**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2017** | | **2016** | |
| **Assets** |  |  |  |  |
| **Current assets:** |  |  |  |  |
| **Cash** | **$ 900** |  | **$ 2,700** |  |
| **Accounts receivable** | **1,800** |  | **4,320** |  |
| **Prepaid insurance** | **-0-** |  | **1,530** |  |
| **Total current assets** |  | **$ 2,700** |  | **$ 8,550** |
|  |  |  |  |  |
| **Property, plant and equipment:** |  |  |  |  |
| **Land** |  | **68,400** |  | **68,400** |
| **Machinery** | **$295,200** |  | **$115,200** |  |
| **Less: Accumulated depreciation** | **90,000** | **205,200** | **82,800** | **32,400** |
| **Building** | **$225,000** |  | **$225,000** |  |
| **Less: Accumulated depreciation** | **54,000** | **171,000** | **50,400** | **174,600** |
| **Total property, plant and equipment** |  | **444,600** |  | **275,400** |
| **Intangible assets:** |  |  |  |  |
| **Copyright** | **$ 7,200** |  | **$ 7,200** |  |
| **Less: Accumulated amortization** | **1,080** | **6,120** | **540** | **6,660** |
| **Total assets** |  | **$453,420** |  | **$290,610** |
|  |  |  |  |  |
| **Liabilities** |  |  |  |  |
| **Current liabilities:** |  |  |  |  |
| **Accounts payable** | **$ 4,320** |  | **$ 3,150** |  |
| **Unearned fees** | **82,800** |  | **5,580** |  |
| **Total current liabilities** |  | **$ 87,120** |  | **$ 8,730** |
| **Non-current liabilities:** |  |  |  |  |
| **Notes payable, due in 2022** |  | **230,220** |  | **55,800** |
| **Total liabilities** |  | **$317,340** |  | **$ 64,530** |
| **Equity** |  |  |  |  |
| **Mason Xentel, capital** |  | **136,080\*** |  | **226,080** |
| **Total liabilities and equity** |  | **$453,420** |  | **$290,610** |

***\*226,080 – 72,000 + 540,000 – 558,000 = 136,080***

***Analysis component:***

**Xentel’s assets were mainly financed by equity in 2016. In 2017, Xentel’s assets were mainly financed by debt. The increase in the debt financing has weakened the balance sheet as opposed to strengthening it.**

**Problem 9-3B (30 minutes)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Part** 1. Purchase made on January 1, 2017 | | **2017** |  | **2018** |  | **2019** |
| **A. Double-declining balance method** | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Machinery** | **$588,000** |  | **$588,000** |  | **$588,000** |
| **Less: Accumulated depreciation** | **58,800** |  | **164,640** |  | **249,312** |
| **Year-end book value** | **$529,200** |  | **$423,360** |  | **$338,688** |
| **Depreciation expense for the year1** | **$58,800** |  | **$105,840** |  | **$84,672** |
|  | |  |  |  |  |  |
| **B. Straight-line method** | |  |  |  |  |  |
|  |  |  |  |  |  |
| Machinery | **$588,000** |  | **$588,000** |  | **$588,000** |
| **Less: Accumulated depreciation** | **26,600** |  | **79,800** |  | **133,000** |
| **Year-end book value** | **$561,400** |  | **$508,200** |  | **$455,000** |
| **Depreciation expense for the year2** | **$26,600** |  | **$53,200** |  | **$53,200** |

1. **Rate = 2/10 = .20 or 20%**

**2017: 20% × 588,000 × 6/12 = 58,800 note – using half year rule**

**2018: 20% × (588,000 – 58,800) = 105,840**

**2019: 20% × (588,000 – 58,800 – 105,840) = 84,672**

1. **(588,000 – 56,000)/10 = 53,200 × 6/12 = 26,600**

**Problem 9-3B (continued)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Part 2. Purchase made on April 1, 2017** | | **2017** |  | **2018** |  | **2019** |
| **A. Double-declining balance method** | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Machinery** | **$588,000** |  | **$588,000** |  | **$588,000** |
| **Less: Accumulated depreciation** | **58,800** |  | **164,640** |  | **249,312** |
| **Year-end book value** | **$529,200** |  | **$423,360** |  | **$338,688** |
| **Depreciation expense for the year1** | **$58,800** |  | **$105,840** |  | **$84,672** |
|  | |  |  |  |  |  |
| **B. Straight-line method** | |  |  |  |  |  |
|  |  |  |  |  |  |
| Machinery | **$588,000** |  | **$588,000** |  | **$588,000** |
| **Less: Accumulated depreciation** | **26,600** |  | **79,800** |  | **133,000** |
| **Year-end book value** | **$561,400** |  | **$508,200** |  | **$455,000** |
| **Depreciation expense for the year2** | **$26,600** |  | **$53,200** |  | **$53,200** |

1. **Rate = 2/10 = .20 or 20%**

**2017: 20% × 588,000 × 6/12 = 58,800 (note – using half year rule)**

**2018: 20% × (588,000 – 58,800) = 105,840**

**2019: 20% × (588,000 – 58,800 – 105,840) = 84,672**

1. **(588,000 – 56,000)/10 = 53,200 × 6/12 = 26,600**

**Problem 9-4B (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production** |
| **2017** | **(145,000 – 25,000)/5 = 24,000/year × 2/12 = 4,000** | **Rate = 2/5 = .40 or 40%**  **145,000 × 40% × 2/12 =**  **9,667** | **Rate = (145,000 – 25,000)/100,000 = 1.20/km**  **1.20 × 5,800 =**  **6,960** |
| **2018** | **24,000** | **(145,000 – 9,667) × 40% =**  **54,133** | **1.20 × 19,400 =**  **23,280** |
| **2019** | **24,000** | **(145,000 – 9,667 – 54,133) × 40% =**  **32,480** | **1.20 × 22,850 =**  **27,420** |
| **2020** | **24,000** | **(145,000 – 9,667 – 54,133 – 32,480) × 40% =**  **19,488** | **1.20 × 25,700 =**  **30,840** |
| **2021** | **24,000** | **4,232\*** | **1.20 × 19,980 =**  **23,976** |
| **2022** | **20,000** | **0** | **120,000 – 112,476 =**  **7,524\*\*** |
| **Totals** | **120,000** | **120,000** | **120,000** |

