CHAPTER 9

Long-Lived Assets

Learning Objectives

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| --- |
| 1. Calculate the cost of property, plant, and equipment. 2. Apply depreciation methods to property, plant, and equipment. 3. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment. 4. Demonstrate how to account for property, plant, and equipment disposals. 5. Record natural resource transactions and compute depletion. 6. Identify the basic accounting issues for intangible assets and goodwill. 7. Illustrate the reporting and analysis of long-lived assets. |

Summary of Questions by Learning Objectives and Bloom’s Taxonomy

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **LO** | **BT** | **Item** | | **LO** | **BT** | **Item** | **LO** | **BT** | | **Item** | **LO** | **BT** | | **Item** | **LO** | **BT** |
| **Questions** | | | | | | | | | | | | | | | | | |
| 1. | 1 | K | 6. | 2 | | C | 11. | 3 | | C | 16. | 4 | | K | 21. | 6 | C |
| 2. | 1 | K | 7. | 2 | | K | 12. | 3 | | K | 17. | 4 | | C | 22. | 6 | C |
| 3. | 1 | C | 8. | 2 | | C | 13. | 3 | | C | 18. | 5 | | K | 23. | 7 | K |
| 4. | 1 | C | 9. | 2,3 | | K | 14. | 4 | | C | 19. | 5 | | C | 24. | 7 | C |
| 5. | 1 | C | 10. | 3 | | C | 15. | 4 | | C | 20. | 6 | | C |  |  |  |
| **Brief Exercises** | | | | | | | | | | | | | | | | | |
| 1. | 1 | AP | 5. | | 2 | AP | 9. | 2 | | AP | 13. | 4 | | AP | 17. | 7 | K |
| 2. | 1 | AP | 6. | | 2 | AP | 10. | 3 | | AP | 14. | 4 | | AP | 18. | 7 | AP |
| 3. | 1 | K | 7. | | 2 | AP | 11. | 3 | | AP | 15. | 5 | | AP | 19. | 7 | AN |
| 4. | 1 | AP | 8. | | 2 | AP | 12. | 4 | | AP | 16. | 6 | | AP |  |  |  |
| **Exercises** | | | | | | | | | | | | | | | | | |
| 1. | 1 | AP | 4. | | 2 | AP | 7. | 3 | | AP | 10. | 4 | | AP | 13. | 6 | AP |
| 2. | 1,2 | AP | 5. | | 2 | AP | 8. | 3 | | AP | 11. | 5 | | AP | 14. | 6 | AP |
| 3. | 1,2 | C | 6. | | 3 | AP | 9. | 4 | | AP | 12. | 1,2,6 | | AP | 15. | 7 | AN |
| **Problems** | | | | | | | | | | | | | | | | | |
| 1. | 1 | AP | 4. | 1,3 | | AP | 7. | 2,4 | | AP | 10. | 6 | | AP | 13. | 7 | AN |
| 2. | 1,2 | AP | 5. | 3 | | AP | 8. | 2,4 | | AP | 11. | 6,7 | | AP |  |  |  |
| 3. | 1,2 | AP | 6. | 1,2,3,4 | | AP | 9. | 2,4,7 | | AP | 12. | 3,5,7 | | AP |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| Legend**:** The following abbreviations will appear throughout the solutions manual file. | | | |
|  |  |  |  |
| LO | Learning objective | |  |
| BT | Bloom's Taxonomy | |  |
|  | K | Knowledge |  |
|  | C | Comprehension | |
|  | AP | Application |  |
|  | AN | Analysis |  |
|  | S | Synthesis |  |
|  | E | Evaluation |  |
| Difficulty: | Level of difficulty | |  |
|  | S | Simple |  |
|  | M | Moderate |  |
|  | C | Complex |  |
| Time: | Estimated time to complete in minutes | | |
| AACSB | Association to Advance Collegiate Schools of Business | | |
|  | Communication | | Communication |
|  | Ethics | | Ethics |
|  | Analytic | | Analytic |
|  | Tech. | | Technology |
|  | Diversity | | Diversity |
|  | Reflec. Thinking | | Reflective Thinking |
| CPA CM | CPA Canada Competency Map | | |
|  | Ethics | | Professional and Ethical Behaviour |
|  | PS and DM | | Problem-Solving and Decision-Making |
|  | Comm. | | Communication |
|  | Self-Mgt. | | Self-Management |
|  | Team & Lead | | Teamwork and Leadership |
|  | Reporting | | Financial Reporting |
|  | Stat. & Gov. | | Strategy and Governance |
|  | Mgt. Accounting | | Management Accounting |
|  | Audit | | Audit and Assurance |
|  | Finance | | Finance |
|  | Tax |  | Taxation |

ASSIGNMENT CLASSIFICATION TABLE

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Learning Objectives | Questions | Brief  Exercises | Exercises | Problems  Set A | Problems  Set B |
| 1. Calculate the cost of property, plant, and equipment. | 1, 2, 3, 4, 5 | 1, 2, 3, 4 | 1, 2, 3, 12 | 1, 2, 3, 4, 6 | 1, 2, 3, 4, 6 |
| 1. Apply depreciation methods to property, plant, and equipment. | 6, 7, 8, 9, | 5, 6, 7, 8, 9 | 2, 3, 4, 5, 12 | 2, 3, 6, 7, 8, 9 | 2, 3, 6, 7, 8, 9, 12 |
| 1. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment. | 9, 10, 11, 12, 13, | 10, 11 | 6, 7, 8 | 4, 5, 6, 12 | 4, 5, 6 |
| 1. Demonstrate how to account for property, plant, and equipment disposals. | 14, 15, 16, 17, | 12, 13, 14 | 9, 10 | 6, 7, 8, 9 | 6, 7, 8, 9 |
| 1. Record natural resource transactions and calculate depletion. | 18, 19, 20 | 15 | 11 | 12 | 12 |
| 1. Identify the basic accounting issues for intangible assets and goodwill. | 21, 22 | 16 | 12, 13, 14 | 10, 11 | 10, 11 |
| 1. Illustrate the reporting and analysis of long-lived assets. | 23, 24 | 17, 18, 19 | 15 | 9, 11, 12, 13 | 9, 11, 12, 13 |

ASSIGNMENT CHARACTERISTICS TABLE

| Problem  Number | Description | Difficulty  Level | Time  Allotted (min.) |
| --- | --- | --- | --- |
| 1A | Record property transactions. | Simple | 20-30 |
| 2A | Allocate cost and calculate partial period depreciation. | Moderate | 20-30 |
| 3A | Determine cost; calculate and compare depreciation under different methods. | Moderate | 30-40 |
| 4A | Account for operating and capital expenditures and asset impairments. | Moderate | 20-30 |
| 5A | Record impairment and calculate revised depreciation. | Moderate | 20-30 |
| 6A | Record acquisition, depreciation, impairment, and disposal of land and building. | Moderate | 25-35 |
| 7A | Calculate and compare depreciation and gain or loss on disposal under three methods of depreciation. | Moderate | 30-40 |
| 8A | Record acquisition, depreciation, and disposal of equipment. | Moderate | 30-40 |
| 9A | Record property, plant, and equipment transactions; prepare partial financial statements. | Complex | 40-50 |
| 10A | Correct errors in recording intangible asset transactions. | Complex | 15-20 |
| 11A | Record intangible asset transactions; prepare partial balance sheet. | Moderate | 30-40 |
| 12A | Record natural resource transactions; prepare partial financial statements. | Moderate | 25-30 |
| 13A | Calculate ratios and comment. | Moderate | 15-25 |
| 1B | Record property transactions. | Simple | 20-30 |
| 2B | Allocate cost and calculate partial period depreciation. | Moderate | 20-30 |
| 3B | Determine cost; calculate and compare depreciation under different methods. | Moderate | 30-40 |
| 4B | Account for operating and capital expenditures and asset impairments. | Moderate | 20-30 |
| 5B | Record impairment and calculate revised depreciation. | Moderate | 20-30 |
| 6B | Record acquisition, depreciation, impairment, and disposal of equipment. | Moderate | 25-35 |

**ASSIGNMENT CHARACTERISTICS TABLE (Continued)**

|  |  |  |  |
| --- | --- | --- | --- |
| Problem  Number | Description | Difficulty  Level | Time  Allotted (min.) |
| 7B | Calculate and compare depreciation and gain or loss on disposal under three methods of depreciation. | Moderate | 30-40 |
| 8B | Record acquisition, depreciation, and disposal of furniture. | Moderate | 30-40 |
| 9B | Record property, plant, and equipment transactions; prepare partial financial statements. | Complex | 40-50 |
| 10B | Correct errors in recording intangible asset transactions. | Complex | 15-20 |
| 11B | Record intangible asset transactions; prepare partial balance sheet. | Moderate | 30-40 |
| 12B | Record equipment, note payable, and natural resource transactions; prepare partial financial statements. | Moderate | 25-30 |
| 13B | Calculate ratios and comment. | Moderate | 15-25 |

BLOOM’S TAXONOMY TABLE

Correlation Chart between Bloom's Taxonomy, Study Objectives and End-of-Chapter Exercises and Problems

| Learning Objective | Knowledge | Comprehension | Application | | Analysis | Synthesis | Evaluation |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Calculate the cost of property, plant, and equipment. | Q9.1  Q9.2  BE9.3 | Q9.3  Q9.4  Q9.5  E9.3 | BE9.1  BE9.2  BE9.4  E9.1  E9.2  E9.12  P9.1A | P9.2A  P9.3A  P9.4A  P9.6A  P9.1B  P9.2B  P9.3B  P9.4B  P9.6B |  |  |  |
| 1. Apply depreciation methods to property, plant, and equipment. | Q9.7  Q9.9 | Q9.6  Q9.8  Q9.10  Q9.11  E9.3 | BE9.5  BE9.6 BE9.7  BE9.8  BE9.9  E9.2  E9.4  E9.5  E9.12  P9.2A | P9.3A  P9.6A  P9.7A  P9.8A  P9.9A  P9.2B  P9.3B  P9.6B  P9.7B  P9.8B  P9.9B  P9.12B |  |  |  |
| 1. Explain the factors that cause changes in periodic depreciation and calculate revised depreciation for property, plant, and equipment. | Q9.9  Q9.12 | Q9.10  Q9.11  Q9.13 | BE9.10  BE9.11  E9.6  E9.7  E9.8  P9.4A | P9.5A  P9.6A  P9.12A  P9.4B  P9.5B  P9.6B |  |  |  |
| 1. Demonstrate how to account for property, plant, and equipment disposals. | Q9.16 | Q9.14  Q9.15  Q9.17 | BE9.12  BE9.13  BE9.14  E9.9  E9.10  P9.6A  P9.7A | P9.8A  P9.9A  P9.6B  P9.7B  P9.8B  P9.9B |  |  |  |
| 1. Record natural resource transactions and calculate depletion. | Q9.18 | Q9.19  Q9.20 | BE9.15  E9.11 | P9.12A  P9.12B |  |  |  |
| 1. Identify the basic accounting issues for intangible assets and goodwill. |  | Q9.21  Q9.22 | BE9.16  E9.12  E9.13  E9.14 | P9.10A  P9.11A  P9.10B  P9.11B |  |  |  |
| 1. Illustrate the reporting and analysis of long-lived assets. | Q9.23  BE9.17 | Q9.24 | BE9.18  BE9.19  P9.9A  P9.9B | P9.11A  P9.12A  P9.11B  P9.12B | E9.15  P9.13A  P9.13B |  |  |

**BLOOM’S TAXONOMY TABLE (Continued)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Learning Objective | Knowledge | Comprehension | Application | Analysis | Synthesis | Evaluation |
| Broadening Your Perspective |  |  | a  BYP9.1 BYP9.2  BYP9.3 | BYP9.4 | BYP9.5 |  |

ANSWERS TO QUESTIONS

1. Three characteristics of property, plant, and equipment include: they (1) have a physical substance (a definite size and shape), (2) are used in the operations of the business, and (3) are not intended for sale to customers.

LO 1 BT: K Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

2. Examples of land improvements are a road, driveway, sidewalks or parking lot on the property, fencing, and underground sprinkler systems.

LO 1 BT: K Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

3. The invoice cost, the cost of the safety inspection, and the cost for the logo to be painted on the vehicle are capitalized, as they are required costs to put the vehicle into use. The insurance costs benefit the business for the term of the policy and so the costs should be allocated to the period of benefit from the policy, typically by initially recording the payment as prepaid insurance and then reducing the prepayment, charging insurance expense as the policy expires.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

4. The purpose of depreciation is not to accumulate the cash needed to replace an asset. Rather, depreciation is a cost allocation method, which records an expense in those accounting periods where the asset has been used and has contributed to the earning of revenues. This charge also reduces the carrying amount of the asset, but it does not involve any cash.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

5. The purchase cost must be split between the land and building because the building is depreciated and the land is not. In addition, the cost of each item will be needed to determine any gain or loss on disposal if either one is later sold.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

6. Residual value is the estimated amount that a company would obtain from disposing of a long-lived asset at the end of its useful life. Residual value is not depreciated, since the amount is expected to be recovered at the end of the asset’s useful life. Residual value is used in the formula for calculating periodic depreciation using the straight line and unit-of-production methods. Residual value is used in an indirect way in the diminishing balance method. Rather than using residual value to reduce the depreciable amount, as is done using the other two methods, the amount of the depreciation recorded is limited to the amount that will cause the carrying amount to equal the residual value of the asset.

