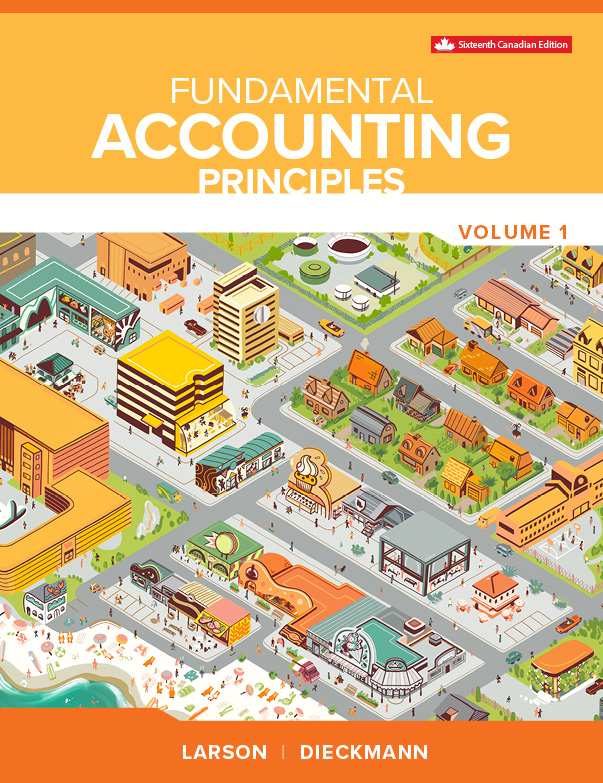
**SOLUTIONS MANUAL**

to accompany

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

**16thCanadian Edition**

**by Larson/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. Knowledge Check-Up Questions**

1. **a) 2. d) 3. d) 4. d) 5. c)**
2. **c) 7. b) 8. d) 9. c) 10. c)**

**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. 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. Betterments 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 betterment, 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. Spin Master had Depreciation and amortization of 44,908 and 30,490 (thousands) in 2017 & 2016 as seen on the Consolidated statements of Cash flows. The explanation of the difference is found in Note 11 of the Financial Statements.**

**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 $59,517,000 as Intangible assets at December 31, 2017.**

**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, 2017.**

**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)

|  |  |
| --- | --- |
| Invoice cost | $11,000 |
| Freight costs | 280 |
| Steel mounting | 815 |
| Assembly | 4,055 |
| Less: discount ($11,000 × 2%) | (220) |
| Total acquisition costs | $15,925 |

*Note: The $50 gloves are an expense and therefore not capitalized.*

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

1. (a) Repairs & Maintenance Expense

**(b) Betterment**

**(c) Repairs & Maintenance Expense**

**(d) Betterment**

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 a betterment.*** |  |  |
| **(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 a betterment.*** |  |  |

**Quick Study 9-4 (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***

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **Apr. 14** | **Land** | **345,600** |  |
|  | **Building** | **194,400** |  |
|  | **Cash** |  | **85,000** |
|  | **Notes Payable** |  | **455,000** |
|  | ***To record purchase of land and building.*** |  |  |

**Quick Study 9-5 (10 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **TechCom**  **Partial Balance Sheet**  **October 31, 2020** | | | | |
| 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 9-6 (10 minutes)

($55,900 – $1,900)/4 = $13,500/year

Quick Study 9-7 (10 minutes)

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | Calculation | | Annual Depreciation | |
| 2020 | $.01 × 650,000 | = | $6,500 |
| 2021 | $.01 × 798,000 | = | 7,980 |
| 2022 | $.01 × 424,000 | = | 4,240 |
| 2023 | $.01 × 935,000 | = | 9,350 |
| 2024 | $.01 × 1,193,000 | = | 11,930 |
|  |  | | $40,000 |

Quick Study 9-8 (10 minutes)

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

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | | | Calculation | | Annual Depreciation | | |  | |
| 2020 | | | 40% × $86,000 = | | $34,400 | |  | | |
| 2021 | | | 40% × ($86,000 – $34,400) = | | 20,640 | |  | | |
| 2022 | | | 40% × ($86,000 – $34,400 – $20,640) = | | 12,384 | |  | | |
| 2023 | | | 40% × ($86,000 – $34,400 – $20,640 – $12,384) = | | 2,576 | | \* | | |
| 2024 | |  | | 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 9-9 (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 2020= $500 + $10,075 + $3,750 + $13,000 = $27,325

Quick Study 9-10 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2020 | 2021 |
| 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 9-11 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2020 | 2021 |
| 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 2020

20% x (60,000 – 10,000) = 10,000 for 2021

b. 20% x 60,000 = 12,000 x 6/12 = 6,000 for 2020

20% x (60,000 – 6,000) = 10,800 for 2021

Quick Study 9-12 (10 minutes)

|  |  |  |
| --- | --- | --- |
|  | 2020 | 2021 |
| 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 2020; $0.50 x 28,000 = $14,000 for 2021

*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 9-13 (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 9-14 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| 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 9-15 (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 9-16 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  |  |  |
| 2020 |  |  |  |
| 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 9-17 (10 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2020 |  |  |  | |
| 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 9-18 (15 minutes)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2020 |  |  |  | |
| 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 9-19 (10 minutes)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 2020 |  |  | |  | |
| 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 9-20 (10 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| 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 9-21 (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 2020 = | | $ 9,870 |

EXERCISES

Exercise 9-1 (10 minutes)

|  |  |
| --- | --- |
| Invoice cost | $28,000 |
| Freight costs | 450 |
| Steel mounting | 985 |
| Assembly | 660 |
| Raw materials for testing | 310 |
| Less: discount ($28,000 × 1%) | (280) |
| Total acquisition costs | $30,125 |

*Note: The $380 repairs are an expense and therefore not capitalized.*

*Note: The special insurance is 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:

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| 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:**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| **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)**

**2020**

|  |  |  |  |
| --- | --- | --- | --- |
| **Jan. 1** | **Truck** | **87,000** |  |
|  | **Cash** |  | **87,000** |

***Calculation:***

**52,500 + 21,000 + 7,500 + 6,000 = 87,000**

|  |  |  |  |
| --- | --- | --- | --- |
| **Jan. 4** | **Prepaid Insurance** | **5,100** |  |
|  | **Gas Expense** | **225** |  |
|  | **Cash** |  | **5,325** |

**2020**

|  |  |  |  |
| --- | --- | --- | --- |
| **Dec 31** | **Depreciation Expense, Truck** | **15,600** |  |
|  | **Accumulated Depreciation, Truck** |  | **15,600** |

***To record depreciation.***

***Calculation:***

**[(52,500 + 21,000 + 7,500 + 6,000) – 9,000] / 5 years = 15,600**

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **a.**  **Straight-Line** | **b.**  **Double-Declining-Balance** | **c.**  **Units-of-Production** |
| **2018** | **$32,550** | **$75,100** | **$26,880** |
| **2019** | **$32,550** | **$37,550** | **$28,910** |
| **2020** | **$32,550** | **$17,550** | **$36,890** |
| **2021** | **$32,550** |  | **$37,520** |
| **Total** | **$130,200** | **$130,200** | **$130,200** |