**\*Maximum allowed = $4,232 [$120,000 – ($9,667 + $54,133 + $32,480 + $19,488)]**

**\*\*Maximum allowed = $7,524 [$120,000 – ($6,960 + $23,280 + $27,420 + $30,840 + $23,976)]**

**Problem 9-5B (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production** |
| **2017** | **(145,000 – 25,000)/5 = 24,000/year × 6/12 = 12,000** | **Rate = 2/5 = .40 or 40%**  **145,000 × 40% × 6/12 =**  **29,000** | **Same as Problem 9-4B; Units-of-production is usage based and not affected by time**  **6,960** |
| **2018** | **24,000** | **(145,000 – 29,000) × 40% =**  **46,400** | **1.20 × 19,400 =**  **23,280** |
| **2019** | **24,000** | **(145,000 – 29,000 – 46,400) × 40% =**  **27,840** | **1.20 × 22,850 =**  **27,420** |
| **2020** | **24,000** | **(145,000 – 29,000 – 46,400 – 27,840) × 40% =**  **16,704** | **1.20 × 25,700 =**  **30,840** |
| **2021** | **24,000** | **56\*** | **1.20 × 19,980 =**  **23,976** |
| **2022** | **12,000** | **0** | **120,000 – 112,476 =**  **7,524\*\*** |
| **Totals** | **120,000** | **120,000** | **120,000** |

\* Maximum allowed = $56 [$120,000 – ($29,000 + $46,400 + $27,840 + $16,704)]

\*\* Maximum allowed = $7,524 [$120,000 – ($6,960 + $23,280 + $27,420 + $30,840 + $23,976)]

**Problem 9-6B (15 minutes)**

**Part 1.**

|  |  |  |  |
| --- | --- | --- | --- |
| 2018 |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machinery** | **55,000** |  |
|  | **Accumulated Depreciation, Machinery** |  | **55,000** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***(500,000 – 60,000)/8 = 55,000*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Equipment** | **126,667** |  |
|  | **Accumulated Depreciation,**  **Equipment** |  | **126,667** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***Rate = 2/4 = .50 or 50%;*** |  |  |
|  | ***50% × (1,280,000 – 1,026,667) = 126,667*** |  |  |

Part 2.

**WESTFAIR FOODS**

**Partial Balance Sheet**

**December 31, 2018**

|  |  |  |  |
| --- | --- | --- | --- |
| **Property, plant and equipment:** | | | |
|  | **Machinery** | **$500,000** |  |
|  | **Less: Accumulated depreciation** | **385,000** | **$115,000** |
|  |  |  |  |
|  | **Equipment** | **1,280,000** |  |
|  | **Less: Accumulated depreciation** | **1,153,334** | **126,666** |
|  | **Total property, plant and equipment** |  | **$241,666** |

**Problem 9-7B (30 minutes)**

***Part 1***

***Market Percentage Apportioned***

***Value  of Total   Cost***

## Building $ 663,300 55% $574,200

**Land 397,980 33 344,520**

**Land improvements 120,600 10 104,400**

**Truck 24,120 2 20,880**

**Total $1,206,000 100% $1,044,000**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Sept. 30** | Building | **574,200** |  |
|  | **Land** | **344,520** |  |
|  | **Land Improvements** | **104,400** |  |
|  | **Truck** | **20,880** |  |
|  | **Cash** |  | **1,044,000** |
|  | ***To record asset purchases.*** |  |  |

***Part 2*  2017straight-line depreciation on building:**

**($574,200 – 45,000)/15 × 3/12 = $8,820**

***Part 3* 2017double-declining-balance depreciation on land**

improvements:

**Rate = 2/8 = .25 or 25%**

**$104,400 × 25% × 3/12 = $6,525**

**Problem 9-8B (45 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Year*** | | ***Straight- Linea*** | | ***Units-of-***  ***Productionb*** | | ***Double- Declining- Balancec*** | | |
| **2017** | **$ 31,304** | **$32,928** | | **$ 72,800** | |  |
| **2018** | **46,956** | **51,744** | | **80,080** | |  |
| **2019** | **46,956** | **47,040** | | **48,048** | |  |
| **2020** | **46,956** | **44,688** | | **28,829** | |  |
| **2021** | **46,956** | **37,240** | | **5,023** | | \* |
| **2022** | **15,652** | **21,140** | | **0** | |  |
| **Totals** | **$234,780** | **$234,780** | | **$234,780** | |  |

**aStraight- line:**

**Cost per year = (273,000 – 38,220)/5 years = $46,956 per year × 8/12**

**= $31,304 for 2017**

**= $46,956/year × 4/12 = $15,652 for 2022**

**bUnits-of-production:**

**Cost per unit = (273,000 – 38,220)/168,000 units = $1.40 per unit**

(rounded)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ***Year*** | ***Units*** | | ***Unit Cost*** | | ***Depreciation*** | | |
|  | **2017** | **23,520** | **$1.40** | | **$32,928** | |  |
|  | **2018** | **36,960** | **1.40** | | **51,744** | |  |
|  | **2019** | **33,600** | **1.40** | | **47,040** | |  |
|  | **2020** | **31,920** | **1.40** | | **44,688** | |  |
|  | 2021 | 26,600 | 1.40 | | 37,240 | |  |
|  | **2022** | **30,940** | **1.40** | | **21,140** | | \* |
|  | **Total** |  |  | | **$234,780** | |  |

**\*Take only enough depreciation in Year 2022to reach the maximum**

**accumulated depreciation of $234,780.**

**cDouble-declining-balance:**

**Rate = 2/5 = .40 or 40%**

**2017: 40% × 273,000 × 8/12 = 72,800**

**2018: 40% × (273,000 – 72,800) = 80,080**

**2019: 40% × (273,000 – 72,800 – 80,080) = 48,048**

**2020: 40% × (273,000 – 72,800 – 80,080 – 48,048) = 28,829**

**2021: 234,780 – 229,757\* = 5,023**

**\*Take only enough depreciation in Year 2021to reach the maximum**

**accumulated depreciation of $234,780.**

**Problem 9-9B (40 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation** | | |
| **Description** | **Date of Purchase** | **Depreciation**  **Method** | **Cost!** | **Residual** | **Life** | **Balance of Accum. Deprec.**  **Apr. 30, 2017** | **Depreciation Expense for 2018** | **Balance of Accum. Deprec.**  **Apr. 30, 2018** |
| **Equipment** | **Oct. 3/14** | **Straight-line** | **$ 62,400** | **$ 16,800** | **20 yr.** | **$ 5,7001** | **$ 2,2802** | **$ 7,9803** |
| **Machinery** | **Oct. 28/14** | **Units-of-production** | **540,000** | **180,000** | **100,000 units** | **73,3324** | **38,1245** | **111,4566** |
| **Tools** | **Nov. 3/14** | **Double-declining balance** | **64,000** | **15,000** | **5 yr.** | **45,5687** | **3,4328** | **49,0009** |