LO 1 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

7. The three factors that affect the calculation of depreciation include cost, useful life, and residual value. The cost of a depreciable asset must include all necessary costs to get the asset ready for use. The useful life is the period of time an asset is expected to be available for use. This length may be measured as a function of time or number of units of production. The residual value is the estimated amount that a company would obtain from disposing of the asset at the end of its useful life.

LO 2 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

8. The amount of annual depreciation is different over the useful life of an asset depending on which of the three depreciation methods are being used. The straight-line method creates a constant amount of depreciation over the useful life. The diminishing-balance method is devised to charge a higher amount of depreciation in the earlier part of the useful life of the asset. Lastly, the unit-of-production method is less predictable in that it is based on the amount of use that is being made of the asset.

LO 2 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

9. A company should choose the depreciation method it believes will best reflect the pattern over which the asset’s future economic benefits are expected to be consumed. The depreciation method must be revised if the expected pattern of consumption of the future economic benefits has changed.

LO 2,3 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

10. Operating expenditures are ordinary repairs made to maintain the operating efficiency and expected productive life of the asset. Because they are recurring expenditures and normally benefit only the current accounting period, they are expensed when incurred. Capital expenditures are additions and improvements made to increase efficiency, productivity, or expected useful life of the asset. Because they benefit future periods, capital expenditures are debited to the asset account affected. Once capitalized, these expenditures are depreciated over their benefiting period.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

11. Revision of depreciation generally occurs when there is a change to any of the three factors that affect the calculation of depreciation: the asset’s cost, useful life, or residual value. Depreciation needs to be revised if there are capital expenditures, impairments in the asset’s recoverable amount, changes in the depreciation method, or changes in the estimated remaining useful life or residual value. The revisions are based on new information that will affect only current and future periods, so there is no revision of depreciation previously recorded.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

12. Factors that may contribute to an impairment loss include obsolescence of a piece of equipment, loss of a market for a product manufactured, bankruptcy of the supplier of replacement parts for equipment, or environmental concerns causing extra costs of disposal at the end of the useful life.

LO 3 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

13. Extending the total service life and consequently the estimated remaining useful life of a depreciable asset will reduce the amount of depreciation recorded in each of the remaining five years of use. The carrying amount of the asset will become the new basis to which the business will apply the formula of the depreciation method. The residual value may also be revised.

LO 3 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

14. Depreciation must be updated from the last time depreciation entries were recorded to the date of the sale because the depreciation expense must properly reflect the total period over which the asset’s economic benefits are used. Updating depreciation also aids in determining the correct amount of the gain or loss on disposal.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

15. The asset and related accumulated depreciation should continue to be reported on the balance sheet, without further depreciation or adjustment, until the asset is retired. Reporting the asset and related accumulated depreciation on the balance sheet informs the reader of the financial statements that the asset is still being used by the company. However, once an asset is fully depreciated, no additional depreciation should be taken on this asset, even if it is still being used. In no situation can the accumulated depreciation exceed the cost of the asset.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

16. In a sale of property, plant, or equipment, the carrying amount of the asset is compared to the proceeds from the sale. If the proceeds of the sale exceed the carrying amount of the asset, a gain on disposal occurs. If the proceeds of the sale are less than the carrying amount of the asset sold, a loss on disposal occurs.

In an exchange, a new asset is received in an exchange for the old asset given up. The gain or loss is calculated by comparing the fair value of the asset given up to its carrying amount. The trade-in allowance on the asset given up is not relevant because it rarely reflects the fair value of the asset that is given up. Instead of using the trade-in allowance, the fair value of the asset given up is used to calculate the gain or loss on the asset being given up. A loss results if the carrying amount of the asset being given up is more than its fair value. A gain results if the carrying amount is less than its fair value.

LO 4 BT: K Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

17. The carrying amount of an item of property, plant, or equipment is a sub-total amount representing the net amount of the cost less the accumulated depreciation. The amount is not a general ledger account and so is not used in journal entries used to record dispositions. Instead, the asset and accumulated depreciation accounts are used in the journal entry.

LO 4 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

18. Natural resources have two characteristics that make them different from other long-lived assets: (1) they are physically extracted in operations such as mining, cutting, or pumping; and (2) only an act of nature can replace them. Similar to property, plant, and equipment, natural resources are tangible long-lived assets that are expected to last beyond one year and are therefore classified on the balance sheet as non-current. When natural resources are extracted, depletion is recorded, causing an increase in another asset, inventory, which is subsequently sold.

LO 5 BT: K Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

19. The units-of-production method is a common and ideal method of recording the depletion of natural resources. There is a finite quantity of units of natural resource to be extracted. As extraction occurs, the conversion from one asset (natural resource) to another (inventory) can be measured in units and cost of the units can be fairly applied. Consequently, a more precise charge for depletion can be arrived at that corresponds to the asset created (inventory) when the natural resource is reduced.

LO 5 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

20. I disagree. The useful life of some intangible assets might be limited to the legal life of those assets and in that case, I would agree. I disagree with the limitation of the period of amortization to the legal life of intangibles. Some intangible assets have useful lives that are much shorter than their respective legal lives. So, to properly match expenses to revenues, the length of useful life should be used in the calculation of amortization. In some cases, the legal life could be without time limits. In that case it would not be possible to execute a calculation. Finally, in the case of goodwill, GAAP dictates that no depreciation can be recorded under any circumstances. Only impairment losses reduce the carrying amount of goodwill.

LO 5 BT: C Difficulty: M Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

21. The accounting for tangible and intangible assets is much the same. Tangible and intangible assets are reported at cost, which includes all expenditures necessary to prepare the asset for its intended use. Both tangible and intangible assets with finite lives are amortized over their useful life. In the case of long-lived tangible assets, the useful life or the physical life of the asset will be used as a limit of the length of time the assets will be depreciated. In the case of intangible life, there is no physical limitation in the usefulness of the asset and the length of time the asset will be amortized is the shorter of its useful life or its legal life, usually on a straight-line basis. Due to their lack of substance, intangible assets are more likely to have indefinite useful lives and not need to be amortized, but only tested for impairment. This characteristic is the main difference between the accounting of tangible and intangible assets.

LO 6 BT: C Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

22. Goodwill is the value of many favourable attributes that are intertwined in a business enterprise. Goodwill can be identified only with the business as a whole and, unlike other assets, cannot be sold separately. Goodwill is only recorded on the purchase of a business if the purchaser pays a price that is greater than the fair value of the net assets of the business.

LO 6 BT: C Difficulty: C Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

23. Property, plant, and equipment and natural resources are often combined and reported in the balance sheet as “property, plant, and equipment” or “capital assets.” Intangible assets are listed separately after property, plant, and equipment. Goodwill must be disclosed separately. For assets that are depreciated or amortized, the balances of the accumulated depreciation and/or amortization must be disclosed in the balance sheet or in the notes to the financial statements.

Depreciation and amortization expense for the period must also be disclosed either on the income statement, elsewhere in the financial statements, or in the notes to the financial statements. When impairment losses have occurred, they should be shown on a separate line on the income statement, with the details disclosed in a note.

The notes to the financial statements should disclose the depreciation or amortization methods and rates that are used. The carrying amount of each major class of long-lived assets should also be disclosed. Companies should also disclose their impairment policy in the notes to the financial statements.

LO 7 BT: K Difficulty: C Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**QUESTIONS (Continued)**

24. I disagree. Higher turnover of assets does not necessarily result in increased profits. A higher asset turnover just means that more revenue or sales are being generated for each dollar of assets. On the other hand, a higher return on assets means a proportionately higher profit has been generated for each dollar of assets.

LO 7 BT: C Difficulty: C Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

SOLUTIONS TO BRIEF EXERCISES

**BRIEF EXERCISE 9.1**

1. The cost of the land is $95,000 ($85,000 + $1,500 + $5,000 + $3,500).
2. The cost of the land improvements is $5,000 (parking lot).

LO 1 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.2**

**The cost of the equipment is $42,000 (invoice price $40,375 + transportation $625 + installation and testing $1,000). The payment of $1,750 for the insurance should be recorded as prepaid insurance which will be expensed as it is consumed.**

LO 1 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.3**

1. **O**
2. **C**
3. **C**
4. **C**
5. **O1**
6. **C**
7. **O**
8. **C**
9. **C**
10. **O**

**1The assumption is that the supplies are to be used in near future. Supplies are not long-lived assets.**

LO 1 BT: K Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.4**

#### Jan. 2 Land

#### [$850,000 × ($352,000 ÷ $880,000)] 340,000

**Building**

**[$850,000 × ($396,000 ÷ $880,000)] 382,500**

#### Equipment

#### [$850,000 × ($132,000 ÷ $880,000)] 127,500

#### Cash 170,000

**Mortgage Notes Payable**

**($850,000 − $170,000) 680,000**

**To record purchase of property.**

LO 1 BT: AP Difficulty: S Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.5**

**Depreciable amount is $36,000 ($42,000 − $6,000). With a 4-year useful life, annual depreciation is $9,000 ($36,000 ÷ 4). Under the straight-line method, depreciation is the same each year. Thus, depreciation expense is $9,000 for each year of the equipment’s life.**

LO 2 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.6**

**The diminishing-balance rate is 50% (200%÷ 4) and this rate is applied to the carrying amount at the beginning of the year. Depreciation expense for each year is as follows:**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2021 $42,000 50% $21,000 $21,000 $21,000**

**2022 21,000 50% 10,500 31,500 10,500**

**2023 10,500 50% 4,500¹ 36,000 6,000**

**¹ Limited to the amount that reduces the carrying amount to the residual value of $6,000**

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.7**

**a. Depreciable amount per unit:**

**($38,950 − $4,300) ÷ 550,000 km. = $0.063/km.**

**b. Annual depreciation expense:**

#### 2020: 90,000 × $0.063 = $5,670

#### 2021: 135,000 × $0.063 = $8,505

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.8**

**Depreciation expense for each year:**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount1 × Rate = Expense Depr. Amount**

**2021 $32,000 25% × 9/12 $ 6,000 $ 6,000 $32,000**

**2022 32,000 25% 8,000 14,000 24,000**

**1Depreciable amount = $38,000 − $6,000 = $32,000**

LO 2 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.9**

**The double diminishing-balance rate is 50% (25% × 2) and this rate is applied to the carrying amount at the beginning of the year. Depreciation expense for each year is as follows:**

**Double Diminishing-balance**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2021 $38,000 50% × 1/2 $ 9,500 $ 9,500 $28,500**

**2022 28,500 50% 14,250 23,750 14,250**

**2023 14,250 50% 7,125 30,875 7,125**

**2024 7,125 50% 1,125¹ 32,000 6,000**

**¹ Limited to the amount that brings the carrying amount to the residual value of $6,000**

LO 2 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.10**

**a. Annual depreciation: ($250,000 − $10,000) ÷ 6 = $40,000**

**Equipment cost $250,000**

**Less accumulated depreciation**

**($40,000 × 3) for 2019 to 2021 120,000**

**Carrying amount Dec. 31, 2021 $130,000**

**b. Impairment Loss1 30,000**

**Accumulated Depreciation—Equipment 30,000**

**To record impairment loss.**

**1Carrying amount from a. $130,000**

**Less: Recoverable amount 100,000**

**Impairment loss $ 30,000**

LO 3 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.11**

**Carrying amount, Jan. 1, 2021 ($32,000 − $9,000) $23,000**

**Less: Residual value (2,000)**

#### Remaining depreciable amount 21,000

**Remaining useful life ÷ 4 years**

**Revised annual depreciation expense 2021 $ 5,250**

LO 3 BT: AP Difficulty: M Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.12**

**Accumulated Depreciation—**

**Equipment 25,700**

**Equipment 25,700**

**To record retirement of equipment.**

LO 4 BT: AP Difficulty: S Time: 5 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.13**

**a. Mar. 31 Depreciation Expense**

**[($86,400 − $2,200) ÷ 5 × 3/12] 4,210**

**Accumulated Depreciation**

**—Equipment 4,210**

**To record depreciation expense.**

**b. Mar. 31 Cash 35,000**

**Accumulated Depreciation—**

**Equipment ¹ 54,730**

### Gain on Disposal2 3,330

**Equipment 86,400**

**To record disposal of equipment.**

**¹ [($86,400 − $2,200) ÷ 60 months × 39 months] = $54,730**

**$16,840 x 3 years (2018-2020) $50,520**

**Depreciation for 3 months in 2021 4,210**

**Accumulated Depreciation to March 31 $54,730**

**2Cost of equipment $86,400**

**Less: accumulated depreciation 54,730**

**Carrying amount at date of disposal 31,670**

**Proceeds from sale 08 35,000**

**Gain on disposal $ 3,330**

**c. Mar. 31 Cash 29,000**

**Accumulated Depreciation—**

**Equipment 54,730**

### Loss on Disposal3 2,670

**Equipment 86,400**

**To record disposal of equipment.**

**3Cost of equipment $86,400**

**Less: accumulated depreciation 54,730**

**Carrying amount at date of disposal 31,670**

**Proceeds from sale 29,000**

**Loss on disposal $ 2,670**

LO 4 BT: AP Difficulty: C Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.14**

#### Jan. 7 Equipment (new)1 29,000

**Accumulated Depreciation**

**—Equipment 30,000**

### Loss on Disposal2 7,000

#### Equipment (old) 61,000

#### Cash 5,000

**To record exchange of equipment**

**1Cost of new = consideration paid in cash plus fair value of old asset: ($5,000 + $24,000 = $29,000)**

**2Loss on disposal = Carrying amount − fair value:**

**[($61,000 − $30,000) − $24,000 = $7,000]**

LO 4 BT: AP Difficulty: C Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.15**

**Depletion base**

**= $6,500,000 − $500,000**

**= $6,000,000**

**Depletion per unit**

**= $6,000,000 ÷ 25,000,000 tonnes**

**= $0.24 per tonne**

**Depletion expense for ore extracted in Year 1:**

**$0.24 per tonne × 5,000,000 tonnes = $1,200,000**

### Aug. 31 Inventory 1,200,000

**Accumulated Depletion—Resource 1,200,000**

**To record annual depletion.**

LO 5 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.16**

**a. 2021**

**Jan. 2 Patents 150,000**

Cash 150,000

To record cash purchase of patent.