**Explanation**:

a.   
($150,200 – $20,000)/4 = $32,550/year  
  
b.  
Double-declining-balance (Rate = 2/4 = 0.50 or 50%):  
50% × $150,200 = $75,100  
50% × ($150,200 – $75,100) = $37,550  
Maximum depreciation is limited to $130,200 which is cost less residual ($150,200 – $20,000) therefore depreciation for 2020 is $17,550 calculated as $130,200 – $112,650 accumulated depreciation recorded to date.  
  
c.  
Units-of-production: (Rate = [($150,200 – $20,000)/186,000] = $0.70/unit)  
$26,880 ($0.70 × 38,400)  
$28,910 ($0.70 × 41,300)  
$36,890 ($0.70 × 52,700)  
Maximum depreciation is limited to $130,200 which is cost less residual ($150,200 – $20,000) therefore depreciation for 2021 is $37,520 calculated as $130,200 – $92,680 accumulated depreciation recorded to date.

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

1. **($305,200 – $52,400)/5 = $50,560**

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

**40% × $305,200 = $122,080**

**c.**

**Rate = ($305,200 – $52,400)/320,000 km = $0.79/km**

**$0.79/km × 30,000 km = $23,700**

***Analysis component:***

**The units-of-production method will produce the highest profit in 2020 because it is the lowest depreciation expense for 2020.**

**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** |
| **2020** | **21,250** | **104,000** | **50,100** | **75,150** | **16,875** | **108,375** |
| **2021** | **21,250** | **82,750** | **30,060** | **45,090** | **22,250** | **86,125** |
| **2022** | **21,250** | **61,500** | **18,036** | **27,054** | **30,000** | **56,125** |
| **2023** | **21,250** | **40,250** | **8,054** | **19,000** | **37,125** | **19,000** |
| **2024** | **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;**

**2020– 12.50 x 1,350 = 16,875;**

**2021– 12.50 x 1,780 = 22,250;**

**2022– 12.50 x 2,400 = 30,000;**

**2023– 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. 2020– Units-of-production; 2023– Straight-line**

**b. 2020– Double-declining-balance; 2023– 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** | **2020 Depreciation** | **2021 Depreciation** |
| 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, 2019** | **Depreciation Expense for 2020** | **Balance of Accum. Deprec.**  **Dec. 31, 2020** |
| **Building** | **2 May 2014** | **S/L** | **$650,000** | **$250,000** | **10 yr.** | **$226,667** | **$40,0001** | **$266,6672** |
| **Modular Furniture** | **2 May 2014** | **S/L** | **72,000** | **0** | **6 yr.** | **68,000** | **4,0003** | **72,0004** |
| **Truck** | **25 Jan 2017** | **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 2014 [(72,000 – 0)/6 = $12,000 per year X 8/12] plus 12,000 in years 2015 – 2019) = 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)

DYNAMIC EXPLORATION

Partial Balance Sheet

December 31, 2019

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** | **$180,000** | **$180,000** | **$180,000** | **$180,000** | **$180,000** | **$900,000** |
| **Depreciation expense1** | **73,980** | **73,980** | **73,980** | **73,980** | **73,980** | **369,900** |
| **Profit** | **$106,020** | **$106,020** | **$106,020** | **$106,020** | **$106,020** | **$530,100** |

b. Double-declining-balance depreciation:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **5-Year Totals** |
| **Profit before   depreciation** | **$180,000** | **$180,000** | **$180,000** | **$180,000** | **$180,000** | **$900,000** |
| **Depreciation expense2** | **193,560** | **116,136** | **60,204** | **0** | **0** | **369,900** |
| **Profit (loss)** | **$(13,560)** | **$63,864** | **$119,796** | **$180,000** | **$180,000** | **$530,100** |

**a. ($483,900 – $114,000)/5 = $73,980**

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

**Depreciation expenses:**

**Year 1: $483,900 × 40% = $193,560**

**Year 2: ($483,900 – $193,560) × 40% = $116,136**

**Year 3: $60,204 max. depreciation expense (calculated as $483,900 – $114,000 – $193,560 – $116,136 = $60,204)**

***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** |
| **2018** | **7,800** | **23,220** |
| **2019** | **23,400** | **42,660** |
| **2020** | **23,400** | **34,560** |

**1. Straight-Line:**

**$168,000 – $27,600 = $140,400/6 = $23,400 × 4/12 = $7,800**

**2. Units-of-Production:**

**$168,000 – $27,600 = $140,400/260,000 = $0.540/unit;**

**$0.540 × 43,000 = $23,220;**

**$0.540 × 79,000 = $42,660;**

**$0.540 × 64,000 = $34,560.**

***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** |
| **2019** | **11,000** | **22,000** |
| **2020** | **22,000** | **35,200** |
| **2021** | **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 2019 when 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 2019 while 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** |
| **2020** | **(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** |
| **2021** | **(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)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2023 |  |  |  |
| **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

**\*2020 depreciation = 8,400 (71,200 – 15,200)/5 = 11,200 × 9/12**

**2021 depreciation = 11,200**

**2022 depreciation = 11,200**

**Accumulated**

**depreciation 30,800**

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

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **Jan. 5** | **Warehouse – Door………………………** | **25,500** |  |
|  | **Accounts Payable………………………** |  | **25,500** |
|  | ***To record addition of door on East wall of warehouse.*** | |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **Dec. 31** | **Impairment Loss** | **13,500** |  |
|  | **Equipment** |  | **12,000** |
|  | **Office Building** |  | **1,500** |
|  | ***To record impairment loss on equipment and office building.*** |  |  |

**Part 2**

|  |  |  |  |
| --- | --- | --- | --- |
| **2021** |  |  |  |
| **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** | **2021 Dep. 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 Building** | **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.** |  |  |  |
| **2020** |  |  |  |
| **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. $202,000 − $111,000 = $91,000 book value**

**b.**

**Book value of the assets given up = ($91,000 + $170,000) = $261,000**

**Less: Fair value of assets given up ($68,000 + $170,000) = $238,000**

**Loss on exchange $23,000**

**c. & d. Tractor (new) = $68,000 + $170,000 = $238,000**

**d.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2020** |  |  |  |  |
| **Oct. 6** | **Tractor (new)\*** | **238,000** |  |  |
|  | **Accumulated Depreciation, Tractor (old)** | **111,000** |  |  |
|  | **Loss on Exchange** | **23,000** |  |  |
|  | **Cash** |  |  | **170,000** |
|  | **Tractor (old)** |  |  | **202,000** |
|  | ***To record exchange of old tractor for a new one.*** |  |  |  |
|  |  |  |  |  |

Exercise 9-23 (20 minutes)