**1. (62,400 – 16,800)/20 = 2,280/year × 2 6/12 = 5,700**

**2. (62,400 – 16,800)/20 = 2,280/year**

**3. 5,700 + 2,280 = 7,980**

**4. Rate = (540,000 – 180,000)/100,000 = 3.60/unit;**

**2015: 940 × 3.60 = 3,384**

2016: 10,150 × 3.60 = 36,540

**2017: 9,280 × 3.60 = 33,408**

**73,332**

**5. 10,590 × 3.60 = 38,124**

**6. 73,332 + 38,124 = 111,456**

**7. Rate = 2/5 = .40 or 40%**

**2015: 40% × 64,000 × 6/12 = 12,800**

2016: 40% × (64,000 – 12,800) = 20,480

**2017: 40% × (64,000 – 12,800 – 20,480) = 12,288**

**Accumulated depreciation at Apr. 30, 2017= $45,568**

**8. 2018: (64,000 – 15,000) – 45,568 = 3,432**

**9. 45,568 + 3,432 = 49,000**

**Problem 9-10B (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| **June 26** | **Truck** | **71,820** |  |
|  | **Cash** |  | **71,820** |
|  | ***To record purchase of new truck;***  ***$68,400 + $3,420 freight costs.*** |  |  |
|  |  |  |  |
| **27** | **Truck** | **3,780** |  |
|  | **Cash** |  | **3,780** |
|  | ***To record installation of special racks.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Depreciation Expense, Truck1** | **7,200** |  |
|  | **Accumulated Depreciation, Truck** |  | **7,200** |
|  | ***To record depreciation for half-year.*** |  |  |
|  |  |  |  |
| 2018  Jan. 5 | **No entry.** |  |  |
| **Mar. 15** | **Repair and Maintenance Expense** | **660** |  |
|  | **Cash** |  | **660** |
|  | ***To record repairs.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Depreciation Expense, Truck2** | **10,600** |  |
|  | **Accumulated Depreciation, Truck** |  | **10,600** |
|  | ***To record revised depreciation*** |  |  |

1. **[(71,820 + 3,780) – 18,000]/4 × 6/12 = 7,200**
2. **[(71,820 + 3,780) – 7,200 – 10,100]/(6 – .5 = 5.5) = 10,600**

**Problem 9-11B (40 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2018 |  |  |  |
| Dec. 31 | **Depreciation Expense, Building1** | **1,620** |  |
|  | **Accumulated Depreciation, Building** |  | **1,620** |
|  | ***To record annual depreciation.*** |  |  |
|  |  |  |  |
| 31 | **Depreciation Expense, Equipment2** | **7,320** |  |
|  | **Accumulated Depreciation, Equipment** |  | **7,320** |
|  | ***To record annual depreciation.*** |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Cost** | **Accumulated Depreciation** | **Residual** |  |  |
| **1.** | **274,800 –** | **134,400** | **– 108,000** | **= 1,620** |  |
|  |  | **20** |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Cost** | **Accumulated Depreciation** | **Residual** |  |
| **2.** | **117,600 –** | **38,400 –** | **6,000** | **= 7,320** |
|  |  | **10** |  |  |

**Problem 9-12B (40 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Jan. 3** | **Warehouse – Furnace (new)** | **39,000** |  |
|  | **Accumulated Depreciation, Warehouse – Furnace** | **18,1531** |  |
|  | **Loss on Disposal** | **8,847** |  |
|  | **Warehouse – Furnace (old)** |  | **27,000** |
|  | **Accounts Payable** |  | **39,000** |
|  | ***To record installation of new warehouse furnace.*** | |  |

***Calculations*:**

1. **2012 Deprec.: 27,000 × 2/10 = 5,400;**

**2013Deprec.: (27,000 – 5,400) × 2/10 = 4,320;**

**2014Deprec.: (27,000 – 9,720) × 2/10 = 3,456;**

**2015Deprec.: (27,000 – 13,176) × 2/10 = 2,765;**

**2016Deprec.: (27,000 – 15,941) × 2/10 = 2,212;**

**Accum. Deprec. Dec. 31, 2016= 5,400 + 4,320 + 3,456 + 2,765 + 2,212 = 18,153.**

**Part 2**

|  |  |  |
| --- | --- | --- |
| **Windows** | **51,750 ÷ 15 =** | **$ 3,450** |
| **Doors** | **105,000 ÷ 20 = 5,250/yr;**  **5,250/yr × 5 yrs = 26,250 Accum. Dep.;**  **105,000 – 26,250 = 78,750 book value;**  **78,750 – 23,100 = 55,650 revised depreciable value; 55,650 ÷ (12 yrs – 5 yrs = 7 yrs) =** | **7,950** |
| **Roofing** | **43,500 ÷ 10 =** | **4,350** |
| **Siding** | **54,000 ÷ 25 =** | **2,160** |
| **Framing/Walls** | **222,000 – 60,000 = 162,000; 162,000 ÷ 30 =** | **5,400** |
| **Furnace** | **39,000 × 2/16 =** | **4,875** |
| **Misc.** | **Maximum allowable depreciation reached1** | **-0-** |
| **Total depreciation expense to be recorded on the warehouse for 2017=** | | **$28,185** |

1. **2012: 61,500 × 2/5 = 24,600;**

**2013: (61,500 – 24,600) × 2/5 = 14,760;**

**2014: (61,500 – 39,360) × 2/5 = 8,856;**

**2015: (61,500 – 48,216) × 2/5 = 5,314;**

**2016: (61,500 – 53,530) × 2/5 = 3,188 which exceeds max. allowable accumulated depreciation of 54,000 therefore the maximum that can be recorded in 2016is 54,000 – 53,530 = 470 with no depreciation recorded in any subsequent years.Problem 9-13B (40 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Mar. 31** | **Impairment Loss** | **26,000** |  |
|  | **Computer Equipment** |  | **26,000** |
|  | ***To record impairment loss on computer equipment.*** |  |  |
|  |  |  |  |
| **31** | **Impairment Loss** | **23,750** |  |
|  | **Machinery** |  | **23,750** |
|  | ***To record impairment loss on machinery.*** |  |  |

***\*Calculations:***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Book Value** | **Recoverable Value** | **Impairment Loss** |
| **Computer equipment** | **$ 32,250** | **$6,250** | **$26,000** |
| **Land** | **145,000** | **172,500** | **NA** |
| **Machinery** | **88,750** | **65,000** | **23,750** |
| **Warehouse** | **173,500** | **243,750** | **NA** |