**b. Dec. 31 Amortization Expense**

**($150,000 ÷ 8) 18,750**

**Accumulated Amortization—**

**Patents 18,750**

**To record amortization expense.**

LO 6 BT: AP Difficulty: S Time: 10 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.17**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** | **PPE** | **g.** | **PPE** |
| **b.** | **NA (expense)** | **h.** | **NA (investment)** |
| **c.** | **I** | **i.** | **PPE** |
| **d.** | **NR** | **j.** | **I** |
| **e.** | **NA (current asset)** | **k.** | **NA (expense)** |
| **f.** | **PPE** | **l.** | **I** |

LO 7 BT: K Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.18**

H. DENT COMPANY

Balance Sheet (Partial)

December 31, 2021

Property, plant, and equipment

Land $ 400,000

Building $1,100,000

Less: Accumulated depreciation 600,000 500,000

Resource 500,000

Less: Accumulated depletion 108,000 392,000

Total property, plant, and equipment 1,292,000

Goodwill 410,000

LO 7 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**BRIEF EXERCISE 9.19**

($ in US millions)

|  |  |
| --- | --- |
| Return on assets | $315 |
|  | [($17,942 + $16,963) ÷ 2] |
|  | = 1.80% |
| Asset turnover | $13,766 |
|  | [($17,942 + $16,963) ÷ 2] |
|  | = 0.79 times |

LO 7 BT: AN Difficulty: S Time: 15 min. AACSB: Analytic CPA: cpa-t001 cpa-t005

CM: Reporting and Finance

SOLUTIONS TO EXERCISES

**EXERCISE 9.1**

**a. The acquisition cost of a property, plant, and equipment includes all expenditures necessary to acquire the asset and make it ready for its intended use. This includes not only the invoice cost of acquisition, but any freight, installation, testing, and similar costs to get the asset ready for use. For example, the cost of factory equipment includes the purchase price, freight costs paid by the purchaser, insurance costs during transit, and installation costs. Costs such as these benefit the life of the factory equipment and not just the current period. Consequently, they should be capitalized and depreciated over the equipment’s useful life.**

**b. 1. Land**

**2. Land**

**3. Land**

**4. Land ($4,800 − $900 = $3,900)**

**5. Vehicles**

**6. Vehicles**

**7. Licence Expense**

**8. Land Improvements**

LO 1 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.2**

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Appraised Value** | **% of Total** | **Cost Allocated** |
| **Land** | **$ 476,000** | **35%** | **$ 448,000** |
| **Building** | **748,000** | **55%** | **704,000** |
| **Land Improvements** | **136,000** | **10%** | **128,000** |
|  | **$1,360,000** |  | **$1,280,000** |

#### b. Land 448,000

#### Building 704,000

**Land Improvements 128,000**

#### Cash 255,000

**Mortgage Payable 1,025,000**

**To record purchase of property.**

**c. Depreciable amount for the building is $654,000 ($704,000 – $50,000). With a 60-year useful life, annual depreciation expense is $10,900 ($654,000 ÷ 60).**

**Depreciable amount for the land improvements is $128,000. With a 15-year useful life, annual depreciation expense is $8,533 ($128,000 ÷ 15).**

LO 1,2 BT: AP Difficulty: M Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.3**

1. **False. The inverse is true. Depreciation is a process of cost allocation, not asset valuation.**
2. **True.**
3. **False. The fair value of a plant asset may exceed the carrying amount of that asset. The best example is land because it is not depreciated.**
4. **False. Depreciation does not apply to land because its revenue-producing ability generally remains intact over time.**
5. **False. Buildings do not have indefinite physical life and must therefore be depreciated.**
6. **True, although there could be exceptions due to the nature of the long-lived asset.**
7. **False. The process of depreciating a long-lived asset does not involve cash, but a charge as an expense on the income statement. No cash is being accumulated to replace the asset.**
8. **True.**
9. **False. Depreciation expense is reported on the income statement, but the accumulated depreciation is reported on the balance sheet.**
10. **False. The fair value of a depreciable asset is not a factor used in the calculation of depreciation.**

LO 1,2 BT: C Difficulty: S Time: 15 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.4**

**a. Straight-line**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Cost1 × Rate2 = Expense Depr. Amount**

**2020 $330,000 20% × 1/2 $33,000 $33,000 $312,000**

**2021 330,000 20% 66,000 99,000 246,000**

**1$345,000 − $15,000 = $330,000**

**2Straight-line rate = 100% ÷ 5 years = 20%**

**b. Double diminishing-balance**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate3 = Expense Depr. Amount**

**2020 $345,000 40% × 1/2 $69,000 $69,000 $276,000**

**2021 276,000 40% 110,400 179,400 165,600**

**3Double diminishing-balance rate = 200% ÷ 5 years = 40%**

**c. Units-of-Production**

**End of Year**

**Units-of- Depr. Depr. Accum. Carrying**

**Year Production × Cost/Unit4 = Expense Depr. Amount**

**2020 71,000 $0.55 $39,050 $39,050 $305,950**

**2021 118,600 0.55 65,230 104,280 240,720**

**4Depreciable amount per unit is $0.55 per unit:**

**[($345,000 − $15,000) ÷ 600,000 units = $0.55]**

**EXERCISE 9.4 (Continued)**

d. In this particular case, the units-of-production can be used as management is able to reliably estimate the amount of total production that will be obtained by using the equipment. This method allows for the best matching of depreciation costs with the related benefits obtained from the asset’s use. Another factor affecting the choice of depreciation methods is consistency with methods used in the past for similar type assets. Since this is a rather expensive piece of equipment, Blue Ribbon’s policy of recording a half-year’s depreciation in the year of acquisition could conceivably bias the amount charged for depreciation in 2020. Coincidentally, the date of purchase happens to be within one month of the mid-point of the fiscal year. The choice of methods would consequently not differ tremendously between the units-of-production and the straight-line methods. Future purchases of depreciable assets could nonetheless unfairly charge depreciation in the year of purchase. By choosing the units-of-production, the bias is removed.

LO 2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.5**

**a.**

**(1) Straight-line**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount1 × Rate2 = Expense Depr. Amount**

**2020 $115,200 25% × 8/12 $19,200 $19,200 $110,000**

**2021 115,200 25% 28,800 48,000 81,200**

**2022 115,200 25% 28,800 76,800 52,400**

**2023 115,200 25% 28,800 105,600 23,600**

**2024 115,200 25% × 4/12 9,600 115,200 14,000**

**1 $129,200 − $14,000 = $115,200**

**2 Straight-line rate = 100% ÷ 4 years = 25%**

**(2) Double diminishing-balance**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate3 = Expense Depr. Amount**

**2000 $129,200 50% × 8/12 $43,067 $43,067 $86,133**

**2021 86,133 50% 43,067 86,134 43,066**

**2022 43,066 50% 21,533 107,667 21,533**

**2023 21,533 50% 7,5334 115,200 14,000**

**3 Double diminishing rate = 200% ÷ 4 years = 50%**

**4 Limited to the amount that brings the carrying amount to the residual value of $14,000.**

**EXERCISE 9.5 (Continued)**

**a. (Continued)**

**(3) Units-of-Production**

**End of Year**

**Units of Deprec. Depr. Accum. Carrying**

**Year Production × Amt/Unit5 = Expense Depr. Amount**

**2020 1,900 $9.60 $18,240 $18,240 $110,960**

**2021 2,800 9.60 26,880 45,120 84,080**

**2022 3,700 9.60 35,520 80,640 48,560**

**2023 2,700 9.60 25,920 106,560 22,640**

**2024 1,100 9.60 8,6406 115,200 14,000**

**5 Depreciation amount per unit is $9.60/hour**

**[($129,200 – $14,000) ÷ 12,000 hours = $9.60]**

**6 Limited to the amount that brings the carrying amount to the residual value of $14,000 (actual production of 12,200 exceeded estimated total production of 12,000).**

**b. Over the life of the asset, depreciation expense (in total) will be the same for all three methods, so the total profit will also be the same.**

**c. Cash flow is the same under all three methods. Depreciation is an allocation of the cost of a long-lived asset and not a cash expenditure.**

LO 2 BT: AP Difficulty: M Time: 45 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.6**