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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** | **50,450** |  |
|  | **Cash** | **44,500** |  |
|  | **Loss on Disposal** | **1,050** |  |
|  | **Machine** |  | **96,000** |
|  | ***To record sale of machine;***  ***44,500 – (96,000 – 50,450) = 1,050 loss.*** |  |  |
|  |  |  |  |
| **(b)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **50,450** |  |
|  | **Tools** | **134,550** |  |
|  | **Cash** |  | **89,000** |
|  | **Machine** |  | **96,000** |
|  | ***To record exchange of machine;***  ***Value of assets given up = $89,000 cash + $45,550***  ***book value of the old machine = $134,550.*** |  |  |
|  |  |  |  |
| **(c)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **50,450** |  |
|  | **Van** | **116,000** |  |
|  | **Loss on Disposal** | **9,550** |  |
|  | **Cash** |  | **80,000** |
|  | **Machine** |  | **96,000** |
|  | ***To record exchange of machine;***  ***116,000 – (80,000 + 45,550) = 9,550 loss.*** |  |  |
|  |  |  |  |
| **(d)** | | | |
| **Jan. 2** | **Accumulated Depreciation, Machine** | **50,450** |  |
|  | **Land** | **87,000** |  |
|  | **Machine** |  | **96,000** |
|  | **Cash** |  | **37,000** |
|  | **Gain on Disposal** |  | **4,450** |
|  | ***To record exchange;***  ***87,000 – (37,000 + 45,550) = 4,450 gain.*** |  |  |

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2020** | |  | |  |  |
| **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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2020** |  |  | |  |
| **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.*** | | |  |
| **2021** |  | |  |  |
| **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, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| 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*** |  |  |  |
| **Sally 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, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| Assets |  |  |  |
| **Current assets:** |  |  |  |
| **Cash** |  | **$ 10,100** |  |
| **Accounts receivable** | **$17,300** |  |  |
| **Less: Allowance for doubtful accounts** | **1,010** | **16,290** |  |
| **Prepaid rent** |  | **1,3551** |  |
| **Total current assets** |  |  | **$ 27,745** |
| **Property, plant and equipment:** |  |  |  |
| **Furniture** | **$22,700** |  |  |
| **Less: Accumulated depreciation** | **14,7302** | **$ 7,970** |  |
| **Machinery** | **$50,800** |  |  |
| **Less: Accumulated depreciation** | **22,7003** | **28,100** |  |
| **Total property, plant and equipment** |  |  | **36,070** |
| **Intangible assets:** |  |  |  |
| **Patent** |  | **$24,900** |  |
| **Less: Accumulated amortization** |  | **8304** | **24,070** |
| **Total assets** |  |  | **$87,885** |
| ***Liabilities*** |  |  |  |
| **Current liabilities:** |  |  |  |
| **Accounts payable** | **$5,080** |  |  |
| **Unearned revenues** | **5,870** |  |  |
| **Current portion of long-term note** | **6,500** |  |  |
| **Total current liabilities** |  | **$ 17,450** |  |
| **Non-current liabilities:** |  |  |  |
| **Note payable, less current portion** |  | **8,100** |  |
| **Total liabilities** |  |  | **$25,550** |
| ***Equity*** |  |  |  |
| **Josh Montalvo, capital** |  |  | **62,3355** |
| **Total liabilities and equity** |  |  | **$87,885** |

***Calculations:***

**1. $16,260 ×11/12 = $14,905 rent used; $16,260 – $14,905 = $1,355 remaining in Prepaid Rent.**

**2. $22,700 ÷ 5 = $4,540; $4,540 + $10,190 = $14,730 accum. dep.**

**3. $50,800 – $20,200 = $30,600; $30,600 × 2/10 = $6,120; maximum depreciation is $50,800 – $28,100 = $22,700 therefore 2020 depreciation**

**expense is $2,500 and accum. dep. is $20,200 + $2,500 = $22,700.**

**4. $24,900 ÷ 15 = $1,660/year; $1,660 × 6/12 = $830.**

**5. $32,910 unadjusted capital + $225,400 revenues – $83,900 withdrawals – $89,300 expenses – $4,540 dep. furniture – $2,500 dep. machinery –**

**$830 amort. patent – $14,905 rent expense = $62,335 post-closing capital.**

**Exercise 9-29**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **2018** |  | | |  | |  | | |
| **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.*** | | | | |  | | |
| **2019** |  | | |  | |  | | |
| **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*** | | | | |  | | |
|  |  | | |  | |  | | |
| **2020** |  | | |  | |  | | |
| **Mar 31** | | **Depreciation Expense, Truck** | **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, Oven** | **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** | |  |
|  | | **Loss on Disposal** | | | **18,200** | |  |
|  | | **Truck** | | |  | | **52,000** |
|  | | **Oven** | | |  | | **6,000** |
|  | | ***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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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 31/19** | **Dep. Exp. Dec 31/20** | **Dep. Exp. Dec 31/21** |
| **Truck body** | **Jul 7/18** | **$ 28,000** | **-0-** | **10 yr** | **$ 4,200** | **$ 2,8001** | **$ 2,8001** |
| **Motor** | **Jul 7/18** | **8,000** | **-0-** | **10 yr** | **1,200** | **8002** | **8002** |
| **Tool Carrier** | **Jul 3/20** | **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 2020**

**Part 3**

**Book value of truck at December 31, 2020:**

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

**Book value of truck at December 31, 2021:**

**$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\*** | **$2,924,800** | **$1,051,100** |  | **$594,100** |  |
| **Demolition** | **703,160** |  |  |  |  |
| **Landscaping** | **272,020** |  |  |  |  |
| **New building** |  |  | **$2,476,000** |  |  |
| **New improvements** |  |  |  |  | **$254,600** |
| **Totals** | **$3,899,980** | **$1,051,100** | **$2,476,000** | **$594,100** | **$254,600** |

\*Allocation of purchase price:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | ***Appraised Value*** | | ***Percent of Total*** | | | | | ***Apportioned Cost*** | |
| **Land** | **$2,990,720** | **64** | | % | | | **$2,924,800** | |
| **Building Two** | **1,074,790** | **23** | |  | | | **1,051,100** | |
| **Land Improvements One** | **607,490** | **13** | |  | | | **594,100** | |
| **Totals** | **$4,673,000** | **100** | | | **%** | **$4,570,000** | | |

***Part 2***

|  |  |  |  |
| --- | --- | --- | --- |
| **Mar. 31** | **Land** | **3,899,980** |  |
|  | **Building Two** | **1,051,100** |  |
|  | **Building Three** | **2,476,000** |  |
|  | **Land Improvements One** | **594,100** |  |
|  | **Land Improvements Two** | **254,600** |  |
|  | **Cash** |  | **8,275,780** |
|  | ***To record costs of plant assets.*** |  |  |