**Problem 9-13B (*concluded*)**

**Part 2**

**La Mancha Enterprises  
Balance Sheet  
March 31, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 35,000** |  |
| **Accounts receivable** | **$ 57,500** |  |  |
| **Less: Allowance for doubtful accounts** | **6,000** | **51,500** |  |
| **Office supplies** |  | **4,875** |  |
| **Total current assets** |  |  | **$ 91,375** |
| **Property, plant and equipment:** |  |  |  |
| **Land** |  | **$145,000** |  |
| **Warehouse** | **$ 460,000** |  |  |
| **Less: Accumulated depreciation** | **286,500** | **173,500** |  |
| **Machinery** | **$217,5001** |  |  |
| **Less: Accumulated depreciation** | **152,500** | **65,000** |  |
| **Computer equipment** | **$46,5002** |  |  |
| **Less: Accumulated depreciation** | **40,250** | **6,250** |  |
| **Total property, plant and equipment** |  |  | **389,750** |
| **Total assets** |  |  | **$481,125** |
| ***Liabilities*** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$ 14,750** |  |  |
| **Salaries payable** | **33,750** |  |  |
| **Current portion of long-term mortgage** | **59,550** |  |  |
| **Total current liabilities** |  | **$108,050** |  |
| **Non-current liabilities:** |  |  |  |
| **Mortgage payable, less current portion** |  | **34,200** |  |
| **Total liabilities** |  |  | **$142,250** |
| ***Equity*** |  |  |  |
| **Joy La Mancha, capital** |  |  | **338,8753** |
| **Total liabilities and equity** |  |  | **$481,125** |

***Calculations:***

1. **241,250 cost – 23,750 impairment loss = 217,500**
2. **72,500 cost – 26,000 impairment loss = 46,500**
3. **407,875 adjusted capital balance + 1,227,500 revenues – 1,246,750 expenses – 26,000 impairment loss, computer equip. – 23,750 impairment loss, machinery. = 338,875 post-closing capital balance**

***Analysis component:***

**The recording of an impairment loss causes expenses to increase which in turn causes net income to decrease. Decreases in income cause equity on the balance sheet to decrease.**

**Problem 9-14B (45 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| Mar. 2 | **Depreciation Expense, Van** | **1,575** |  |
|  | **Accumulated Depreciation, Van1** |  | **1,575** |
|  | ***To record depreciation on van for 2017.*** |  |  |
| 2 | **Cash** | **17,920** |  |
|  | **Accumulated Depreciation, Van1** | **42,175** |  |
|  | **Loss on Disposal** | **4,305** |  |
|  | **Van** |  | **64,400** |
|  | ***To record sale of van.*** |  |  |
|  |  |  |  |
|  | **Part 2** |  |  |
| Aug. 27 | **Depreciation Expense, Machinery** | **12,642** |  |
|  | **Accumulated Depreciation, Machinery2** |  | **12,642** |
|  | ***To record depreciation on machinery for 2017.*** |  |  |
| 27 | **Cash** | **95,718** |  |
|  | **Accumulated Depreciation, Machinery2** | **33,082** |  |
|  | **Machinery** |  | **128,800** |
|  | ***To record sale of machinery.*** |  |  |
|  |  |  |  |
|  | **Part 3** |  |  |
| June 29 | **Depreciation Expense, Equipment** | **3,500** |  |
|  | **Accumulated Depreciation, Equipment3** |  | **3,500** |
|  | ***To record depreciation on equipment for 2017.*** |  |  |
| **29** | **Cash** | **27,720** |  |
|  | **Accumulated Depreciation, Equipment3** | **48,300** |  |
|  | **Gain on Disposal** |  | **420** |
|  | **Equipment** |  | **75,600** |
|  | ***To record sale of equipment.*** |  |  |

***Calculations:***

1. Depreciation from Feb. 1/17to Mar. 2/17:

**64,400 – 40,600 – 9,800 = $0.35/km × 4,500 km = 1,575**

**40,000**

**+ 40,600**

**42,175**

***(calculations continued on next page)***

**Problem 9-14B (*concluded*)**

1. **Depreciation from Feb. 1/17to Aug. 27/17:**

**128,800 – 20,440 = 108,360 Book Value**

**Rate = 2/10 = .20 or 20%**

**108,360 × 20% × 7/12 = 12,642**

**+ 20,440**

**33,082**

1. **Depreciation from Feb. 1/17to June 29/17:**

**75,600 – 44,800 – 5,600 × 5/12 = 3,500**

1. **+ 44,800**

**48,300**

**Problem 9-15B (60 minutes)**

**Part 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2017 | |  |  |  |
| **Jan. 1** | **Machine** | **156,000** |  |
|  | | **Cash** |  | **156,000** |
|  | | ***To record purchase of machine.*** |  |  |
|  | |  |  |  |
| **2** | | **Machine** | **4,068** |  |
|  | | **Cash** |  | **4,068** |
|  | | ***To record capital repairs on machine.*** |  |  |
|  | |  |  |  |
| **2** | | **Machine** | **5,760** |  |
|  | | **Cash** |  | **5,760** |
|  | | ***To record installation of machine.*** |  |  |
|  | |  |  |  |
| Part 2 | | | | |
| **Dec. 31** | Depreciation Expense, Machine | **20,604** |  |
|  | | **Accumulated Depreciation, Machine** |  | **20,604** |
|  | | ***To record depreciation;***  ***(165,828 – 21,600)/7 = 20,604*** |  |  |
|  | |  |  |  |
| 2022 | |  |  |  |
| **Apr. 1** | **Depreciation Expense, Machine** | **5,151** |  |
|  | | **Accumulated Depreciation, Machine** |  | **5,151** |
|  | | ***To record partial year’s depreciation;*** |  |  |
|  | | ***20,604 × 3/12 = 5,151.*** |  |  |
|  | |  |  |  |

**Problem 9-15B (*concluded*)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part 3(a)** | | | | |
| **Apr. 30** | **Accumulated Depreciation, Machine1** | **108,171** |  | |
|  | **Cash** | **36,000** |  | |
|  | **Loss on Disposal2** | **21,657** |  |
|  | **Machine** |  | **165,828** |
|  | ***Sold machine for $36,000.*** |  |  |
|  |  |  |  |
| Part 3(b) | | | |
| **30** | Accumulated Depreciation, Machine | **108,171** |  |
|  | **Cash** | **60,000** |  |
|  | **Machine** |  | **165,828** |
|  | **Gain on Disposal3** |  | **2,343** |
|  | ***Sold machine for $60,000.*** |  |  |
|  |  |  |  |
| Part 3(c) | | | |
| **30** | Accumulated Depreciation, Machine | **108,171** |  |
|  | **Cash** | **24,000** |  |
|  | **Loss on Disposal4** | **33,657** |  |
|  | **Machine** |  | **165,828** |
|  | ***Received insurance settlement.*** |  |  | |

***Calculations:***

Deprec. for 2017, 2018, 2019, 2020, 2018 and 2015.