**a. July 1 Equipment 500,000**

**2019 Cash 500,000**

**To record cash purchase of equipment.**

**Dec. 31 Depreciation Expense1 25,000**

**2019 Accumulated Depreciation—**

**Equipment 25,000**

**To record depreciation expense.**

**1($500,000 ÷ 10 × 6/12)**

**Dec. 31 Depreciation Expense2 50,000**

**2020 Accumulated Depreciation—**

**Equipment 50,000**

**To record depreciation expense.**

**2($500,000 ÷ 10)**

**b. Carrying amount of the equipment—Dec. 31, 2020**

**[$500,000 – ($50,000 × 1.5 years)] $425,000**

**Recoverable amount 325,000**

**Impairment loss $100,000**

**Dec. 31 Impairment Loss 100,000**

**2020 Accumulated Depreciation—**

**Equipment 100,000**

**To record impairment loss.**

**c. January 1, 2021 Carrying amount is $325,000**

**Depreciation expense for 2021:**

**$325,000 ÷ 8.5 years = $38,235.**

**December 31, 2021 Carrying amount is $286,765**

**($325,000 − $38,235).**

LO 3 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting**EXERCISE 9.7**

1. **Annual depreciation — current estimate**

**Building: ($800,000 – $40,000) ÷ 20 yrs.**

**= $38,000 per year**

**Equipment: ($125,000 – $5,000) ÷ 5 yrs.**

**= $24,000 per year**

1. **Carrying amount — Building Jan. 1, 2021: $230,000**

**[$800,000 – ($38,000 × 15)]**

**Carrying amount — Equipment Jan. 1, 2021: $77,000**

**[$125,000 – ($24,000 × 2)]**

1. **Annual depreciation — revised estimate — 2021**

**Building: [($230,000 – $60,500) ÷ (30 − 15 yrs.)]**

**= $11,300 per year**

**Equipment: [($77,000 – $4,000) ÷ (4 – 2 yrs.)]**

**= $36,500**

**Carrying amount — Building Dec. 31, 2021: $218,700**

**($230,000 – $11,300)**

**Carrying amount — Equipment Dec. 31, 2021: $40,500**

**($77,000 – $36,500)**

LO 3 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.8**

1. **Annual depreciation — first two years of equipment’s life**

**($90,000 – $9,000) ÷ 6 yrs. = $13,500 per year**

1. **Carrying amount Equipment Sept. 30, 2021: $63,000**

**[$90,000 – ($13,500 × 2)]**

**c. 2021**

**Oct. 1 Equipment 15,000**

#### Cash 15,000

**To record upgrade to equipment.**

**d. 2022**

**Sept. 30 Depreciation Expense1 36,500**

**Accumulated Depreciation**

**—Equipment 36,500**

**To record depreciation expense.**

#### 1Carrying amount Sept. 30, 2021 from b. $63,000

**Add: Upgrade 15,000**

78,000

**Less: Revised residual value 5,000**

**Remaining depreciable amount $73,000**

**Remaining useful life (4 − 2) ÷ 2 years**

**Revised annual depreciation expense $36,500**

LO 3 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.9**

**a.**

**Apr. 1 Depreciation Expense1 1,125**

**Accumulated Depreciation**

**—Equipment 1,125**

**1($45,000 ÷ 10 years × 3/12)**

**To record depreciation expense.**

**July 30 Depreciation Expense2 2,450**

**Accumulated Depreciation**

**—Equipment 2,450**

**2($12,600 ÷ 3 years × 7/12)**

**To record depreciation expense.**

**Nov. 1 Depreciation Expense3 3,125**

**Accumulated Depreciation—Vehicles 3,125**

**3($35,000 − $5,000) ÷ 8 years × 10/12)**

**To record depreciation expense.**

**b.**

**Apr. 1 Accumulated Depreciation**

**—Equipment4 41,625**

**Loss on Disposal 3,375**

**Equipment 45,000**

**4[($45,000 ÷ 10 years) × 9] + $1,125**

**To record disposal of equipment.**

**July 30 Cash 1,100**

**Accumulated Depreciation**

**—Equipment5 10,850**

**Loss on Disposal 650**

**Equipment 12,600**

**5[($12,600 ÷ 3 years) × 2] + $2,450**

**To record disposal of equipment.**

**EXERCISE 9.9 (Continued)**

**Nov. 1 Vehicles (New) ($7,000 + $36,000) 43,000**

**Accumulated Depreciation**

**—Vehicles6 22,500**

**Loss on Disposal7 5,500**

**Vehicles (Old) 35,000**

**Cash 36,000**

**To record disposal of equipment.**

**6($35,000 − $5,000) ÷ 8 X 6**

**7 ($35,000 - $22,500) - $7,000 or $12,5008 - $7,000**

**6Accumulated depreciation on old truck:**

**2015 ($3,750 x 2/12) $ 625**

**2016-2020 ($3,750 x 5 years) 18,750**

**2021 (from part a) 3,125**

**Total accumulated depreciation $22,500**

**8Carrying value of old truck on November 1, 2021 $12,500 ($35,000 - $22,500)**

LO 4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.10**

**a. 2024**

**Jan. 2 Cash 31,000**

**Accumulated Depreciation**

**—Equipment1 36,000**

**Gain on Disposal 2,000**

**Equipment 65,000**

**1 ($65,000 − $5,000) ÷ 5 X 3**

**To record disposal of equipment.**

b. 2024

**May 1 Cash 31,000**

**Accumulated Depreciation**

**—Equipment2 40,000**

**Gain on Disposal 6,000**

**Equipment 65,000**

**2($65,000 − $5,000) ÷ 5 = $12,000**

**$12,000 X (3 years + 4 months) = $40,000**

**To record disposal of equipment.**

**c. 2024**

**Jan. 2 Cash 11,000**

**Accumulated Depreciation**

**—Equipment3 36,000**

**Loss on Disposal 18,000**

**Equipment 65,000**

**3($65,000 − $5,000) ÷ 5 X 3**

**To record disposal of equipment.**

d. 2024

**Oct. 1 Cash 11,000**

**Accumulated Depreciation**

**—Equipment4 45,000**

**Loss on Disposal 9,000**

**Equipment 65,000**

**4($65,000 − $5,000) ÷ 5 = $12,000**

**$12,000 X (3 years + 9 months) = $45,000**

**To record disposal of equipment.**

LO 4 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.11**

**a. The units-of-production method is recommended for depleting natural resources because it best reflects the pattern over which the assets’ future economic benefits are expected to be consumed. It requires that an estimate can be made of the total number of units that are available to be extracted from the resource.**

**b. Dec. 31 Inventory ($1.50 × 100,000) 150,000**

**Accumulated Depletion—Resource 150,000**

**To record depletion.**

**Depreciable amount $1,300,000 − $100,000 = $1,200,000**

**Depreciable amount per unit:**

**$1,200,000 ÷ 800,000 tonnes = $1.50 per tonne**

c.

PHILLIPS EXPLORATION

**Income Statement (Partial)**

#### Year Ended December 31, 2021

Cost of goods sold: (will include this amount plus other costs)

**($1.50 × 100,000 tonnes) $150,000**

PHILLIPS EXPLORATION

**Balance Sheet (Partial)**

#### December 31, 2021

**Assets**

**Property, plant, and equipment**

#### Resource $1,300,000

**Less: Accumulated depletion 150,000 $1,150,000**

LO 5 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.12**

**1**. **The original entry to add the cost of removing the old building, the legal fees, and clearing and grading the land to the Land account is correct. The student’s accounting treatment is incorrect. The costs involved must be added to the cost of land as they were necessary costs to acquire the land and get it ready for its intended use.**

**2. Although consistency is necessary in applying accounting policies, in this case it should not have been the basis for recording depreciation on the trademarks. Trademarks can have usefulness to the business indefinitely. This is the probable reason that depreciation had not been recorded for trademarks in the past. As long as trademarks continue to assist in producing revenue and their carrying amounts have not been impaired, they should not be depreciated. Rather, they should be tested regularly for impairment. If a permanent decline in value has occurred, the trademarks must be written down and an impairment loss recorded on the income statement. Therefore, the depreciation entry should be reversed and no decline in value recorded unless an impairment occurs.**

**3. This student’s reasoning is faulty and an incorrect application of the principle of consistency in accounting. Adjusting property, plant, and equipment for increases to their fair value occurs when the business uses the revaluation model or fair value model under the International Financial Accounting Standards (IFRS). This is very unlikely the case for Chin Company. As well, current fair values are subjective and not reliable; they are not used to increase the recorded value of an asset after acquisition. The appropriate accounting treatment is to leave the building on the books at its zero carrying amount.**

LO 1,2,6 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.13**

a.

**2020**

**Jan. 9 Patents 45,000**

**Cash 45,000**

**To record cash purchase of patent.**

**May 15 Goodwill 450,000**

**Cash 450,000**

**To record goodwill as part of purchase**

**of another company.**

**Dec. 31 Amortization Expense 9,000**

**Accumulated Amortization**

**—Patents ($45,000 ÷ 5) 9,000**

**To record amortization expense.**

**31 Impairment Loss 50,000**

**Goodwill ($450,000 − $400,000) 50,000**

**To record impairment loss on goodwill.**

**2021**

**Jan. 2 Patents 30,000**

**Cash 30,000**

**To record successful defence of patent.**

**Mar. 31 Research Expense 175,000**

**Cash 175,000**

**To record research expense.**

**Apr. 1 Copyrights 66,000**

**Cash 66,000**

**To record cash purchase of copyright.**

**July 1 Trademark 275,000**

**Cash 275,000**

**To record cash purchase of trademark.**

EXERCISE 9.13 (Continued)

**a. (Continued)**

**Dec. 31 Amortization Expense 21,450**

**Accumulated Amortization—Patents**

**[($45,000 – $9,000 + $30,000) ÷ 4] 16,500**

**Accumulated Amortization—**

**Copyrights [($66,000 ÷ 10) × 9/12] 4,950**

**To record amortization expense.**

b.

**Assets**

**Intangible assets**

**Patents $75,000**

**Less: Accumulated amortization 25,500 $49,500**

**Copyrights 66,000**

**Less: Accumulated amortization 4,950 61,050**

**Trademark 275,000**

**Total intangible assets 385,550**

**Goodwill 400,000**

LO 6 BT: AP Difficulty: M Time: 25 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.14**

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | **Carrying** |
| **Patent** | **Cost** | **Amort.** | **Amount** |
| **Purchase price Jan. 1, 2018** | **$400,000** |  |  |
| **Amortization 2018 1** |  | **$50,000** |  |
| **Amortization 2019** |  | **50,000** |  |
| **Amortization 2020** |  | **50,000** |  |
| **Balance Dec. 31, 2020** |  |  | **$250,000** |
| **Amortization 2021 2** |  | **$83,333** |  |
| **Balance Dec. 31, 2021** |  |  | **$166,667** |

**1 ($400,000 ÷ 8 years)**

**2 Carrying amount ÷ (6 – 3 years) = $250,000 ÷ 3**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  | **Carrying** |
| **Trademark** | **Cost** | **Impairment** | **Amount** |
| **Purchase price during 2014** | **$250,000** |  |  |
| **Legal defence during 2020** | **50,000** |  |  |
| **Balance Dec. 31, 2020** | **$300,000** |  | **$300,000** |
| **Balance Dec. 31, 2021** |  | **$25,000** | **$275,000** |

**b.**

**Income statement – December 31, 2021**

**Operating expenses:**

**Amortization expense—Patents $83,333 Impairment loss 25,000**

LO 6 BT: AP Difficulty: M Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

**EXERCISE 9.15**

a. (in millions)

|  |  |  |
| --- | --- | --- |
|  | December 31, 2017 | December 31, 2016 |
| Asset turnover | $32,176  [($89,494 + $88,702) ÷ 2]  = 0.36 times | $26,968  [($88,702 + $77,527) ÷ 2]  = 0.32 times |
| Return on assets | $4,458  [($89,494 + $88,702) ÷ 2]  = 5.0% | $445  [($88,702 + $77,527) ÷ 2]  = 0.5% |

b. Suncor’s asset turnover improved as revenues increased and total assets changed only slightly from 2016 to 2017. In contrast, profits improved significantly with the increase in revenues. Return on assets has improved tenfold from 0.5% to 5.0%.

LO 7 BT: AN Difficulty: S Time: 15 min. AACSB: Analytic CPA: cpa-t001 cpa-t005

CM: Reporting and Finance

SOLUTIONS TO PROBLEMS

|  |
| --- |
| **PROBLEM 9.1A** |

**a. Jan. 12 Land 420,000**

**Cash 95,000**

**Notes Payable 325,000**

**To record purchase of land in exchange**

**for cash and a note payable.**

#### 16 Land 8,500

**Cash 8,500**

**Paid legal fees on purchase of land.**

**31 Land 25,000**

**Cash 25,000**

**Paid to demolish building on land.**

**Feb. 13 Cash 10,000**

**Land 10,000**

**Received cash from material from**

**demolished building on land.**

**28 Land 9,000**

**Cash 9,000**

**Paid to grade and fill land.**

**Mar. 14 Building 38,000**

**Cash 38,000**

**Paid architect fees for building.**

**31 Building 15,000**

**Cash 15,000**

**Paid for building permit for building.**

**Apr. 22 Building 17,000**

**Cash 17,000**

**Paid excavation costs for building.**

**PROBLEM 9.1A (Continued)**

**a. (Continued)**

**Sept. 26 Building 750,000**

**Cash 150,000**

**Mortgage Payable 600,000**

**Paid for construction of building.**

**Sept. 30 Prepaid Insurance 4,500**

**Cash 4,500**

**Paid for insurance in advance.**

**Oct. 20 Land Improvements 45,000**

**Cash 45,000**

**Paid for paving of parking lots,**

**driveways and sidewalks.**

**Nov. 15 Land Improvements 12,000**

**Cash 12,000**

**Paid for fence on property.**

**b.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Land** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Jan. 12 420,000 420,000

16 8,500 428,500

31 25,000 453,500

Feb. 13 10,000 443,500

28 9,000 452,500

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Building** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Mar. 14 38,000 38,000

31 15,000 53,000

Apr. 22 17,000 70,000

Sept. 26 750,000 820,000

**PROBLEM 9.1A (Continued)**

**b. (Continued)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Land Improvements** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Oct. 20 45,000 45,000

Nov. 15 12,000 57,000

**The costs that will appear on Kadlec’s December 31, 2021, balance sheet will be:**

**Land $452,500**

**Building 820,000**

**Land Improvements 57,000**

**Taking It Further:**

**Companies should start to record depreciation when the asset is ready for use. In the case of Kadlec, the building was ready for use on September 26, 2021 and land improvements were completed on November 15, 2021 and so depreciation should be calculated from those dates.**

**Kadlec should depreciate only the building and land improvements. Land has an indefinite useful life and therefore is not depreciated.**

LO 1 BT: AP Difficulty: S Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.2A** |

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Appraised Value** | **% of Total** | **Cost Allocated** |
| **Land** | **$275,000** | **40%** | **$260,000** |
| **Building** | **343,750** | **50%** | **325,000** |
| **Equipment** | **68,750** | **10%** | **65,000** |
|  | **$687,500** |  | **$650,000** |

**b.**

**Building: Straight-line**

**1. To the nearest whole month**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount1 × Rate = Expense Depr. Amount**

**2020 $300,000 1/60 × 10/12 $4,167 $4,167 $320,833**

**2021 300,000 1/60 5,000 9,167 315,833**

**1$325,000 − $25,000 = $300,000**

**2. Half a year in the year of acquisition**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2020 $300,000 1/60 × 6/12 $2,500 $2,500 $322,500**

**2021 300,000 1/60 5,000 7,500 317,500**

**PROBLEM 9.2A (Continued)**

**b. (Continued)**

**Equipment: Double diminishing-balance**

**1. To the nearest whole month**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate2 = Expense Depr. Amount**

**2020 $65,000 25% × 10/12 $13,542 $13,542 $51,458**

**2021 51,458 25% 12,865 26,407 38,593**

**2 200% ÷ 8 = 25%**

**2. Half a year in the year of acquisition**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2020 $65,000 25% × 1/2 $8,125 $8,125 $56,875**

**2021 56,875 25% 14,219 22,344 42,656**

c. Both options are acceptable. If it were not the first year of business, ChalkBoard should consider, for purpose of consistency, the policy used in the past. Since this is the first year of business, ChalkBoard should consider what other categories or types of assets it will be purchasing in the current and future years that will be depreciated using this policy. If for example, the remaining categories of assets will be depreciated using the units-of-production method, the choice will not matter. The impact of the choice will not be significant in the long run, particularly if the assets are bought and sold frequently. Also, the impact is insignificant for assets with very long useful lives, as is demonstrated in part b. for the building. No matter the choice taken by ChalkBoard, the policy must be followed consistently.