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

**Derlak Enterprises**

**Balance Sheet**

**December 31**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2020** | | **2019** | |
| **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 2019. In 2020, the assets are financed largely by debt. The change from 2019 to 2020 in 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)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **a.**  **Straight-Line** | **b.**  **Double-Declining-Balance** | **c.**  **Units-of-Production** |
| **2018** | **$33,250** | **$84,000** | **$27,930** |
| **2019** | **$33,250** | **$42,000** | **$30,485** |
| **2020** | **$33,250** | **$7,000** | **$37,940** |
| **2021** | **$33,250** |  | **$36,645** |
| **Total** | **$133,000** | **$133,000** | **$133,000** |

**Explanation:**

**a.   
($168,000 – $35,000)/4 = $33,250/year  
  
b.  
Double-declining-balance (Rate = 2/4 = 0.50 or 50%):  
50% × $168,000 = $84,000  
50% × ($168,000 – $84,000) = $42,000  
Maximum depreciation is limited to $133,000 which is cost less residual ($168,000 – $35,000) therefore depreciation for 2021 is $7,000 calculated as $133,000 – $126,000 accumulated depreciation recorded to date.  
  
c.  
Units-of-production: (Rate = [($168,000 – $35,000)/190,000] = $0.70/unit)  
$27,930 ($0.70 × 39,900)  
$30,485 ($0.70 × 43,550)  
$37,940 ($0.70 × 54,200)  
Maximum depreciation is limited to $133,000 which is cost less residual ($168,000 – $35,000) therefore depreciation for 2020 is $36,645 calculated as $133,000 – $96,355 accumulated depreciation recorded to date.**

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **1. Purchased January 1, 2020** | | **2020** |  | **2021** |  | **2022** |
| **A. Double-declining-balance method** | |  |  |  |  |  |
|  | |  |  |  |  |  |
| **Equipment** | **$415,000** |  | **$415,000** |  | **$415,000** |
| **Less: Accumulated depreciation** | **83,000** |  | **149,400** |  | **202,520** |
| **Year-end book value** | **$332,000** |  | **$265,600** |  | **$212,480** |
| **Depreciation expense for the year1** | **$83,000** |  | **$66,400** |  | **$53,120** |
|  |  |  |  |  |  |
| **B. Straight-line method** | | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Equipment** | **$415,000** |  | **$415,000** |  | **$415,000** |
| **Less: Accumulated depreciation** | **39,000** |  | **78,000** |  | **117,000** |
| **Year-end book value** | **$376,000** |  | **$337,000** |  | **$298,000** |
| **Depreciation expense for the year** | **$39,0002** |  | **$39,000** |  | **$39,000** |

1. **Rate = 2/10 = 0.20 or 20%**

**2020: 0.20 × 415,000 = 83,000**

**2021: 0.20 × (415,000 – 83,000) = 66,400**

**2022: 0.20 × (415,000 – 83,000 – 66,400) = 53,120**

1. **(415,000 – 25,000)/10 = 39,000**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **2. Purchased July 1, 2020** | | **2020** |  | **2021** |  | **2022** |
| **A. Double-declining-balance method** | |  |  |  |  |  |
|  | |  |  |  |  |  |
| **Equipment** | **$415,000** |  | **$415,000** |  | **$415,000** |
| **Less: Accumulated depreciation** | **41,500** |  | **116,200** |  | **175,960** |
| **Year-end book value** | **$373,500** |  | **$298,800** |  | **$239,040** |
| **Depreciation expense for the year3** | **$41,5004** |  | **$74,700** |  | **$59,760** |
|  |  |  |  |  |  |
| **B. Straight-line method** | | |  |  |  |  |  |
|  |  |  |  |  |  |
| **Equipment** | **$415,000** |  | **$415,000** |  | **$415,000** |
| **Less: Accumulated depreciation** | **19,500** |  | **58,500** |  | **97,500** |
| **Year-end book value** | **$395,500** |  | **$356,500** |  | **$317,500** |
| **Depreciation expense for the year** | **$19,5004** |  | **$39,000** |  | **$39,000** |

1. **Rate = 2/10 = 0.20 or 20%**

**2020: 0.20 × 415,000 × 6/12 = 41,500**

**2021: 0.20 × (415,000 – 41,500) = 74,700**

**2022: 0.20 × (415,000 – 41,500 – 74,700) = 59,760**

1. **(415,000 – 25,000)/10 = 39,000 × 6/12 = 19,500**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method1:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production2** |
| **2020** | **(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** |
| **2021** | **63,600** | **(828,000 – 138,000) × 20% =**  **138,000** | **48 × 1,780 =**  **85,440** |
| **2022** | **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: 2020: 720; 2021: 1,780; 2022: 1,535.***

***Analysis component:***

**If you could ignore the matching principle, you might record the purchase of the boats as boat expense which means the entire cost of $828,000 would have been expensed in 2020, the year of purchase. This would have resulted in the net income being understated in 2020 and, 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 boat expense 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 9-6A (25 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method1:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production2** |
| **2020** | **(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** |
| **2021** | **63,600** | **(828,000 – 82,800) × 20% =**  **149,040** | **85,440** |
| **2022** | **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: 2020: 720; 2021: 1,780; 2022: 1,535.***

**Problem 9-7A (15 minutes)**

**1.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| Apr. 30 | **Depreciation Expense, Building** | **53,000** |  |
|  | **Accumulated Depreciation, Building** |  | **53,000** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***742,000/14 = 53,000.*** |  |  |
|  |  |  |  |
| **30** | **Depreciation Expense, Equipment** | **77,184** |  |
|  | **Accumulated Depreciation, Equipment** |  | **77,184** |
|  | ***To record annual depreciation;*** |  |  |
|  | ***Rate = 2/10 = .20 or 20%;*** |  |  |
|  | ***385,920 × 20% = 77,184.*** |  |  |

**2.**

**Big Sky Farms**

**Partial Balance Sheet**

**April 30, 2021**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Property, plant and equipment:** | | | | |
|  | **Land** |  |  | **$730,000** |
|  |  |  |  |  |
|  | **Building** | **$742,000** |  |  |
|  | **Less: Accumulated depreciation** | **636,000** |  | **106,000** |
|  |  |  |  |  |
|  | **Equipment** | **670,000** |  |  |
|  | **Less: Accumulated depreciation** | **361,264** |  | **308,736** |
|  | **Total property, plant and equipment** |  |  | **$1,144,736** |

**Problem 9-8A (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**

**2020**

|  |  |  |  |
| --- | --- | --- | --- |
| **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* 2020 straight-line depreciation on building:**