**Deprec. for 2022**

**Depreciation**

|  |  |  |
| --- | --- | --- |
| **1.** | **Accumulated depreciation = (20,604 × 5 years) + 5,151 =** | **108,171** |

1. **Gain (Loss) = Cash Proceeds – Book Value**

|  |  |
| --- | --- |
| **= 36,000 – (165,828 – 108,171) =** | **(21,657)** |

1. **Gain (Loss) = Cash Proceeds – Book Value**

|  |  |
| --- | --- |
| **= 60,000 – (165,828 – 108,171) =** | **2,343** |

1. **Gain (Loss) = Cash Proceeds – Book Value**

|  |  |
| --- | --- |
| **= 24,000 – (165,828 – 108,171) =** | **(33,657)** |

**Problem 9-16B (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| **Aug. 31** | **Accumulated Depreciation, Furniture** | **25,800** |  |
|  | **Computer Equipment** | 72,600 |  |
|  | **Furniture** |  | **42,000** |
|  | **Cash** |  | **56,400** |
|  | ***To record exchange.*** |  |  |
|  |  |  |  |
| **Sept. 4** | **Computer Equipment** | **11,760** |  |
|  | **Cash** |  | **11,760** |
|  | ***Addition of capital expenditures.*** |  |  |
|  |  |  |  |
| **Dec. 31** | **Depreciation Expense, Computer Equipment** | **7,240** |  |
|  | Accumulated Depreciation, Computer Equipment |  | **7,240** |
|  | ***To record depreciation;***  ***[(72,600 + 11,760) – 19,200] /3 × 4/12.*** |  |  |

\* Assets Given up = Cash Paid+ Book Value of Assets Given Up

**= 56,400+[42,000–25,800]**

**= 56,400+16,200= 72,600**

**Problem 9-17B (45 minutes)**

**1. Depreciation expense on first December 31 of each machine’s life**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 66901** | **10,800** |  |
|  | **Accumulated Depreciation, Machine 6690** |  | **10,800** |
|  | ***To record depreciation.*** |  |  |
| **2019** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 66913** | **8,325** |  |
|  | **Accumulated Depreciation, Machine 6691** |  | **8,325** |
|  | ***To record depreciation.*** |  |  |
| **2022** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 67115** | **7,155** |  |
|  | **Accumulated Depreciation,**  **Machine 6711** |  | **7,155** |
|  | ***To record depreciation.*** |  |  |

**2. Purchase/exchange/disposal of each machine**

|  |  |  |  |
| --- | --- | --- | --- |
| 2017 |  |  |  |
| **May 1** | **Machine 6690** | **72,900** |  |
|  | **Cash** |  | **72,900** |
|  | ***To record purchase of Machine 6690.*** |  |  |
| **2019** |  |  |  |
| **Aug. 5** | **Machine 6691 (= to assets given up)** | **49,950** |  |
|  | **Accumulated Depreciation, Machine 66902** | **36,450** |  |
|  | **Machine 6690** |  | **72,900** |
|  | **Cash** |  | **13,500** |
|  | ***To record exchange of Machine 6690.*** |  |  |
| 2022 |  |  |  |
| **Feb. 1** | **Cash** | **13,500** |  |
|  | **Accumulated Depreciation, Machine 66914** | **35,465** |  |
|  | **Loss on Disposal** | **985** |  |
|  | **Machine 6691** |  | **49,950** |
|  | ***To record sale of Machine 6691.*** |  |  |
|  |  |  |  |
| **1** | **Machine 6711** | **79,650** |  |
|  | **Cash** |  | **79,650** |
|  | ***To record purchase of Machine 6711.*** |  |  |
|  |  |  |  |
| 2023 |  |  |  |
| **Oct. 3** | **Cash** | **54,000** |  |
|  | **Accumulated Depreciation, Machine 67116** | **17,888** |  |
|  | **Loss on Disposal** | **7,762** |  |
|  | **Machine 6711** |  | **79,650** |
|  | ***To record sale of Machine 6711.*** |  |  |

**Problem 9-17B *(continued)***

***Calculations:***

1. **72,900 – 8,100 = 16,200/year × 8/12 = 10,800**

4

2. Depreciation 2017: 10,800

**2018: 16,200**

**2019: 9,450 (16,200 × 7/12)**

**Accum. Deprec. 36,450**

3. Rate = 2/5 = .40 or 40%

**40% × 49,950 × 5/12 = 8,325**

**4. 2019: 8,325**

**2020: 40% × (49,950 – 8,325) = 16,650**

**2021: 40% × (49,950– 8,325 – 16,650) = 9,990**

**2022: 40% × (49,950– 8,325 – 16,650 – 9,990) × 1/12 = 500**

**35,465**

1. **(79,650 – 8,100)/75,000 = $0.954/unit**

**2022: 7,500 units × 0.954/unit = 7,155**

1. **Depreciation for Jan. 1/2023to Oct. 3/2023:**

**= 11,250 units × 0.954/unit = 10,733**

**7,155**

**Accum. Deprec. 17,888**

**Problem 9-18B (20 minutes)**

**Part 1**

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Feb. 3** | **Patent** | **220,800** |  |
|  | **Cash** |  | **220,800** |
|  | ***To record purchase of patent.*** |  |  |
| **b.** |  |  |  |
| **Dec. 31** | Amortization Expense, Patent | **40,480** |  |
|  | **Accumulated Amortization, Patent** |  | **40,480** |
|  | ***To record amortization on patent;***  ***220,800 ÷ 5 = 44,160/year;***  ***44,160 x 11/12 = 40,480.*** |  |  |

**Part 2**

**Secure Software Group  
Partial Balance Sheet  
December 31, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$103,200** |  |
| **Accounts receivable (net)** |  | **277,200** |  |
| **Merchandise inventory** |  | **135,600** |  |
| **Total current assets** |  |  | **$ 516,000** |
| **Property, plant and equipment:** |  |  |  |
| **Land** |  | **$110,400** |  |
| **Building** | **$595,200** |  |  |
| **Less: Accumulated depreciation, building** | **189,000** | **406,200** |  |
| **Equipment** | **$477,600** |  |  |
| **Less: Accumulated depreciation, equip.** | **259,200** | **218,400** |  |
| **Total property, plant and equipment** |  |  | **735,000** |
| **Intangible assets:** |  |  |  |
| **Patent** |  | **$220,800** |  |
| **Less: Accumulated amortization, patent** |  | **40,480** | **180,320** |
| **Total assets** |  |  | **$1,431,320** |