**PROBLEM 9.2A (Continued)**

**Taking It Further:**

**ChalkBoard should not consider depreciating to the exact day of acquisition as this level of precision is not relevant over the long-run, particularly for assets with long useful lives, such as for the building. Applying a policy of depreciating to the day will provide an amount for the depreciation expense that is insignificantly different from the amount arrived at using to the nearest month policy.**

LO 1,2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.3A** |

**a. Invoice price $210,000**

**Delivery cost 4,400**

**Installation and testing 5,600**

**Cost of the equipment $220,000**

**The $1,975 insurance policy is an annual operating expenditure and not included in the cost of the asset.**

**b. 1. STRAIGHT-LINE DEPRECIATION**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2020 $205,0001 25%2 $ 51,250 $ 51,250 $168,750**

**2021 205,000 25% 51,250 102,500 117,500**

**2022 205,000 25% 51,250 153,750 66,250**

**2023 205,000 25% 51,250 205,000 15,000**

**1 $220,000 − $15,000 = $205,000**

**2 100% ÷ 4= 25%**

**PROBLEM 9.3A (Continued)**

**b. (Continued)**

**2. DOUBLE DIMINISHING-BALANCE DEPRECIATION**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2020 $220,000 50%3 $110,000 $110,000 $110,000**

**2021 110,000 50% 55,000 165,000 55,000**

**2022 55,000 50% 27,500 192,500 27,500**

**2023 27,500 50% 12,5004 205,000 15,000**

**3 200% ÷ 4 = 50%**

**4 Limited to the amount that brings the carrying amount to the residual value of $15,000.**

**3. UNITS-OF-PRODUCTION**

**End of Year**

**Units of Depr. Depr. Accum. Carrying**

**Year Production × Amt/Unit5 = Expense Depr. Amount**

**2020 16,750 $2.505 $ 41,875 $ 41,875 $178,125**

**2021 27,600 2.50 69,000 110,875 109,125**

**2022 22,200 2.50 55,500 166,375 53,625**

**2023 16,350 2.50 38,6256 205,000 15,000**

**5 Depreciable amount per unit is $2.50 per unit**

**[($220,000 – $15,000) ÷ 82,000 = $2.50]**

**6 Equal to the amount that brings the carrying amount to the residual value of $15,000 (actual production of 82,900 exceeded estimated total production of 82,000).**

**PROBLEM 9.3A (Continued)**

**c.** **The straight-line method of calculating depreciation provides the lowest amount of depreciation expense for 2021, which results in the highest amount of profit. Over the life of the asset, all three methods result in the same total depreciation expense (equal to the depreciable amount) and therefore the same amount of profit.**

**Taking It Further:**

**The cost of recycling the equipment at the end of its useful life is an asset retirement cost and the amount must be estimated and added to the cost the equipment — part a. These costs would consequently be added to the depreciable amount in the calculation of depreciation under all of the methods and would proportionately increase the amount of depreciation charge — part b.**

LO 1,2 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.4A** |

**a.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trans-** |  |  | **Equip-** | **Accum.** | **Total** |  |
| **action** | **Land** | **Building** | **ment** | **Depr.** | **PP&E** | **Profit** |
|  |  |  |  |  |  |  |
| **Jan. 12** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$2,200** |
| **Feb. 6** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$5,400** |
| **Apr. 24** | **NE** | **+$75,000** | **NE** | **NE** | **+$75,000** | **NE** |
| **May 17** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$3,100** |
| **July 19** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$5,900** |
| **Aug. 21** | **NE** | **NE** | **+$26,000** | **NE** | **+$26,000** | **NE** |
| **Sept. 20** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$2,700** |
| **Oct. 25** | **NE** | **NE** | **+$20,000** | **NE** | **+$20,000** | **NE** |
| **Dec. 31** | **NE** | **NE** | **NE** | **NE** | **NE** | **NE** |
| **Dec. 31** | **NE** | **NE** | **NE** | **+$37,500** | **−$37,500** | **−$37,500** |

**b.**

**Jan. 12 Repairs Expense 2,200**

**Cash 2,200**

**Paid for repairs expense.**

#### Feb. 6 Repairs Expense 5,400

**Cash 5,400**

**Paid for repairs expense.**

**Apr. 24 Building 75,000**

**Cash 75,000 Paid for air conditioning system.**

#### Note: Possibly add as a separate component of the building depending on the type of system, and whether it has the same useful life as the rest of the building.

#### 

**May. 17 Training Expense 3,100**

**Cash 3,100**

**Paid for training expense.**

**PROBLEM 9.4A (Continued)**

**b. (Continued)**

**July 19 Repairs Expense 5,900**

**Cash 5,900**

**Paid for repairs expense.**

**Aug. 21 Vehicles 26,000**

**Cash 26,000**

**Paid for fuel conversion of trucks.**

**Sept. 20 Repairs Expense 2,700**

**Cash 2,700**

**Paid for repairs expense.**

**Oct. 25 Equipment 20,000**

**Cash 20,000**

**Paid for additions to equipment.**

**Dec. 31 Impairment Loss 37,500**

**Accumulated Depreciation—**

**Equipment 37,500**

**[($150,000 − $62,500) − $50,000]**

**To record impairment loss on equipment.**

**Note: ASPE does not allow the reversal of the impairment loss for the land.**

**Taking It Further:**

**Given that the engine needs to be replaced frequently, consideration should be given to depreciating this component of the equipment using a four-year useful life and the remainder of the equipment using the twelve-year useful life. The major difficulty with this is determining how much of the cost of the equipment to allocate to the engine. One possibility is to use the value of a replacement motor to establish the cost of the original motor at the date of the purchase of the equipment.**

LO 1,3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.5A** |

**a.**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2017 $700,0001 10%2 $70,000 $70,000 $680,000**

**2018 700,000 10% 70,000 140,000 610,000**

**2019 700,000 10% 70,000 210,000 540,000**

**2020 700,000 10% 70,000 280,000 470,000**

**2021 700,000 10% 70,000 350,000 400,000**

**1 Depreciable amount = $750,000 − $50,000 = $700,000**

**2 100% ÷ 10 years = 10%**

**b. Dec. 31 Impairment Loss1 80,000**

**2021 Accumulated Depreciation—**

**Equipment 80,000**

**1($400,000 − $320,000)**

**To record impairment loss on equipment.**

**c. Slope’s income statement will include depreciation expense in the amount of $70,000 and the impairment loss of $80,000. On Slope’s balance sheet, the equipment will be reported at its cost of $750,000 and accumulated depreciation of $430,000 ($350,000 + $80,000) so that the carrying amount will be $320,000 ($750,000-$430,000), equal to the recoverable amount.**

**d. End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount2 × Rate = Expense Depr. Amount**

**Balance forward $430,0001 $320,000**

**2022 $310,000 33.33%3 $103,333 533,333 216,667**

**2023 310,000 33.33% 103,333 636,666 113,334**

**2024 310,000 33.33% 103,334 740,000 10,000**

**1Accumulated Depreciation = $350,000 end of year before impairment loss + $80,000 impairment loss**

**2 Carrying amount – revised res. value = $320,000 – $10,000**

**3 100% ÷ 3 years remaining (8 – 5 years) = 33.33%**

**PROBLEM 9.5A (Continued)**

**Taking It Further:**

**One of the major differences between IFRS and ASPE concerns the measurement and reporting of depreciable assets. Under IFRS, it is possible to report these types of assets at their fair value, using the revaluation model, while under ASPE, no revaluation beyond a capital asset’s historical cost is possible. Consistent with this distinction is the treatment of recoveries of previously recorded impairments. The basis for reporting depreciable assets at their fair value under IFRS is that the value used can be reliably measured. As well, under IFRS the frequency of the scrutiny of the assets to determine any impairment is greater and the measures taken more rigorous. Private companies reporting under ASPE typically do not have the same level of resources needed (as a public company reporting under IFRS) to determine if an impairment exists or if it has been reversed. Under ASPE, impairments are recorded less frequently and thus it is reasonable that ASPE does not allow the recording of reversals of impairment losses.**

LO 3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.6A** |

**a. 2019**

**Apr. 1 Land 150,000**

**Building 235,000**

**Cash 115,000**

**Notes Payable 270,000**

**To purchase property for cash and a**

**note payable.**

**Dec. 31 Depreciation Expense1 6,000**

**Accumulated Depreciation—Building 6,000**

1($235,000 - $35,000) × 4% × 9/12)

To record depreciation expense.

**31 Interest Expense2 10,125**

**Cash 10,125**

**2($270,000 × 5% × 9/12)**

**To record payment of interest.**

2020

**Feb. 17 Repairs Expense 225**

**Cash 225**

**To record repairs expense.**

**Dec. 31 Depreciation Expense3 8,000**

**Accumulated Depreciation—Building 8,000 3($235,000 - $35,000) × 4%)**

To record depreciation expense.

**31 Interest Expense4 13,500**

**Cash 13,500**

4($270,000 × 5%)

To record payment of interest.

PROBLEM 9.6A (Continued)

a. (Continued)

**Dec. 31 Impairment Loss5 30,000**

**Land 30,000**

5($150,000 − $120,000)

To record impairment loss of land.

Building — no entry as carrying amount = $221,000;

( $235,000 − $6,000 − $8,000 = $221,000) which does not exceed the recoverable amount of $240,000.

There is no specific guidance given in the text concerning the recording of impairment losses for land. Since there is no contra account Accumulated Depreciation, the asset Land is reduced directly to reduce the carrying amount.

2021

**Jan. 31 Depreciation Expense6 667**

**Accumulated Depreciation—Building 667**

6($200,000 × 4% × 1/12)

To record depreciation expense.

**31 Cash 320,000**

**Accumulated Depreciation—**

**Building7 14,667**

**Loss on Disposal8 20,333**

**Land 120,000**

**Building 235,000**

7($6,000 + $8,000 + $667)

To record disposal.

8Land (Carrying amount) $120,000

Building $235,000

Less: Accumulated dep’n 14,667 220,333

Carrying amount 340,333

Proceeds 320,000

Loss on disposal $ 20,333

PROBLEM 9.6A (Continued)

a. (Continued)

**Feb. 1 Interest Expense9 1,125**

**Notes Payable 270,000**

**Cash 271,125**

9($270,000 × 5% × 1/12)

To record payment of note and interest.

b. The land may have been impaired due to contamination found on it or surrounding properties. It may also have been because plans for a proposed new development on adjacent land that would have increased the value of NW Tool Supply’s property at the date of purchase, have been permanently shelved.

**c. Oct. 31 Depreciation Expense10 6,667**

**Accumulated Depreciation—Building 6,667**

10($200,000 × 4% × 10/12)

To record depreciation expense.

**Oct. 31 Cash 400,000**

**Accumulated Depreciation**

**—Building11 20,667**

**Land 120,000**

**Building 235,000**

**Gain on Disposal12 65,667 11($6,000 + $8,000 + $6,667)**

**To record disposal.**

12Land (Carrying amount) $120,000

Building $235,000

Less: Accumulated dep’n 20,667 214,333

Carrying amount 334,333

Proceeds 400,000

Gain on disposal $ 65,667

PROBLEM 9.6A (Continued)

**Taking It Further:**

**For purposes of calculating and recording impairments, the recoverable amount of a property is based on the comparison of the carrying amount of the asset against the higher of the fair value of the asset less the cost to sell it, or its value in use.**

**In this case, the property is made up of land and a building which are somewhat inseparable. Consequently, the value in use to NW Tool Supply would be the amount management expects to recover in operations by using the assets together. As for establishing the fair value of the combined assets, property of similar location and type that have been recently sold can be used to make comparisons of what would be obtained on sale. Management should be diligent about looking for possible causes for impairment.**

**When considering impairment of the land on its own, uninsured damages or conditions uncovered during the year may require management to recalculate the value in use or the resale fair value of the land.**

**Under ASPE the review of property, plant, and equipment for possible impairment need not be performed each year, but must be performed on a regular basis, particularly when changes in circumstance or conditions occur. If the company is using IFRS, annual impairment testing is required.**

LO 1,2,3,4 BT: AP Difficulty: M Time: 35 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.7A** |

a. 1. STRAIGHT-LINE DEPRECIATION

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2019 $97,0001 33.333%2 $32,333 $32,333 $75,167**

**2020 97,000 33.333% 32,333 64,666 42,834**

**2021 97,000 33.333% 32,334 97,000 10,500**

1$107,500 − $10,500 = $97,000

2 100% ÷ 3 years = 33.333%

2. DIMINISHING-BALANCE DEPRECIATION

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2019** **$107,500 40% $43,000 $43,000 $64,500**

**2020 64,500 40% 25,800 68,800 38,700**

**2021 38,700 40% 15,480 84,280 23,220**

PROBLEM 9.7A (Continued)

a. (Continued)

**3. UNITS-OF-PRODUCTION**

**End of Year**

**Units of Depr. Depr. Accum. Carrying**

**Year Production × Amt/Unit3 = Expense Depr. Amount**

**2019 10,000 $1.6173 $ 16,170 $ 16,170 $91,330**

**2020 20,000 1.617 32,340 48,510 58,990**

**2021 29,000 1.617 46,893 95,403 12,097**

**3 Depreciable amount per unit is $1.617 per unit**

**[($107,500 – $10,500) ÷ 60,000 = $1.617]**

b. (1) (2) (3)

Straight- Diminishing- Unit –of-

Line Balance Production

Cost $107,500 $107,500 $107,500

Accumulated depreciation. 97,000 84,280 95,403

Carrying amount 10,500 23,220 12,097

Cash proceeds 15,000 15,000 15,000

Gain (loss) on disposal $ 4,500 $ (8,220) $ 2,903

c. (1) (2) (3)

Straight- Diminishing- Unit –of-

Line Balance Production

Depreciation expense $97,000 $84,280 $95,403

Add loss (less gain)

on disposal (4,500) 8,220 (2,903)

Net expense $92,500 $92,500 $92,500

The net expense is the same under all three methods. The different depreciation methods result in different accumulated depreciation at the date of sale, which in turn causes a different gain or loss on disposal. Consequently, the total depreciation expense recognized over the life of the asset, plus the loss on disposal (or less the gain on disposal), results in the same net expense of $92,500 over the life of the asset.