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

***Part 3* 2020 double-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, 2020 were put into service on May 23, 2020 the 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 9-9A (30 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Year*** | ***Straight- Linea*** | | | ***Units-of-***  ***Productionb*** | | ***Double- Declining- Balancec*** | | |
| **2020** | | **$ 38,000** | **$ 20,544** | | **$ 84,000** | |  |
| **2021** | | **114,000** | **117,504** | | **210,000** | |  |
| **2022** | | **114,000** | **114,816** | | **105,000** | |  |
| **2023** | | **114,000** | **113,472** | | **52,500** | |  |
| **2024** | | **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*** | |  |
| **2020** | **21,400** | **$0.96** | | **$ 20,544** | |  | | |
| **2021** | **122,400** | **0.96** | | **117,504** | |  | | |
| **2022** | **119,600** | **0.96** | | **114,816** | |  | | |
| **2023** | **118,200** | **0.96** | | **113,472** | |  | | |
| **2024** | **102,000** | **0.96** | | **89,664** | | **\*** | | |
| **Total** |  | |  | **$456,000** | |  | | |

***\*Take only enough depreciation in Year 2024 to reach the maximum***

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

**cDouble-declining-balance:**

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

**2020: 50% × 504,000 × 4/12 = 84,000**

**2021: 50% × (504,000 – 84,000) = 210,000**

**2022: 50% × (504,000 – 84,000 – 210,000) = 105,000**

**2023: 50% × (504,000 – 84,000 – 210,000 – 105,000) = 52,500**

**2024: 456,000 – 451,500\* = 4,500**

***\*Take only enough depreciation in Year 2024 to reach the maximum***

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

**Problem 9-10A (30 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation** | | |
| **Description** | **Date of Purchase** | **Depreciation**  **Method** | **Cost** | **Residual** | **Life** | **Balance of Accum. Deprec.**  **Dec. 31, 2020** | **Deprec. Expense for 2021** | **Balance of Accum. Deprec.**  **Dec. 31, 2021** |
| **Office Equipment** | **March 27/17** | **Straight-line** | **$52,000** | **$14,000** | **10 yr.** | **14,2501** | **3,8002** | **18,0503** |
| **Machinery** | **June 4/17** | **Double-declining balance** | **$275,000** | **$46,000** | **6 yr.** | **209,3624** | **19,6385** | **229,0006** |
| **Truck** | **Nov. 13/20** | **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%**

**2017: 33.33% × 275,000 × 7/12 = 53,472**

**2018: 33.33% × (275,000 – 53,472) = 73,843**

**2019: 33.33% × (275,000 – 53,472 – 73,843) = 49,228**

**2020: 33.33% × (275,000 – 53,472 – 73,843 – 49,228) = 32,819**

**Accumulated depreciation at Dec. 31, 2020= $209,362**

**5. 2021: (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 9-11A (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| Mar. 26 | **Delivery Truck** | **96,200** |  |
|  | **Cash** |  | **96,200** |
|  | ***To record purchase of new truck;***  ***$92,000 plus $4,200 freight costs.*** |  |  |
|  |  |  |  |
| Dec. 31 | **Depreciation Expense, Delivery Truck1** | **12,930** |  |
|  | **Accumulated Depreciation, Delivery Truck** |  | **12,930** |
|  | ***To record depreciation from Mar. 26 to***  ***Dec. 31, 2020.*** |  |  |
|  |  |  |  |
| 2021 |  |  |  |
| Dec. 31 | **Depreciation Expense, Delivery Truck2** | **21,160** |  |
|  | **Accumulated Depreciation, Delivery Truck** |  | **21,160** |
|  | ***To record depreciation.*** |  |  |

1. **(96,200 – 10,000)/5 × 9/12 = 12,930**

**2. 96,200 – 12,930 – 14,500 = 21,160**

**4 – 9/12 = 3.25**

Problem 9-12A (30 minutes)

|  |  |  |  |
| --- | --- | --- | --- |
| 2021 |  |  |  |
| 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 9-13A (20 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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 2018;**

**1,344+ 1,344 deprec. for 2019= 2,688 accum. deprec. at Dec. 31, 2019.**

**Part 2**

|  |  |  |
| --- | --- | --- |
| **Metal Housing** | **44,000 – 8,000 = 36,000; 36,000 ÷ 15 yrs = 2,400 for 2018 *PLUS* 2,400 for 2019= 4,800 accum. deprec. at Dec. 31/2019;**  **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** | **2018: 26,000 × 2/10 = 5,200**  **2019: 26,000 – 5,200 = 20,800 × 2/10 = 4,160**  **2020: 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 2020=** | | **$6,908** |

**Problem 9-14A (40 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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 9-14A (*concluded*)**

**Part 2**

**Safety-First Company  
Balance Sheet  
October 31, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| 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 9-15A (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 1. |  |  |  |
| 2021 |  |  |  |
| Sept. 27 | **Depreciation Expense, Building** | **4,950** |  |
|  | **Accumulated Depreciation, Building1** |  | **4,950** |
|  | ***To record building depreciation for 2021.*** |  |  |
| 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 2021.*** |  |  |
| 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, 2021 to Sept. 27, 2021**

**[(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, 2021 to Nov. 2, 2021**

**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 9-16A (45 minutes)**

**1.**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| 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.** |  |  |  |
| 2020 |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine** | **17,080** |  |
|  | **Accumulated Depreciation, Machine** |  | **17,080** |
|  | ***To record depreciation;***  ***(123,200 – 20,720)/6 = 17,080.*** |  |  |
|  |  |  |  |
| **2025** |  |  |  |
| **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 9-16A *(continued)***

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Deprec. for 2020, 2021,  2022, 2023, and 2024.** | **Accum. Deprec. for 2025.** |  |

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 9-17A (15 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| 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 9-18A (45 minutes)**

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

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine 15501** | **6,075** |  |
|  | **Accumulated Depreciation, Machine 1550** |  | **6,075** |
|  | ***To record depreciation.*** |  |  |
| **2023** |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine 17953** | **22,646** |  |
|  | **Accumulated Depreciation, Machine 1795** |  | **22,646** |
|  | ***To record depreciation.*** |  |  |
| **2024** |  |  |  |
| Dec. 31 | **Depreciation Expense, Machine BT-3115** | **77,810** |  |
|  | **Accum Depreciation, Machine BT-311** |  | **77,810** |
|  | ***To record depreciation.*** |  |  |

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

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| Apr. 1 | **Machine 1550** | **52,900** |  |
|  | **Cash** |  | **52,900** |
|  | ***To record purchase of Machine 1550.*** |  |  |
| 2023 |  |  |  |
| 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.*** |  |  |
| 2024 |  |  |  |
| 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.*** |  |  |
| **2027** |  |  |  |
| 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 9-18A *(continued)***

***Calculations:***

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

6

1. Depreciation 2020: 6,075

**2021: 8,100**

**2022: 8,100**

**2023: 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 2023)**

1. **50% × (60,390 – 22,646) × 9/12 = 14,154 (deprec. for 2024)**

**+ 22,646 (deprec. for 2023)**

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

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

**2024: 31,000 units × 2.51/unit = 77,810**

1. **Depreciation for Jan. 1/2025 to August 21/2027**

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

**+77,810 (2024)**

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

**Problem 9-19A (10 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **(a)** |  |  |
| **2020** |  |  |  |
| **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 9-20A (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2023** |  |  |  |
| **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 9-21A (30 minutes)**