**Problem 9-19B (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2017** |  |  |  |
| **Dec. 31** | **Amortization Expense, Patent** | **9,625** |  |
|  | **Accumulated Amortization, Patent** |  | **9,625** |
|  | ***To record amortization on the patent;***  ***$210,000 ÷ 20 years = $10,500/yr × 11/12 = $9,625.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Equipment** | **16,170** |  |
|  | **Accumulated Depreciation, Equipment** |  | **16,170** |
|  | ***To record depreciation on the equipment;***  ***$320,600 - $56,000 = $264,600;***  ***$264,600 ÷ 15 years = $17,640/yr × 11/12 = $16,170.*** |  |  |
|  |  |  |  |
| **31** | **Depreciation Expense, Computer** | **14,630** |  |
|  | **Accumulated Depreciation, Computer** |  | **14,630** |
|  | ***To record depreciation on the computer;***  ***$79,800 ÷ 5 years = $15,960/yr × 11/12 = $14,630.*** |  |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2021** |  |  |  |
| **Jan. 27** | **Accumulated Amortization, Patent** | **42,000** |  |
|  | **Loss on Disposal** | **168,000** |  |
|  | **Patent** |  | **210,000** |
|  | ***To record disposal of the patent;***  ***4 yrs × $10,500/yr = $42,000 accum. amort.*** |  |  |
|  |  |  |  |
| **27** | **Accumulated Depreciation, Equipment** | **70,560** |  |
|  | **Cash** | **252,000** |  |
|  | **Gain on Disposal** |  | **1,960** |
|  | **Equipment** |  | **320,600** |
|  | ***To record disposal of the equipment;***  ***4 yrs × $17,640/yr = $70,560 accum. amort.*** |  |  |
|  |  |  |  |
| **27** | **Accumulated Depreciation, Computer** | **63,840** |  |
|  | **Loss on Disposal** | **15,960** |  |
|  | **Computer** |  | **79,800** |
|  | ***To record disposal of the computer;***  ***4 yrs × $15,960/yr = $63,840 accum. amort.*** |  |  |

\***Problem 9-20B (40 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1.a.** | **2017** |  |  |  |
|  | **Oct. 3** | **Depreciation Expense, Equipment – Fan** | **3,840** |  |
|  |  | **Accum. Deprec., Equipment – Fan** |  | **3,840** |
|  |  | **To update depreciation on replaced fan from Jan 1/17to Oct 3/17.** | | |
|  |  |  |  |  |
|  | **3** | **Cash** | **8,400** |  |
|  |  | **Accum. Deprec., Equipment – Fan** | **28,8001** |  |
|  |  | **Equipment – Fan (old)** |  | **32,400** |
|  |  | **Gain on Disposal** |  | **4,800** |
|  |  | ***To record sale of replaced fan on the equipment.*** | |  |
|  |  |  |  |  |
|  | **3** | **Equipment – Fan (new)** | **36,000** |  |
|  |  | **Cash** |  | **36,000** |
|  |  | ***To record purchase of replacement fan on equipment.*** |  |  |
|  |  |  |  |  |
| **1.b.** | **Dec. 31** | **Depreciation Expense, Equipment** | **22,3702** |  |
|  |  | **Accum. Deprec., Equipment** |  | **22,370** |
|  |  | ***To record depreciation for 2017on the equipment (sum of all components).*** | | |

***Calculations:***

1. **32,400 – 3,600 = 28,800; 28,800 ÷ 5 yrs = 5,760/yr;**

**5,760 × 4/12 = 1,920 deprec. for 2012;**

**5,760/yr × 4 yrs (2013to 2016inclusive) = 23,040;**

**5,760/yr × 8/12 (max depreciation to depreciate 5 years) = 3,840 deprec. from Jan. 1/17to Oct. 3/17;**

**1,920 + 23,040 + 3,840 = 28,800 accum. deprec. at Oct. 3/17.**

**\*Problem 9-20B (*continued*)**

|  |  |  |  |
| --- | --- | --- | --- |
| **2.** | **Metal Frame** | **144,000 – 36,000 =108,000; 108,000 ÷ 20 yrs = 5,400/yr; 5,400/yr × 4/12 = 1,800 deprec. for 2012;**  **5,400/yr × 4 yrs (2013to 2016inclusive) = 21,600;**  **1,800 + 21,600 = 23,400 accum. deprec. at Dec. 31/16;**  **Revised deprec. = 144,000 – 23,400 accum. deprec. = 120,600 remaining book value; 120,600 – (36,000 – 12,000 = 24,000 residual value) = 96,600 remaining depreciable cost; 96,600 ÷ 20 yrs =** | **$4,830** |
|  | **Engine** | **2012: 96,000 × 2/10 × 4/12 = 6,400**  **2013: 96,000 – 6,400 = 89,600 × 2/10 = 17,920**  **2014: 89,600 – 17,920 = 71,680 × 2/10 = 14,336**  **2015: 71,680 – 14,336 = 57,344 × 2/10 = 11,469**  **2016: 57,344 – 11,469 = 45,875 × 2/10 = 9,175**  **2017: 45,875 – 9,175 = 36,700 × 2/10 =** | **7,340** |
|  | **New Fan** | **36,000 – 4,800 = 31,200; 31,200 ÷ 5 yrs = 6,240 × 3/12 =** | **1,560** |
|  | **Conveyor System** | **126,000 – 39,600 = 86,400; 86,400 ÷ 10 yrs =** | **8,640** |
|  | **Misc. Parts** | **2012: 27,600 × 2/5 × 4/12 = 3,680**  **2013: 27,600 – 3,680 = 23,920 × 2/5 = 9,568**  **2014: 23,920 – 9,568 = 14,352 × 2/5 = 5,741**  **2015: 14,352 – 5,741 = 8,611 × 2/5 = 3,444**  **2016: 8,611 – 3,444 = 5,167 × 2/5 = 2,067 which exceeds max.; maximum that can be taken in 2016is 5,167 – 4,800 = 367; therefore, no depreciation is taken in 2017** | **-0-** |
|  |  |  | **$22,370** |

**Part 2**

**Total 2017depreciation = $3,840 + $22,370 = $26,210**

Analytical and Review Problems

**A&R Problem 9-1**

**The following points should be set out in the report:**

1. Assets on which depreciation was charged were purchased for use in the business and not for resale. Therefore, the fact that they may be sold for more than cost is not relevant since, in keeping with the cost principle, PPE are maintained in the accounting records at cost.

2. Because these assets are subject to both physical and economic (obsolescence) deterioration, they have a limited useful life span, however long it may be, and their cost, less any residual value, must be allocated over their useful life.

3. Maintenance expenditures maintain these assets in a properly functioning order. They, however, do not eliminate the fact of physical and economic deterioration.

4. Not charging periodic depreciation is in violation of the matching principle and results in an understatement of expenses and overstatement of net income.