PROBLEM 9.7A (Continued)

**Taking It Further:**

**I disagree. Experiencing a gain or loss on the disposal of a depreciable asset is not the result of an error or mistake. Rather, a gain or loss is an expected outcome due to the limitations of the cost allocation that has occurred for the asset up to the date of its disposal. Since estimates are involved in arriving at the factors used in calculating depreciation, such as the estimated useful life and the estimated residual value, it is natural that some differences between the carrying amount and proceeds of disposition will occur when the asset is ultimately disposed of. Depreciation is a cost allocation process and is not intended to ensure the carrying amount of the asset reflects fair value.**

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.8A** |

**a. 2019**

**Mar. 1 Equipment 95,000**

#### Accounts Payable 95,000

**To record purchase of equipment on account.**

**b. 2019**

**Aug. 31 Depreciation Expense1 9,500**

**Accumulated Depreciation**

**—Equipment 9,500**

**1($95,000 × 20% × 6/12)**

**To record depreciation expense.**

**2020**

**Aug. 31 Depreciation Expense2 17,100**

**Accumulated Depreciation**

**—Equipment 17,100**

**2[($95,000 − $9,500) × 20%]**

**To record depreciation expense.**

**2021**

**Aug. 31 Depreciation Expense3 13,680**

**Accumulated Depreciation**

**—Equipment 13,680**

**3[($95,000 − $9,500 − $17,100) × 20%]**

**To record depreciation expense.**

**c. 2022**

**Feb. 1 Depreciation Expense4 4,560**

**Accumulated Depreciation**

**—Equipment 4,560**

**4[($95,000 − $9,500 − $17,100 − $13,680) × 20% × 5/12]**

**To record depreciation expense.**

**Accumulated Depreciation at February 1, 2022:**

**$9,500 + $17,100 + $13,680 + $4,560** = **$44,840**

**Carrying Amount at February 1, 2022:**

**Cost – Accumulated Depreciation**

**$50,160 = $95,000 − $44,840**

**PROBLEM 9.8A (Continued)**

**c. (Continued)**

**1. Feb. 1 Accumulated Depreciation**

**—Equipment 44,840**

**Loss on Disposal5 50,160**

**Equipment 95,000**

**To record disposal.**

**5Proceeds – Carrying Amount = Gain (loss)**

**$0 – [$95,000 – $44,840] = $(50,160)**

**2. Feb. 1 Cash 55,000**

**Accumulated Depreciation**

**—Equipment 44,840**

**Gain on Disposal6 4,840**

**Equipment 95,000**

**6 $55,000 – [$95,000 – $44,840]**

**To record disposal.**

**3. Feb. 1 Cash 45,000**

**Accumulated Depreciation**

**—Equipment 44,840**

**Loss on Disposal7 5,160**

**Equipment 95,000**

**7[$45,000 – ($95,000 – $44,840)]**

**To record disposal.**

**4. Feb. 1 Equipment (new)**

**($47,000 + $45,000) 92,000**

**Accumulated Depreciation**

**—Equipment 44,840**

**Loss on Disposal8 3,160**

**Cash ($97,000 − $52,000) 45,000**

**Equipment (old) 95,000**

**8[$47,000 – ($95,000 – $44,840)]**

**To record disposal.**

**PROBLEM 9.8A (Continued)**

**Taking It Further:**

The following are the arguments in favour of recording gains and losses on disposal of property, plant, and equipment as:

1. Part of profit from operations:

**Gains and losses are basically just adjustments to depreciation expense and should be recorded in the same section of the income statement.**

**Classifying gains and losses as operations removes the potential for management bias in the selection of depreciation methods or in the estimates concerning useful lives and residual values of the assets. Bias might be at play concerning management’s unwillingness to show losses in operations because management bonuses may be based on the amount of profit from operations.**

**2. Non-operating items:**

**The same management bias described above would be applied for gains recognized by the business.**

**A common view is that the disposal of property, plant, and equipment is not an everyday occurrence and gains or losses are not predictable.**

**It can also be argued that selling property, plant, and equipment is not part of normal operations and thus gains or losses should not be reported as part of profit from operations.**

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.9A** |

**a. April 1 Land 2,200,000**

#### Cash 550,000

#### Notes Payable 1,650,000

**To record purchase of land for cash and**

**a note payable.**

**May 1 Depreciation Expense1 46,667**

#### Accumulated Depreciation—Equip. 46,667

**1($1,400,000 ÷ 10 × 4/12)**

**To record depreciation expense.**

**1 Cash 150,000**

**Accumulated Depreciation**

**—Equipment. 1,166,667**

**Loss on Disposal2 83,333**

#### Equipment 1,400,000

**To record disposal of equipment.**

2Cost $1,400,000

Accumulated depreciation—equip.

[($1,400,000 ÷ 10) × 8 + $46,667)] 1,166,667

Carrying amount 233,333

Cash proceeds 150,000

Loss on disposal $ (83,333)

**June 1 Cash 450,000**

**Notes Receivable 1,350,000**

#### Land 700,000

#### Gain on Disposal 1,100,000

**To record disposal of land.**

**July 1 Equipment 1,100,000**

#### Cash 1,100,000

**To record purchase of equipment.**

**PROBLEM 9.9A (Continued)**

a. (Continued)

**Dec. 31 Depreciation Expense3 50,000**

#### Accumulated Depreciation

#### —Equipment 50,000

**3($500,000 ÷ 10)**

**To record depreciation expense.**

**Dec. 31 Accumulated Depreciation**

**—Equipment. 350,000**

**Loss on disposal4 150,000**

**Equipment 500,000**

**To record disposal.**

4Cost $500,000

Accumulated depreciation—equipment

($500,000 ÷ 10 × 7) 350,000

Carrying amount 150,000

Cash proceeds 0

Gain (loss) on disposal $(150,000)

**b. Dec. 31 Depreciation Expense5 974,000**

#### Accumulated Depreciation

#### —Building 974,000

**5($48,700,000 ÷ 50)**

**To record depreciation expense.**

**31 Depreciation Expense6 7,365,000**

#### Accumulated Depreciation

#### —Equipment 7,365,000

**To record depreciation expense.**

6$73,100,000 ÷ 10 $7,310,000

$1,100,000 ÷ 10 × 6/12 55,000

$7,365,000

$75,000,000 − $1,400,000 − $500,000 = $73,100,000

**PROBLEM 9.9A (Continued)**

a. (Continued)

**Dec. 31 Interest Expense7 74,250**

#### Interest Payable 74,250

7($1,650,000 × 6% × 9/12)

To accrue interest expense.

**31 Interest Receivable 39,375**

#### Interest Revenue8 39,375

8($1,350,000 × 5% × 7/12) To accrue interest revenue.

c.

HAMSMITH CORPORATION

Balance Sheet (Partial)

December 31, 2021

Property, plant, and equipment1

Land $11,500,000

Buildings $48,700,000

Less: Accumulated depreciation 32,074,000 16,626,000

Equipment 74,200,000

Less: Accumulated depreciation 32,945,000 41,255,000

Total property, plant, and equipment $69,381,000

1 See T accounts that follow for balances.

**PROBLEM 9.9A (Continued)**

**c. (Continued)**

Land

Jan. 1, 2021 10,000,000 June 1, 2021 700,000

April 1, 2021 2,200,000

Dec.31, 2021 Bal. 11,500,000

Building

Jan. 1, 2021 48,700,000

Dec. 31, 2021 Bal. 48,700,000

Equipment

Jan. 1, 2021 75,000,000 May 1, 2021 1,400,000

July 1, 2021 1,100,000 Dec. 31, 2021 500,000

Dec.31, 2021 Bal. 74,200,000

Accumulated Depreciation—Building

Jan. 1, 2021 31,100,000

Dec. 31, 2021 974,000

Dec. 31, 2017 Bal. 32,074,000

Accumulated Depreciation—Equipment

May 1, 2021 1,166,667 Jan. 1, 2021 27,000,000

Dec. 31, 2021 350,000 May 1, 2021 46,667

Dec. 31, 2021 50,000

Dec. 31, 2021 7,365,000

Dec. 31, 2021 Bal. 32,945,000

**PROBLEM 9.9A (Continued)**

**Taking It Further:**

**Although the use of the revaluation model is permitted for public companies following International Financial Reporting Standards (IFRS), its adoption is voluntary, and somewhat rare. The revaluation model results in more relevant information on the balance sheet, because the long-lived assets are revalued to fair value on a regular basis. An investor may be better able to assess the current economic position of the company with this information. However, the revaluation model increases the risk of error and bias in the financial statements because the revaluation model uses a fair value amount that is not necessarily supported by a transaction with an independent buyer.**

LO 2,4,7 BT: AP Difficulty: C Time: 50 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.10A** |

**1. Research Expense ($160,000 × 55%) 88,000**

**Patents 88,000**

**To correct recording error.**

#### Accumulated Amortization—Patents 5,867

#### Amortization Expense1 5,867

1$88,000 ÷ 15 years = $5,867

**To correct recording error.**

**2. Goodwill 5,000**

#### Amortization Expense2 5,000 2($400,000 ÷ 40 years) × 6/12

**To correct recording error.**

**3. Impairment Loss ($80,000 − $70,000) 10,000**

**Licence 10,000**

**To correct recording error.**

**Taking It Further:**

**Most intangible assets that are developed internally cannot be recognized as intangible assets on the balance sheet because the expenditures on internally developed intangibles cannot be distinguished from the cost of other research and development performed by the business. The costs cannot be separately measured and must be expensed as incurred.**

LO 6 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.11A** |

a. Jan. 2 Patent #1 23,200 Cash 23,200

To record successful defence of patent.

June 30 Research Expense 180,000

Cash 180,000

Payment of research expense.

30 Patent #2 60,000 Cash 60,000

Payment of costs for patent #2.

Sept. 1 Advertising Expense 12,000 Cash 12,000

Paid advertising expense.

Oct. 1 Copyright #2 18,000 Cash 18,000

Purchase copyright #2.

b. Dec. 31 Amortization Expense 12,400 Accumulated Amortization—

Patent #11 10,900 Accumulated Amortization—

Patent #22 1,500

1 [($80,000 × 1/10) + ($23,200 × 1/8)]

At Jan. 1, 2021 Patent # 1 has been amortized 2 years ($16,000 ÷ $80,000 = 2/10) — remaining period to amortize is 8 years.

2 [$60,000 × 1/20 × 6/12 = $1,500]

To record amortization expense.

**PROBLEM 9.11A (Continued)**

**b. (Continued)**

Dec. 31 Amortization Expense 5,550 Accumulated Amortization—

Copyright #13 4,800

Accumulated Amortization—

Copyright #24 750

3($48,000 × 1/10)

4($18,000 × 1/6 × 3/12)

To record amortization expense.

**c.**

**IP COMPANY**

**(Partial) Balance Sheet**

#### December 31, 2021

**Assets**

**Intangible assets**

**Patents5 $163,200**

**Less: Accumulated amortization6 28,400 $134,800**

**Copyrights7 66,000**

**Less: Accumulated amortization8 34,350 31,650**

**Total intangible assets 166,450**

**Goodwill 220,000**

5 Cost: Patent #1 ($80,000 + $23,200) + Patent #2 ($60,000) = $163,200

6 Accumulated Amortization: Patent #1 ($16,000 + $10,900) + Patent #2 ($1,500) = $28,400

7Cost: Copyright #1 ($48,000) + Copyright #2 ($18,000) = $66,000

8 Accumulated Amortization: Copyright #1 ($28,800 + $4,800) + Copyright #2 ($750) = $34,350

**PROBLEM 9.11A (Continued)**

**Taking It Further:**

Although intangible assets do not have physical substance, they have characteristics common to other assets in that they contribute to the revenue-producing ability of the business that owns them. They are owned and controlled by the business and therefore fit the definition of assets.