**Part 1**

**a.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **2020** |  | |  |  |
| **Jun. 27** | **Depreciation Expense, Boat – Motor** | | **2,660** |  |
|  | **Accumulated Depreciation, Boat – Motor** | |  | **2,660** |
|  | ***To update depreciation in 2020 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 2020 on the boat (boat body***  ***plus motor).*** | | |

***Calculations:***

1. **53,200 ÷ 10 years = 5,320/year; 5,320 × 9/12 = 3,990 depreciation for 2012; 5,320 × 7 years for 2013 thru 2019= 37,240; 5,320/ year × 6/12 = 2,660 deprec. from Jan. 1/20 to June 27/20; 37,240 + 3,990 + 2,660 = 43,890 accumulated depreciation at June 27, 2020;**

|  |  |  |  |
| --- | --- | --- | --- |
| **2.** | **Body:** | **Accumulated depreciation at Dec. 31, 2019:**  **23,800 – 7,000 = 16,800; 16,800 ÷ 15 years = 1,120/year; 1,120 × 9/12 = 840 depreciation for 2012; 1,120 × 7 years (2013 thru 2019) = 7,840; 7,840 + 840 = 8,680**  **Revised depreciation at Dec. 31, 2020 (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 2020 depreciation = $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**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **2020** | | **2019** | |
| **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 2025** |  | **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 2019. In 2020, 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 (25 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)** |
| **2018** | **36,300** | **1** | **50% × 169,200 = 84,600** | **30,640 (.80 × 38,300)** |
| **2019** | **36,300** |  | **50% × (169,200 – 84,600) = 42,300** | **32,920 (.80 × 41,150)** |
| **2020** | **36,300** |  | **$18,3002** | **42,080 (.80 × 52,600)** |
| **2021** | **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 2020 is $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 2021 is $39,560 calculated as $145,200 – $105,640 accumulated depreciation recorded to date.

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Part** 1. **Purchase made on January 1, 2020** | | **2020** |  | **2021** |  | **2022** |
| **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%**

**2020: 20% × 588,000 × 6/12 = 58,800 note – using half year rule**

**2021: 20% × (588,000 – 58,800) = 105,840**

**2022: 20% × (588,000 – 58,800 – 105,840) = 84,672**

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

**Problem 9-4B (continued)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Part 2. Purchase made on April 1, 2020** | | **2020** |  | **2021** |  | **2022** |
| **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%**

**2020: 20% × 588,000 × 6/12 = 58,800 (note – using half year rule)**

**2021: 20% × (588,000 – 58,800) = 105,840**

**2022: 20% × (588,000 – 58,800 – 105,840) = 84,672**

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

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production** |
| **2020** | **(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** |
| **2021** | **24,000** | **(145,000 – 9,667) × 40% =**  **54,133** | **1.20 × 19,400 =**  **23,280** |
| **2022** | **24,000** | **(145,000 – 9,667 – 54,133) × 40% =**  **32,480** | **1.20 × 22,850 =**  **27,420** |
| **2023** | **24,000** | **(145,000 – 9,667 – 54,133 – 32,480) × 40% =**  **19,488** | **1.20 × 25,700 =**  **30,840** |
| **2024** | **24,000** | **4,232\*** | **1.20 × 19,980 =**  **23,976** |
| **2025** | **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 9-6B (30 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Year** | **Depreciation Method:** | | |
| **Straight-line** | **Double-declining balance** | **Units-of-production** |
| **2020** | **(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** |
| **2021** | **24,000** | **(145,000 – 29,000) × 40% =**  **46,400** | **1.20 × 19,400 =**  **23,280** |
| **2022** | **24,000** | **(145,000 – 29,000 – 46,400) × 40% =**  **27,840** | **1.20 × 22,850 =**  **27,420** |
| **2023** | **24,000** | **(145,000 – 29,000 – 46,400 – 27,840) × 40% =**  **16,704** | **1.20 × 25,700 =**  **30,840** |
| **2024** | **24,000** | **56\*** | **1.20 × 19,980 =**  **23,976** |
| **2025** | **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 9-7B (15 minutes)**

**Part 1.**

|  |  |  |  |
| --- | --- | --- | --- |
| 2021 |  |  |  |
| **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, 2021**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 9-8B (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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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*  2020 straight-line depreciation on building:**

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

***Part 3* 2020 double-declining-balance depreciation on land**

improvements:

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

**$104,400 × 25% × 3/12 = $6,525**

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Year*** | | ***Straight- Linea*** | | ***Units-of-***  ***Productionb*** | | ***Double- Declining- Balancec*** | | |
| **2020** | **$ 31,304** | **$32,928** | | **$ 72,800** | |  |
| **2021** | **46,956** | **51,744** | | **80,080** | |  |
| **2022** | **46,956** | **47,040** | | **48,048** | |  |
| **2023** | **46,956** | **44,688** | | **28,829** | |  |
| **2024** | **46,956** | **37,240** | | **5,023** | | \* |
| **2025** | **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 2020**

**= $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*** | | |
|  | **2020** | **23,520** | **$1.40** | | **$32,928** | |  |
|  | **2021** | **36,960** | **1.40** | | **51,744** | |  |
|  | **2022** | **33,600** | **1.40** | | **47,040** | |  |
|  | **2023** | **31,920** | **1.40** | | **44,688** | |  |
|  | 2024 | 26,600 | 1.40 | | 37,240 | |  |
|  | **2025** | **30,940** | **1.40** | | **21,140** | | \* |
|  | **Total** |  |  | | **$234,780** | |  |

**\*Take only enough depreciation in Year 2025 to reach the maximum**

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

**cDouble-declining-balance:**

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

**2020: 40% × 273,000 × 8/12 = 72,800**

**2021: 40% × (273,000 – 72,800) = 80,080**

**2022: 40% × (273,000 – 72,800 – 80,080) = 48,048**

**2023: 40% × (273,000 – 72,800 – 80,080 – 48,048) = 28,829**

**2024: 234,780 – 229,757\* = 5,023**

**\*Take only enough depreciation in Year 2024 to reach the maximum**

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

**Problem 9-10B (40 minutes)**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation** | | |
| **Description** | **Date of Purchase** | **Depreciation**  **Method** | **Cost!** | **Residual** | **Life** | **Balance of Accum. Deprec.**  **Apr. 30, 2020** | **Depreciation Expense for 2021** | **Balance of Accum. Deprec.**  **Apr. 30, 2021** |
| **Equipment** | **Oct. 3/17** | **Straight-line** | **$ 62,400** | **$ 16,800** | **20 yr.** | **$ 5,8901** | **$ 2,2802** | **$ 8,1703** |
| **Machinery** | **Oct. 28/17** | **Units-of-production** | **540,000** | **180,000** | **100,000 units** | **73,3324** | **38,1245** | **111,4566** |
| **Tools** | **Nov. 3/17** | **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 7/12 = 5,890**