5. Depreciation is a process of allocation not of valuation.

**ETHICS CHALLENGE**

1. **When managers acquire new assets a variety of decisions relative to depreciation must be made. The asset must be assigned a useful life and residual value, and a method of depreciation must be chosen.**
2. **It is true that managers can choose a useful life and residual value based on an estimate. However, the estimated life should be the manager’s realistic expectation of how long the asset will actually be used in the operations of the business. The estimated residual value should not be arbitrary; it should reflect expectations of the recoverable value of the asset at the end of its useful life to the business, even if it is zero. The depreciation method should reflect a systematic allocation of the asset’s cost based on how the asset is actually consumed by the business.**
3. By selecting a useful life that is significantly greater than what is realistic in combination with an unreasonably high residual value, the profit margin will be overstated since depreciation expense will be greatly understated.

**FOCUS ON FINANCIAL STATEMENTS**

**FFS9-1**

**a.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation/Amortization** | | |
| **Description** | **Date of Purchase** | **Deprec. Method** | **Original Cost** | **Residual** | **Life** | **Accum. Balance**  **Dec. 31, 2016** | **Expense for 2017** | **Accum. Balance** |
| **Land** | **July 3/14** |  | **$280,000** |  |  | **n/a** | **n/a** | **n/a** |
| **Building** | **July 3/14** | **S/L** | **454,000** | **$40,000** | **15 yr.** | **$ 69,0001** | **$46,0002** | **$115,000** |
| **Machinery** | **Mar 20/14** | **Units** | **150,000** | **30,000** | **250,000** | **72,9603** | **31,2004** | **104,160** |
| **Truck** | **Mar 01/14** | **S/L** | **298,800** | **30,000** | **7 yr.** | **108,8005** | **38,4006** | **147,200** |
| **Furniture** | **Feb 18/14** | **DDB** | **24,000** | **3,000** | **5 yr.** | **18,2407** | **5768** | **-0-10** |
| **Patent** | **Nov 7/15** | **S/L** | **103,800** | **-0-** | **5 yr.** | **24,2209** | **20,7609** | **44,980** |
| **Office Equip.** | **Apr 10/17** | **DDB** | **65,14311** | **10,000** | **4 yr.** | **-0-** | **24,42912** | **24,429** |
| **Furniture** | **Apr 10/17** | **DDB** | **48,85711** | **4,000** | **5 yr.** | **-0-** | **14,65713** | **14,657** |

***Calculations:***

**1. (454,000 – 40,000)/15 = 27,600/year x 6/12 = 13,800 for 2014**

**27,600 for 2015**

**27,600 for 2016**

**69,000 Accum. deprec. at Dec. 31/16**

**2. (454,000 – 40,000 – 69,000)/(10 – 2.5 = 7.5) = 46,000 for 2017**

**3. (150,000 – 30,000)/250,000 = $0.48/unit x 45,000 = 21,600 for 2014**

**x 55,000 = 26,400 for 2015**

**x 52,000 = 24,960 for 2016**

**72,960 Accum. deprec. at Dec. 31/16**

**4. $0.48/unit x 65,000 = 31,200 for 2017**

**5. (298,800 – 30,000)/7 = 38,400/year x 10/12 = 32,000 for 2014**

38,400 for 2015

**38,400 for 2016**

**108,800 Accum. deprec. Dec. 31/16**

**6. (298,800 – 30,000)/7 = 38,400/year depreciation for 2017**

**FFS 9-1 (*continued*)**

**7. 24,000 x 2/5 x 10/12 = 8,000 for 2014**

**(24,000 – 8,000) x 2/5 = 6,400 for 2015**

**24,000 – (8,000 + 6,400)] x 2/5 = 3,840 for 2016**

**18,240 Accum. deprec. Dec. 31/16**

**8. [24,000 – (8,000 + 6,400 + 3,840)] x 2/5 x 3/12 = 576 for 2017**

**9. (103,800 – 0)/5 = 20,760/year x 2/12 = 3,460 for 2015**

**20,760 for 2016**

**24,220 Total dep. taken to Dec. 31/16**

**10. This has a -0- balance at December 31, 2014 because the asset was**

**disposed of (donated to charity).**

**11.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Appraised Values** | **Ratio** | **Cost**  **Allocation** |
| **Office Equipment** | **96,000** | **96/168 x 114,000** | **= 65,143** |
| **Furniture** | **72,000** | **72/168 x 114,000** | **= 48,857** |
| **Totals** | **168,000** |  | **114,000** |

**12. 65,143 x 2/4 x 9/12 = 24,429 for 2017**

**13. 48,857 x 2/5 x 9/12 = 14,657 for 2017FFS 9-1 (*continued*)**

**b.**

|  |  |  |
| --- | --- | --- |
| **Times TeleCom** | | |
| **Income Statement** | | |
| **For Year Ended December 31, 2017** | | |
| **Revenues:** |  |  |  |
| **Fees earned** |  | **$950,000** |  |
| **Expenses:** |  |  |  |
| **Salaries expense** | **$294,000** |  |  |
| **Depreciation expense** | **155,262** |  |  |
| **Amortization expense** | **20,760** |  |  |
| **Insurance expense** | **30,000** |  |  |
| **Loss on disposal of furniture** | **5,184** |  |  |
| **Total expenses** |  | **505,206** |  |
| **Profit** |  | **$444,794** |  |

|  |  |  |
| --- | --- | --- |
| **Times TeleCom** | | |
| **Statement of Changes in Equity** | | |
| **For Year Ended December 31, 2017** | | |
| **Susan Times, capital, January 1, 2017** |  | **$421,180** |
| **Add: Profit** |  | **444,794** |
| **Total** |  | **865,974** |
| **Less: Withdrawals by owner** |  | **204,000** |
| **Susan Times, capital, December 31, 2017** |  | **$661,974** |