LO 6,7 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.12A** |

**a. 2020**

**Mar. 31 Resource1 2,860,000**

**Cash 2,860,000**

**1($2,600,000 + $260,000)**

**To record purchase and modernization**

**of mine.**

### Dec. 31 Inventory2 570,000

##### Accumulated Depletion —

##### Resource 570,000

**To record depletion.**

**2($2,860,000 − $200,000) ÷ 560,000 t = $4.75/t**

**$4.75/t × 120,000 t = $570,000**

**Dec. 31 Cost of Goods Sold 570,000**

**Inventory 570,000**

**To record cost of goods sold.**

### 2021

### Dec. 31 Inventory3 380,000

##### Accumulated Depletion —

##### Resource 380,000

**To record depletion.**

**3($2,860,000 − $570,000 − $200,000) ÷ 550,000 t**

**= $3.80/t $3.80/t ×100,000 t = $380,000**

**Dec. 31 Cost of Goods Sold 380,000**

**Inventory 380,000**

**To record cost of goods sold.**

**b.**

**RIVERS MINING COMPANY**

**Income Statement (partial)**

**Year Ended December 31, 2021**

### Cost of goods sold $380,000

**PROBLEM 9.12A (Continued)**

**b. (Continued)**

**RIVERS MINING COMPANY**

**(Partial) Balance Sheet**

**December 31, 2021**

**Property, plant, and equipment**

**Resource $2,860,000**

**Less: Accumulated depletion4 950,000 $1,910,000**

**4 $570,000 + $380,000 = $950,000**

#### Taking It Further:

**Due to its nature, it is expected that the estimate of the total amount of ore to be extracted from a mine would need to be adjusted as extraction occurs and better estimates can be made. Management should not be influenced by the need for changes in estimates when choosing the units-of-production method for recording depletion of the resource. It is the method that best allocates the cost of the mine to the units of ore that are recorded in inventory.**

LO 3,5,7 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.13A** |

**a. (in thousands)**

|  |  |  |
| --- | --- | --- |
|  | **Andruski Company** | **Brar Company** |
| **Asset turnover 2021** | **$552.0**  **[($702.5 + $662.8) ÷ 2]**  **= 0.81 to 1** | **$1,762.9**  **[($1,523.5 + $1,410.7) ÷2]**  **= 1.20 to 1** |
| **Asset turnover**  **2020** | **$515.9**  **[($662.8 + $602.5) ÷ 2]**  **= 0.82 to 1** | **$1,588.2**  **[($1,410.7 + $1,318.4) ÷2]**  **= 1.16 to 1** |
| **Return on assets**  **2021** | **$21.4**  **[($702.5 + $662.8) ÷ 2]**  **= 3.13%** | **$96.5**  **[($1,523.5 + $1,410.7) ÷2]**  **= 6.58%** |
| **Return on assets**  **2020** | **$20.6**  **[($662.8 + $602.5) ÷ 2]**  **= 3.26%** | **$85.4**  **[($1,410.7 + $1,318.4) ÷2]**  **= 6.26%** |

b. Brar Company is far more efficient in using its assets to generate sales–its assets turnover of 1.20 times is higher than 0.81 times for Andruski Company and is increasing, while Andruski’s is decreasing. Brar is also more efficient in using assets to produce profit–with a return on assets of 6.58% compared to 3.13% for Andruski Company. Brar’s ratio is increasing while Andruski’s is decreasing.

**PROBLEM 9.13A (Continued)**

**Taking It Further:**

**Although the ability to compare two companies in the same industry using ratios is affected by the depreciation methods adopted by the companies being compared, absolute conclusions cannot be drawn from these differences. Brar uses the straight-line method of depreciation and Andruski uses the diminishing-balance method, which results in higher charges of depreciation in the early years and lower amounts in the later years for Andruski. Since assets are acquired throughout the life of a company, it is not possible to determine the impact of the different methods without more information.**

LO 7 BT: AN Difficulty: M Time: 25 min. AACSB: Analytic CPA: cpa-t001 cpa-t005

CM: Reporting and Finance

|  |
| --- |
| **PROBLEM 9.1B** |

**a. Feb. 7 Land 575,000**

**Cash 115,000**

**Notes Payable 460,000**

**To record purchase of land in exchange**

**for cash and a note payable.**

#### 9 Land 7,500

**Cash 7,500**

**Paid legal fees on purchase of land.**

**15 Land 19,000**

**Cash 19,000**

**Paid to demolish building on land.**

**17 Cash 8,500**

**Land 8,500**

**Received cash from material from**

**demolished building on land.**

**25 Land 10,500**

**Cash 10,500**

**Paid to grade and fill land.**

**Mar. 2 Building 28,000**

**Cash 28,000**

**Paid architect fees for building.**

**15 Building 18,000**

**Cash 18,000**

**Paid excavation costs for building.**

**Aug. 31 Building 850,000**

**Cash 170,000**

**Notes Payable 680,000**

**Paid for construction of building.**

**PROBLEM 9.1B (Continued)**

1. **(Continued)**

**Sept. 3 Land Improvements 40,000**

**Cash 40,000**

**Paid for sidewalks and parking lot.**

**10 Prepaid Insurance 3,750**

**Cash 3,750**

**Paid for insurance in advance.**

**Oct. 31 Land Improvements 37,750**

**Cash 37,750**

**Paid for landscaping.**

**PROBLEM 9.1B (Continued)**

**b.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Land** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Feb. 7 575,000 575,000

9 7,500 582,500

15 19,000 601,500

17 8,500 593,000

25 10,500 603,500

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Building** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Mar. 2 28,000 28,000

15 18,000 46,000

Aug. 31 850,000 896,000

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Land Improvements** | | | | | |
| **Date** | **Explanation** | **Ref.** | Debit | **Credit** | **Balance** |

2021

Sept. 3 40,000 40,000

Oct. 31 37,750 77,750

**The costs that will appear on Weisman’s December 31, 2021, balance sheet will be:**

**Land $603,500**

**Building 896,000**

**Land Improvements 77,750**

**PROBLEM 9.1B (Continued)**

**Taking It Further:**

**Companies should start to record depreciation when the asset is ready for use. In the case of Weisman, the building was ready for use on August 31, 2021 and land improvements were completed on October 31, 2021 and so depreciation should be calculated from those dates.**

**Weisman should depreciate only the building and land improvements. Land has an indefinite useful life and therefore is not depreciated.**

LO 1 BT: AP Difficulty: S Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.2B** |

**a.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Appraised Value** | **% of Total** | **Cost Allocated** |
| **Land** | **$262,500** | **35%** | **$245,000** |
| **Building** | **337,500** | **45%** | **315,000** |
| **Equipment** | **150,000** | **20%** | **140,000** |
|  | **$750,000** |  | **$700,000** |

**b.**

**Building: Straight-line**

**1. To the nearest month**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount1 × Rate = Expense Depr. Amount**

**2020 $300,000 1/60 × 2/12 $833 $833 $314,167**

**2021 300,000 1/60 5,000 5,833 309,167**

**1 $315,000 − $15,000 = $300,000**

**(2) Half a year in the year of acquisition**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2020 $300,000 1/60 × 6/12 $2,500 $2,500 $312,500**

**2021 300,000 1/60 5,000 7,500 307,500**

**PROBLEM 9.2B (Continued)**

**b. (Continued)**

**Equipment: Double diminishing-balance**

**1. To the nearest month**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate2 = Expense Depr. Amount**

**2020 $140,000 25% × 2/12 $5,833 $5,833 $134,167**

**2021 134,167 25% 33,542 39,375 100,625**

**2200% ÷ 8 = 25%**

**2) Half a year in the year of acquisition**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2020 $140,000 25% × 6/12 $17,500 $17,500 $122,500**

**2021 122,500 25% 30,625 48,125 91,875**

c. Both options are acceptable. If it were not the first year of business, Solinger should consider, for purpose of consistency, the policy used in the past. Since this is the first year of business, Solinger should consider what other categories or types assets it will be purchasing in the future that will be depreciated using this policy. If for example, the remaining categories of assets will be depreciated using the units-of-production method, the choice will not matter. The impact of the choice will not be significant in the long run, particularly if the assets are bought and sold frequently. Also, the impact is insignificant for assets with very long useful lives, as is demonstrated in part b. for the building. No matter the choice taken by Solinger, the policy must be followed consistently.

**PROBLEM 9.2B (Continued)**

**Taking It Further:**

**If Solinger had decided to use the units-of-production method instead of the diminishing-balance method for depreciating its equipment, the decision between the adoption of a policy for depreciating to the nearest month or half a year in the year of acquisition would not matter. When using the units-of-production method, the calculation of depreciation is not calculated as a function of the time the asset is used but is based on the amount of use that is being made of the asset, which in turn is based on some units of output or production. There is no proration for time used in the units-of-production method.**

LO 1,2 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.3B** |

**a. Cost:**

**Cash price $442,000**

**Delivery costs 4,000**

#### Installation and testing 6,000

**Total cost $452,000**

The one-year insurance policy is not included as it is an operating expenditure, benefiting only the current period.

b. 1. STRAIGHT-LINE DEPRECIATION

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate2 = Expense Depr. Amount**

**2020 $432,0001 25% $ 108,000 $ 108,000 $344,000**

**2021 432,000 25% 108,000 216,000 236,000**

**2022 432,000 25% 108,000 324,000 128,000**

**2023 432,000 25% 108,000 432,000 20,000**

**1 $452,000 − $20,000 = $432,000**

**2 100% ÷ 4 years = 25%**

**PROBLEM 9.3B (Continued)**

**b. (Continued)**

**2. DOUBLE DIMINISHING-BALANCE DEPRECIATION**

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate3 = Expense Depr. Amount**

**2020 $452,000 50% $226,000 $226,000 $226,000**

**2021 226,000 50% 113,000 339,000 113,000**

**2022 113,000 50% 56,500 395,500 56,500**

**2023 56,500 50% 36,5004 432,000 20,000**

**3 200% ÷ 4 = 50%**

**4 Use the amount that brings carrying amount to the residual value of $20,000.**

**3. UNITS-OF-PRODUCTION DEPRECIATION**

**End of Year**

**Units of Depr. Depr. Accum. Carrying**

**Year Production × Amt./Unit5 = Expense Depr. Amount**

**2020 22,600 $2.88 $65,088 $ 65,088 $386,912**

**2021 45,600 2.88 131,328 196,416 255,584**

**2022 49,700 2.88 143,136 339,552 112,448**

**2023 32,200 2.88 92,4486 432,000 20,000**

**5 Depreciation amount per unit:**

**($452,000 − $20,000) ÷ 150,000 units = $2.88**

**6 Use the amount that makes carrying amount equal to residual value (actual production exceeded estimated total production).**

**PROBLEM 9.3B (Continued)**

**c. The straight-line method provides the lowest amount of depreciation expense for 2021, thus resulting in the highest profit that year. Over the life of the asset, all three methods result in the same total depreciation expense (equal to the depreciable amount).**

**Taking It Further:**

**The cost of recycling the equipment at the end of its useful life is an asset retirement cost which must added to the cost of the equipment — part a. These costs would consequently be added to the depreciable amount in the calculation of depreciation under all the methods and would proportionately increase the amount of depreciation expense — part b.**

LO 1,2 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

|  |
| --- |
| **PROBLEM 9.4B** |

**a.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trans-** |  |  | **Equip-** | **Accum.** | **Total** |  |
| **action** | **Land** | **Building** | **ment** | **Depr.** | **PP&E** | **Profit** |
|  |  |  |  |  |  |  |
| **Jan. 22** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$4,600** |
| **Apr. 10** | **NE** | **NE** | **+$95,000** | **NE** | **+$95,000** | **NE** |
| **May 6** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$30,500** |
| **July 20** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$10,000** |
| **Aug. 7** | **NE** | **NE** | **+$35,000** | **NE** | **+$35,000** | **NE** |
| **Aug. 15** | **NE** | **NE** | **NE** | **NE** | **NE** | **−$1,900** |
| **Oct. 25** | **NE** | **NE** | **+$18,2001** | **NE** | **+18,200** | **NE** |
| **Nov. 6** | **NE** | **+$120,000** | **NE** | **NE** | **+$120,000** | **NE** |
| **Dec. 31** | **NE** | **NE** | **NE** | **+$85,0002** | **−$85,000** | **−$85,000** |
| **Dec. 31** | **+$75,0003** | **NE** | **NE** | **NE** | **+$75,000** | **+$75,000** |

**1$18,200 = $16,700 + $1,500**

**2$85,000 = [($250,000 − $75,000) − $90,000]**

**3$75,000 = $575,000 − $500,000**

**b.**

**Jan. 22 Repairs Expense 4,600**

**Accounts Payable 4,600**

**Repairs performed on account.**

**Apr. 10 Equipment 95,000**

**Accounts Payable 95,000**

**Purchased equipment on account.**

#### May 6 Repairs Expense 30,500

**Accounts Payable 30,500**

**Repairs performed on account.**

#### July 20 Repairs Expense 10,000

**Accounts Payable 10,000**

**Repairs performed on account.**

**PROBLEM 9.4B (Continued)**

**b. (Continued)**

**Aug. 7 Equipment 35,000**

**Accounts Payable 35,000**

**Overhaul of equipment**

**performed on account.**

**15 Training Expense 1,900**

**Accounts Payable 1,900**

**Training performed on account.**

**Oct. 25 Equipment 16,700**

**Accounts Payable 16,700**

**Purchased equipment on account.**

**25 Equipment 1,500**

**Accounts Payable 1,500**

**Purchased testing and installation on account.**

**Nov. 6 Building 120,000**

**Accounts Payable 120,000**

**Purchased building addition on account.**

**1. Dec. 31 Impairment Loss 85,000**

**Accumulated Depreciation—**

**Equipment 85,000**

**Record impairment loss on equipment.**

**2. Dec. 31 Land 75,000**

**Impairment Loss 75,000**

**To reverse previous impairment loss.**

**PROBLEM 9.4B (Continued)**

**b. (Continued)**

**Under IFRS, the reversal of the impairment loss is limited to the amount required to increase the asset’s carrying amount to what it would have been if the impairment loss had not been recorded. In this case the original cost of the land was $575,000 and the amount of the impairment recorded to date is $75,000 ($575,000 − $500,000). Since the current recoverable amount of $600,000 is greater than the original cost of the land, before impairment was recorded, the recovery entry is limited to $75,000.**