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

**3. 5,890 + 2,280 = 8,170**

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

**2018: 940 × 3.60 = 3,384**

2019: 10,150 × 3.60 = 36,540

**2020: 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%**

**2018: 40% × 64,000 × 6/12 = 12,800**

2019: 40% × (64,000 – 12,800) = 20,480

**2020: 40% × (64,000 – 12,800 – 20,480) = 12,288**

**Accumulated depreciation at Apr. 30, 2020= $45,568**

**8. 2021: (64,000 – 15,000) – 45,568 = 3,432**

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

**Problem 9-11B (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| **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 to nearest whole month.*** |  |  |
|  |  |  |  |
| 2021  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 9-12B (40 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2021 |  |  |  |
| 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 9-13B (40 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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. **2015 Deprec.: 27,000 × 2/10 = 5,400;**

**2016 Deprec.: (27,000 – 5,400) × 2/10 = 4,320;**

**2017 Deprec.: (27,000 – 9,720) × 2/10 = 3,456;**

**2018 Deprec.: (27,000 – 13,176) × 2/10 = 2,765;**

**2019 Deprec.: (27,000 – 15,941) × 2/10 = 2,212;**

**Accum. Deprec. Dec. 31, 2019 = 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 2020=** | | **$28,185** |

1. **2015: 61,500 × 2/5 = 24,600;**

**2016: (61,500 – 24,600) × 2/5 = 14,760;**

**2017: (61,500 – 39,360) × 2/5 = 8,856;**

**2018: (61,500 – 48,216) × 2/5 = 5,314;**

**2019: (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 2019 is 54,000 – 53,530 = 470 with no depreciation recorded in any subsequent years.Problem 9-14B (40 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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 9-14B (*concluded*)**

**Part 2**

**La Mancha Enterprises  
Balance Sheet  
March 31, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| 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 9-15B (45 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| Mar. 2 | **Depreciation Expense, Van** | **1,575** |  |
|  | **Accumulated Depreciation, Van1** |  | **1,575** |
|  | ***To record depreciation on van for 2020.*** |  |  |
| 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 2020.*** |  |  |
| 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 2020.*** |  |  |
| **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. 1/20 to Mar. 2/20:

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

1. **Depreciation from Feb. 1/20 to Aug. 27/20:**

**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. 1/20 to June 29/20:**

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

1. **+ 44,800**

**48,300**

**Problem 9-16B (60 minutes)**

**Part 1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2020 | |  |  |  |
| **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*** |  |  |
|  | |  |  |  |
| 2025 | |  |  |  |
| **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 9-16B (*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 2020, 2021, 2022, 2023, 2024 and 2015.

**Deprec. for 2025**

**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 9-17B (20 minutes)**

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| **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 upgrade, betterment.*** |  |  |
|  |  |  |  |
| **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 9-18B (45 minutes)**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 66901** | **10,800** |  |
|  | **Accumulated Depreciation, Machine 6690** |  | **10,800** |
|  | ***To record depreciation.*** |  |  |
| **2022** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 66913** | **8,325** |  |
|  | **Accumulated Depreciation, Machine 6691** |  | **8,325** |
|  | ***To record depreciation.*** |  |  |
| **2025** |  |  |  |
| **Dec. 31** | **Depreciation Expense, Machine 67115** | **7,155** |  |
|  | **Accumulated Depreciation,**  **Machine 6711** |  | **7,155** |
|  | ***To record depreciation.*** |  |  |

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

|  |  |  |  |
| --- | --- | --- | --- |
| 2020 |  |  |  |
| **May 1** | **Machine 6690** | **72,900** |  |
|  | **Cash** |  | **72,900** |
|  | ***To record purchase of Machine 6690.*** |  |  |
| **2022** |  |  |  |
| **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.*** |  |  |
| 2025 |  |  |  |
| **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.*** |  |  |
|  |  |  |  |
| 2026 |  |  |  |
| **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 9-18B *(continued)***

***Calculations:***

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

4

2. Depreciation 2020: 10,800

**2021: 16,200**

**2022: 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. 2022: 8,325**

**2023: 40% × (49,950 – 8,325) = 16,650**

**2024: 40% × (49,950– 8,325 – 16,650) = 9,990**

**2025: 40% × (49,950– 8,325 – 16,650 – 9,990) × 1/12 = 500**

**35,465**

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

**2025: 7,500 units × 0.954/unit = 7,155**

1. **Depreciation for Jan. 1/2026 to Oct. 3/2026:**

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

**7,155**

**Accum. Deprec. 17,888**

**Problem 9-19B (20 minutes)**

**Part 1**

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| 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 9-20B (30 minutes)**

**Part 1**

|  |  |  |  |
| --- | --- | --- | --- |
| **2020** |  |  |  |
| **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**

|  |  |  |  |
| --- | --- | --- | --- |
| **2024** |  |  |  |
| **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. deprec.*** |  |  |
|  |  |  |  |
| **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. deprec.*** |  |  |

\***Problem 9-21B (40 minutes)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **1.a.** | **2020** |  |  |  |
|  | **Oct. 3** | **Depreciation Expense, Equipment – Fan** | **4,320** |  |
|  |  | **Accum. Deprec., Equipment – Fan** |  | **4,320** |
|  |  | **To update depreciation on replaced fan from Jan 1/20 to Oct 3/20.** | | |
|  |  |  |  |  |
|  | **3** | **Cash** | **8,400** |  |
|  |  | **Accum. Deprec., Equipment – Fan** | **29,2801** |  |
|  |  | **Equipment – Fan (old)** |  | **32,400** |
|  |  | **Gain on Disposal** |  | **5,280** |
|  |  | ***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 - Fan** | **22,3702** |  |
|  |  | **Accum. Deprec., Equipment - Fan** |  | **22,370** |
|  |  | ***To record depreciation for 2020 on 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 2015;**

**5,760/yr × 4 yrs (2016 to 2019 inclusive) = 23,040;**

**5,760/yr × 9/12 (max depreciation to depreciate 5 years) = 4,320 deprec. from Jan. 1/20 to Oct. 3/20;**

**1,920 + 23,040 + 4,320 = 29,280 accum. deprec. at Oct. 3/20.**

**\*Problem 9-21B (*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 2015 ;**  **5,400/yr × 4 yrs (2016 to 2019 inclusive) = 21,600;**  **1,800 + 21,600 = 23,400 accum. deprec. at Dec. 31/19;**  **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** | **2015: 96,000 × 2/10 × 4/12 = 6,400**  **2016: 96,000 – 6,400 = 89,600 × 2/10 = 17,920**  **2017: 89,600 – 17,920 = 71,680 × 2/10 = 14,336**  **2018: 71,680 – 14,336 = 57,344 × 2/10 = 11,469**  **2019: 57,344 – 11,469 = 45,875 × 2/10 = 9,175**  **2020: 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** | **2015: 27,600 × 2/5 × 4/12 = 3,680**  **2016: 27,600 – 3,680 = 23,920 × 2/5 = 9,568**  **2017: 23,920 – 9,568 = 14,352 × 2/5 = 5,741**  **2018: 14,352 – 5,741 = 8,611 × 2/5 = 3,444**  **2019: 8,611 – 3,444 = 5,167 × 2/5 = 2,067 which exceeds max.; maximum that can be taken in 2019 is 5,167 – 4,800 = 367; therefore, no depreciation is taken in 2020** | **-0-** |
|  |  |  | **$22,370** |