**FFS 9-1 (*continued*)**

**Times TeleCom  
Balance Sheet  
December 31, 2017**

|  |  |  |  |
| --- | --- | --- | --- |
| **Assets** |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 30,000** |  |
| **Accounts receivable** |  | **72,000** |  |
| **Prepaid insurance** |  | **15,600** |  |
| **Total current assets** |  |  | **$ 117,600** |
|  |  |  |  |
| **Property, plant and equipment:** |  |  |  |
| **Land** |  | **$280,000** |  |
| **Building** | **$454,000** |  |  |
| **Less: Accumulated depreciation** | **115,000** | **339,000** |  |
| **Machinery** | **$150,000** |  |  |
| **Less: Accumulated depreciation** | **104,160** | **45,840** |  |
| **Truck** | **$298,800** |  |  |
| **Less: Accumulated depreciation** | **147,200** | **151,600** |  |
| **Office equipment** | **$ 65,143** |  |  |
| **Less: Accumulated depreciation** | **24,429** | **40,714** |  |
| **Furniture** | **$ 48,857** |  |  |
| **Less: Accumulated depreciation** | **14,657** | **34,200** |  |
| **Total property, plant and equipment** |  |  | **891,354** |
| **Intangible assets:** |  |  |  |
| **Patent** | **$103,800** |  |  |
| **Less: Accumulated Amortization** | **44,980** |  | **58,820** |
| **Total assets** |  |  | **$1,067,774** |
|  |  |  |  |
| **Liabilities** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$ 68,000** |  |  |
| **Unearned revenue** | **53,800** |  |  |
| **Total current liabilities** |  | **$ 121,800** |  |
| **Non-current liabilities:** |  |  |  |
| **Notes payable, due 2020** |  | **284,000** |  |
| **Total liabilities** |  |  | **$ 405,800** |
|  |  |  |  |
| **Equity** |  |  |  |
| **Susan Times, capital** |  |  | **661,974** |
| **Total liabilities and equity** |  |  | **$1,067,774** |

FFS 9-2

Part 1

***NOTE: Both Danier Leather and WestJet use the term ‘amortization’ instead of ‘depreciation’ in the statements referenced in this question. To be consistent with the textbook, the answers use the term ‘depreciation’.***

**a.**

**The $16,826 (thousand) represents the book value of the PPE. The June 28, 2014, book value is the $46,166 (thousand) total cost of the PPE assets less the $28,161 (thousand) total accumulated depreciation of the PPE. (*Note to instructor: Point out to students that this additional information — cost and accumulated depreciation — is found in Danier’s Note 6 of the financial statements.*)**

**b. The full disclosure principle requires financial statements to report all relevant information about the operations and financial position of the entity. In conformance with the full disclosure principle, information in addition to the $16,826 (thousand) book value is reported in Note 1(k) (depreciation methods) and Note 6 (cost, accumulated depreciation, and book value).**

**c. The depreciation expense for the year ended June 28, 2014, was $3,517 (thousand). Although depreciation expense typically appears on the income statement, Danier does not detail it there but these amounts do appear on the statement of cash flows and in Note 6.**

Part 2

* 1. **WestJet’s property and equipment at December 31, 2014 is 60.11% of total assets calculated as ($2,793,194/$4,646,433) x 100.**
  2. **Indigo’s property, plant and equipment at March 29, 2014 represent 11.41% of total assets calculated as ($58,476,000/$512,588,000) x 100.**
  3. **WestJet and Indigo operate in different industries: WestJet is an airline while Indigo operates bookstores. As such, WestJet has relatively little inventory in comparison to Indigo. Indigo’s inventory at March 29, 2014 is $218,979 thousand or 42.72% of total assets (calculated as $218,979,000/$512,588,000 x 100). Indigo’s inventory represents close to half of its total assets while WestJet’s property and equipment represent over half of its assets. Indigo needs a large stock of inventory in order to operate. WestJet primarily needs property and equipment (planes) to operate its business. Therefore, it seems logical that the mix of assets would be different for each company.**

1. **CRITICAL THINKING MINI-CASE**

CT 9-1

***Note to instructor: Student responses will vary and therefore the answer here is only suggested and not inclusive of all possibilities; it is presented in point form for brevity.***

**Problem:**

**— Taking the perspective of both the external and internal auditors, there is a problem with how a number of revenue expenditures were recorded as capital expenditures.**

**Goal:\***

**— To identify which transactions were recorded incorrectly, correct them, and restate net income on the income statement and restate assets and equity on the balance sheet.**

**— Another goal, from the perspective of the auditor, would be to bring these issues to the attention of the board of directors for their action because there may be ethical concerns regarding the behaviour of the business manager (bonus is tied to income so he/she may be manipulating the recording of transactions to maximize income).**

**Principles:**

**— The matching principle has been violated; it requires costs to be allocated or matched to the period in which it helped generate revenues.**

**— The prudence principle was also violated; it states that assets and income should never be overstated.**

**— Another GAAP requires consideration: materiality. If the misstatements are not material in nature (not significant in dollar amount so that the decisions of shareholders would not have been affected), the conclusions are affected. Therefore, we must look at the numbers to determine whether materiality has been violated or not.**

CT 9-1 (*continued*)

Facts:

as stated in the mini case

—The insurance was incorrectly debited to the Truck account; it should have been debited to a current asset account: Prepaid Insurance. The result of this error is an overstatement of net income in 2015 of $7,800 (36,000/24 months = 1,500/month insurance used x 10 months = 15,000 for 2015vs. 36,000/5 yrs useful life = 7,200; 15,000 – 7,200 = 7,800). 2015 net income is not known but if it is assumed that it approximates 2016net income as reported ($78,000), then the $7,800 overstatement of net income in 2015 is material in nature since it approximates 10%.

—The net income in 2016 would also have been materially overstated; by $10,800 (1,500 insurance expense per month x 12 months used = 18,000 – depreciation of 7,200 = 10,800). Net income in 2017would have been understated by $4,200 (7,200 depreciation– 3,000 insurance used = 4,200).

—It is unclear from the information provided how the insurance renewal was treated: as a capital or revenue expenditure; this would have affected the impact of the misstatement in 2017.

—It is unclear from the information provided whether revised depreciation was calculated when the subsequent expenditures (motors) were debited to the truck account (which is correct assuming that the motors enhanced the trucks which is likely). We will assume that this was treated correctly (capital expenditure with resulting calculation of revised depreciation) given no information to the contrary. The $32,000 and $2,500 costs regarding the tires and brakes were capitalized in error; they should have been expensed when incurred in 2017. Therefore, net income in 2017is overstated by a potential $34,500 (32,000 + 2,500) — I say potential because it is unclear whether revised depreciation was calculated on the truck; this additional depreciation would affect the amount of any misstatement in 2016and 2017.

—There is also the issue of when the bonus was recorded; these were recorded in the incorrect accounting periods (recorded when paid as opposed to the period which triggered the cost — violation of matching and realization principles). In addition, because the bonuses were based on overstated net income amounts, the bonuses would have been overstated for 2015 and 2016 and potentially in 2017.

—It appears that the 2016net income was overstated by almost 50%.

**Conclusions/Consequences:**

**— To do ‘nothing’ would mean that shareholders/owners are making decisions based on inaccurate information.**

**— If the manager did, in fact, engage in unethical actions, a longer term implication from the perspective of the manager is that he/she may lose their job and future employability prospects in addition to damaging the credibility of the company and its share values assuming it is publicly held.**

**— The board of directors need to be made aware of the errors made in recording capital expenditures so that they can deal appropriately with the manager responsible and negative repercussions with shareholders/owners.**

**\*The goal is highly dependent on perspective.**