**Part 2**

**Total 2020 depreciation = $4,320 + $22,370 = $26,690**

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**

**FFS 9-1**

**a.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cost Information** | | | | | | **Depreciation/Amortization** | | |
| **Description** | **Date of Purchase** | **Deprec. Method** | **Original Cost** | **Residual** | **Life** | **Accum. Balance**  **Dec. 31, 2019** | **Expense for 2020** | **Accum. Balance** |
| **Land** | **July 3/17** |  | **$280,000** |  |  | **n/a** | **n/a** | **n/a** |
| **Building** | **July 3/17** | **S/L** | **454,000** | **$40,000** | **15 yr.** | **$ 69,0001** | **$46,0002** | **$115,000** |
| **Machinery** | **Mar 20/17** | **Units** | **150,000** | **30,000** | **250,000** | **72,9603** | **31,2004** | **104,160** |
| **Truck** | **Mar 01/17** | **S/L** | **298,800** | **30,000** | **7 yr.** | **108,8005** | **38,4006** | **147,200** |
| **Furniture** | **Feb 18/17** | **DDB** | **24,000** | **3,000** | **5 yr.** | **18,2407** | **5768** | **-0-10** |
| **Patent** | **Nov 7/18** | **S/L** | **103,800** | **-0-** | **5 yr.** | **24,2209** | **20,7609** | **44,980** |
| **Office Equip.** | **Apr 10/20** | **DDB** | **65,14311** | **10,000** | **4 yr.** | **-0-** | **24,42912** | **24,429** |
| **Furniture** | **Apr 10/20** | **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 2017**

**27,600 for 2018**

**27,600 for 2019**

**69,000 Accum. deprec. at Dec. 31/19**

**2. (454,000 – 40,000 – 69,000)/(10 – 2.5 = 7.5) = 46,000 for 2020**

**3. (150,000 – 30,000)/250,000 = $0.48/unit x 45,000 = 21,600 for 2017**

**x 55,000 = 26,400 for 2018**

**x 52,000 = 24,960 for 2019**

**72,960 Accum. deprec. at Dec. 31/19**

**4. $0.48/unit x 65,000 = 31,200 for 2020**

**5. (298,800 – 30,000)/7 = 38,400/year x 10/12 = 32,000 for 2017**

38,400 for 2018

**38,400 for 2019**

**108,800 Accum. deprec. Dec. 31/19**

**6. (298,800 – 30,000)/7 = 38,400/year depreciation for 2020**

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

**7. 24,000 x 2/5 x 10/12 = 8,000 for 2017**

**(24,000 – 8,000) x 2/5 = 6,400 for 2018**

**24,000 – (8,000 + 6,400)] x 2/5 = 3,840 for 2019**

**18,240 Accum. deprec. Dec. 31/19**

**8. [24,000 – (8,000 + 6,400 + 3,840)] x 2/5 x 3/12 = 576 for 2020**

**9. (103,800 – 0)/5 = 20,760/year x 2/12 = 3,460 for 2018**

**20,760 for 2019**

**24,220 Total dep. taken to Dec. 31/19**

**10. This has a -0- balance at December 31, 2020 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 2020**

**13. 48,857 x 2/5 x 9/12 = 14,657 for 2020FFS 9-1 (*continued*)**

**b.**

|  |  |  |
| --- | --- | --- |
| **Times TeleCom** | | |
| **Income Statement** | | |
| **For Year Ended December 31, 2020** | | |
| **Revenues:** |  |  |  |
| **Revenue 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, 2020** | | |
| **Susan Times, capital, January 1, 2020** |  | **$421,180** |
| **Add: Profit** |  | **444,794** |
| **Total** |  | **865,974** |
| **Less: Withdrawals by owner** |  | **204,000** |
| **Susan Times, capital, December 31, 2020** |  | **$661,974** |

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

**Times TeleCom  
Balance Sheet  
December 31, 2020**

|  |  |  |  |
| --- | --- | --- | --- |
| **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 2023** |  | **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 SpinMaster and WestJet use the term ‘amortization and depreciation’ in the statements referenced in this question. To be consistent with the textbook, the answers use the term ‘depreciation’.***

**a.**

**The $32,978 (thousand) represents the book value of the PPE. The December 31, 2017, book value is the $153,051 (thousand) total cost of the PPE assets less the $120,073 (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 Spin Masters Note 11 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 $32,978 (thousand) book value is reported in Note 2(l) (depreciation methods) and Note 11 (cost, accumulated depreciation, and book value).**

**c. The depreciation expense for the year ended December 31, 2017, was $44,908 (thousand). Although depreciation expense typically appears on the income statement, Spin Master does not detail it there but these amounts do appear on the statement of cash flows and in Notes 7, 11 and 12.**

Part 2

* 1. **WestJet’s property and equipment at December 31, 2017 is 70.27% of total assets calculated as ($4,567,504/$6,499,840) x 100.**
  2. **Indigo’s property, plant and equipment at March 31, 2018 represent 12.99% of total assets calculated as ($82,314,000/$633,574,000) 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. WestJet’s inventory at December 31 2017 is $43,045 thousand or .66% of total assets (calculated as $43,045/$6,499,840 x 100). Indigo’s inventory at March 31, 2018 is $264,586 thousand or 41.76% of total assets (calculated as $264,586,000/$633,574,000 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 truck expenditures were recorded to the capital asset account.**

**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 2018 of $7,800 (36,000/24 months = 1,500/month insurance used x 10 months = 15,000 for 2018 vs. 36,000/5 yrs useful life = 7,200; 15,000 – 7,200 = 7,800). 2018 net income is not known but if it is assumed that it approximates 2019 net income as reported ($78,000), then the $7,800 overstatement of net income in 2018 is material in nature since it approximates 10%.

—The net income in 2019 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 2020 would 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 an addition to Truck asset account, or as Prepaid Insurance; this would have affected the impact of the misstatement in 2020.

—It is unclear from the information provided whether revised depreciation was calculated when the 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 (A betterment 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 2020. Therefore, net income in 2020 is 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 2019 and 2020.

—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 2018 and 2019 and potentially in 2020.

—It appears that the 2019 net 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 repairs and maintenance expenses and betterments so that they can deal appropriately with the manager responsible and negative repercussions with shareholders/owners.**

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