**Taking It Further:**

**Given that the engine must be replaced frequently, consideration should be given to depreciating this component of the equipment using a five-year useful life and the remainder of the equipment the 15-year useful life. If the original equipment does not have an amount specified for the engine as a component, it would be reasonable to use the value of a replacement motor to establish the cost of the original motor at the date of the purchase of the equipment.**

LO 1,3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.5B** |

**a.**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2017 $575,0001 10%2 $57,500 $ 57,500 $542,500**

**2018 575,000 10% 57,500 115,000 485,000**

**2019 575,000 10% 57,500 172,500 427,500**

**2020 575,000 10% 57,500 230,000 370,000**

**2021 575,000 10% 57,500 287,500 312,500**

**1 Depreciable amount = $600,000 − $25,000 = $575,000**

**2 1 ÷ 10 years = 10%**

**b. Dec. 31 Impairment Loss3 52,500**

**2021 Accumulated Depreciation—**

**Equipment 52,500**

**3($312,500 − $260,000)**

**To record impairment loss on equipment.**

**c. Short Track’s income statement will report depreciation expense in the amount of $57,500 and the impairment loss of $52,500. On Short Track’s balance sheet, the equipment will be reported at its cost of $600,000 and the accumulated depreciation of $340,000 ($287,500 + $52,500) so that the book value will be $260,000, equal to the recoverable amount.**

**d. End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**Balance forward $340,0004 $260,000**

**2022 $250,0005 50%6 $125,000 465,000 135,000**

**2023 250,000 50% 125,000 590,000 10,000**

**4 Accumulated Depreciation = $287,500 end of year before impairment loss + $52,500 impairment loss**

**5 Depreciable amount = Recoverable amount at date of impairment less revised residual value of $10,000**

**6 1 ÷ 2 years (7 – 5 years) remaining = 50%**

**PROBLEM 9.5B (Continued)**

**Taking It Further:**

**It is important to record impairment losses when they occur to ensure that the amount of benefit to be derived from long-lived assets is not overstated on the balance sheet. When assets lose their utility, they must be reduced to the recoverable amount expected to be obtained through their use. Postponing a loss until the asset is sold or disposed of would result in mismatching costs and their related revenues and result in an overstatement of assets.**

LO 3 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.6B** |

**a. 2019**

**Jul. 1 Equipment 395,000**

**Cash 100,000**

**Notes Payable 295,000**

**To purchase equipment for cash and a**

**note payable.**

**Dec. 31 Depreciation Expense 1 19,750**

**Accumulated Depreciation—**

**Equipment 19,750**

**1[($395,000 x (200% ÷ 20)) x 6/12]**

**To record depreciation expense.**

**31 Interest Expense2 7,375**

**Cash 7,375**

**2($295,000 x 5% x 6/12 = $7,375)**

**To record payment of interest.**

**2020**

**May 21 Repair Expense 2,000**

**Cash 2,000**

**Paid for repair expense.**

**Dec. 31 Depreciation Expense3 37,525**

**Accumulated Depreciation—**

**Equipment 37,525**

**3[($395,000 – $19,750) x 10%]**

**To record depreciation expense.**

**31 Interest Expense4 14,750**

**Cash 14,750**

**4($295,000 × 5%) To record payment of interest.**

**PROBLEM 9.6B (Continued)**

a. (Continued)

**Dec. 31 Impairment Loss5 62,725**

**Accumulated Depreciation—**

**Equipment 62,725**

**5[$275,000 – ($395,000 – $19,750 – $37,525)]**

**To record impairment loss.**

**Carrying value of equipment: $337,725 ($395,000 – $19,750-$37,525)**

**Impairment loss: $62,725 ($337,725 – $275,000)**

**2021**

**Mar. 31 Depreciation Expense6 6,875**

**Accumulated Depreciation—**

**Equipment 6,875**

**6($275,000 x 10% × 3/12)**

**To record depreciation expense.**

**31 Cash 240,000**

**Accumulated Depreciation—**

**Equipment7 126,875**

**Loss on Disposal8 28,125**

**Equipment 395,000**

**7($19,750 + $37,525 + $62,725 + $6,875)**

**To record disposal.**

8Equipment $395,000

Less: Accumulated depreciation 126,875

Carrying amount 268,125

Proceeds 240,000

Loss on disposal $ 28,125

**Apr. 1 Interest Expense9 3,688**

**Notes Payable 295,000**

**Cash 298,688**

**9($295,000 × 5% x 3/12)**

**To record payment of note and interest.**

**PROBLEM 9.6B (Continued)**

**b.**

**The products made using the robot may have become less popular, so revenue will be declining in the future. Or there could be new technology that will make the robot obsolete and of lower value to the company. Alternatively, there could have been physical damage to the robot that might be the cause of the impairment in value.**

**c. Sept. 30 Depreciation Expense10 20,625**

**Accumulated Depreciation—**

**Equipment 20,625**

**10($275,000 x 10%) x 9/12)**

**To record depreciation expense.**

**30 Cash 260,000**

**Accumulated Depreciation—**

**Equipment11 140,625**

**Gain on Disposal12 5,625**

**Equipment 395,000**

11**($19,750 + $37,525 + $62,725 + $20,625)**

**To record disposal.**

12Equipment $395,000

Less: Accumulated depreciation 140,625 Carrying amount 254,375

Proceeds 260,000

Gain on disposal $ 5,625

**PROBLEM 9.6B (Continued)**

**Taking It Further:**

**The recoverable amount of an asset is the higher of the fair value of the asset less the cost to sell it or its value in use calculated using discounted cash flows.**

**In this case, the industrial robot will be used in production. Consequently, the value in use to SE Parts Supply would be the amount management expects to recover in operations by using the asset. As for establishing the fair value of the asset, equipment of similar type that has been recently sold can be used to make estimates of what would be obtained on sale. Under ASPE, impairment tests of property, plant, and equipment need not be done every year, particularly if the likelihood of impairment is remote. Management should be diligent about looking for possible causes for impairment when changes in circumstances or conditions occur. If the company is using IFRS, annual impairment tests are required regardless of circumstances.**

LO 1,2,3,4 BT: AP Difficulty: M Time: 35 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.7B** |

**a.**

1. STRAIGHT-LINE DEPRECIATION

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2020 $107,0001 33.333%2 $35,666 $35,666 $89,334**

**2021 107,000 33.333% 35,666 71,332 53,668**

**2022 107,000 33.333% 35,6683 107,000 18,000**

1 $125,000 − $18,000 = $107,000

2 1 ÷ 3 years = 33.333%

3 Required additional $2 for rounding

2. DIMINISHING-BALANCE DEPRECIATION

**Carrying Amount End of Year**

**Beginning Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2020** **$125,000 45% $56,250 $56,250 $68,750**

**2021 68,750 45% 30,938 87,188 37,812**

**2022 37,812 45% 17,015 104,203 20,797**

PROBLEM 9.7B (Continued)

a. (Continued)

**3. UNITS-OF-PRODUCTION**

**End of Year**

**Units of Depr. Depr. Accum. Carrying**

**Year Production × Amt/Unit4 = Expense Depr. Amount**

**2020 6,000 $8.917 $ 53,502 $ 53,502 $71,498**

**2021 2,000 8.917 17,834 71,336 53,664**

**2022 3,800 8.917 33,885 105,221 19,779**

**4 Depreciable amount per unit is $8.917 per unit**

**[($125,000 – $18,000) ÷ 12,000 = $8.917]**

b. (1) (2) (3)

Straight- Diminishing- Unit –of-

Line Balance Production

Cost $125,000 $125,000 $125,000

Accumulated depreciation. 107,000 104,203 105,221

Carrying amount 18,000 20,797 19,779

Cash proceeds 21,000 21,000 21,000

Gain on disposal $ 3,000 $ 203 $ 1,221

c. (1) (2) (3)

Straight- Diminishing- Unit –of-

Line Balance Production

Depreciation expense $107,000 $104,203 $105,221

Deduct gain on disposal 3,000 203 1,221

Net expense $104,000 $104,000 $104,000

The net expense is the same under all three methods. The different depreciation methods result in different accumulated depreciation at the date of sale, which in turn causes a different gain on disposal. Consequently, the total depreciation expense recognized over the life of the asset, less the gain on disposal, results in the same net expense of $104,000 over the life of the asset.

PROBLEM 9.7B (Continued)

**Taking It Further:**

**I disagree. Experiencing a gain or loss on the disposal of a depreciable asset is not the result of an error or mistake. Rather, a gain or loss is an expected outcome due to the limitations of the cost allocation that has occurred for the asset up to the date of its disposal. Since estimates are involved in arriving at the factors used in calculating depreciation, such as the estimated useful life and the estimated residual value, it is natural that some differences between the carrying amount and any proceeds of disposition will occur when the asset is disposed of. Depreciation is a cost allocation process and is not intended to ensure the carrying amount of the asset reflects fair value.**

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.8B** |

**a. 2019**

**Feb. 4 Furniture 70,000**

#### Accounts Payable 70,000

**To record purchase of furniture on account.**

**b. 2019**

**Sept. 30 Depreciation Expense1 9,333**

#### Accumulated Depreciation

#### —Furniture 9,333

**1($70,000 × 20% × 8/12)**

**To record depreciation expense.**

**2020**

**Sept. 30 Depreciation Expense2 12,133**

#### Accumulated Depreciation

#### —Furniture 12,133

**2[($70,000 − $9,333) × 20%]**

**To record depreciation expense.**

**2021**

**Sept. 30 Depreciation Expense3 9,707**

#### Accumulated Depreciation

#### —Furniture 9,707

**3[($70,000 − $9,333 − $12,133) × 20%]**

**To record depreciation expense.**

**c. 2022**

**Jan. 26 Depreciation Expense4 2,588**

#### Accumulated Depreciation

#### —Furniture 2,588

**4[($70,000 − $9,333 − $12,133 − $9,707) × 20% × 4/12]**

**To record depreciation expense.**

**Accumulated Depreciation at January 26, 2022:**

**$9,333 + $12,133 + $9,707 + $2,588 = $33,761**

**Carrying Amount at January 26, 2022:**

**Cost – Accumulated Depreciation**

**$70,000 − $33,761 = $36,239**

**PROBLEM 9.8B (Continued)**

**c. (Continued)**

**(1) Jan. 26 Accumulated Depreciation—**

**Furniture 33,761**

**Loss on Disposal5 36,239**

**Furniture 70,000**

**5[ $0 – ($70,000 – $33,761)]**

**To record disposal.**

**(2) Jan. 26 Cash 30,000**

**Accumulated Depreciation—**

**Furniture 33,761**

**Loss on Disposal6 6,239**

**Furniture 70,000**

**6[ $30,000 – ($70,000 – $33,761)]**

**To record disposal.**

**(3) Jan. 26 Cash 40,000**

### Accumulated Depreciation—

### Furniture 33,761

**Gain on Disposal7 3,761**

**Furniture 70,000**

**7[ $40,000 – ($70,000 – $33,761)]**

**To record disposal.**

**(4) Jan. 26 Furniture**

**($55,000 + $30,000) 85,000**

**Accumulated Depreciation—**

**Furniture 33,761**

**Loss on Disposal8 6,239**

### Cash ($100,000 − $45,000) 55,000

**Furniture 70,000**

**8[ $30,000 – ($70,000 – $33,761)]**

**To record disposal.**

**PROBLEM 9.8B (Continued)**

**Taking It Further:**

The following are the arguments in favour of recording gains and losses on disposal of property, plant, and equipment as:

1. Part of profit from operations:

**Gains and losses are basically just adjustments to depreciation expense and should be recorded in the same section of the income statement.**

**Classifying gains and losses as operations removes the potential for management bias in the selection of depreciation methods or in the estimates concerning useful lives and residual values of the assets. Bias might be at play concerning management’s unwillingness to show losses in operations because management bonuses may be based on the amount of profit from operations.**

**2. Non-operating items:**

**The same management bias described above would be applied for gains recognized by the business.**

**A common view is that the disposal of property, plant, and equipment is not an everyday occurrence and gains or losses are not predictable.**

**It can also be argued that selling property, plant, and equipment is not part of normal operations and thus gains or losses should not be reported as part of profit from operations.**

LO 2,4 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.9B** |

**a. April 1 Land 1,900,000**

#### Cash 475,000

#### Notes Payable 1,425,000

**To record purchase of land for cash and**

**a note payable.**

**May 1 Depreciation Expense1 25,000**

Accumulated Depreciation

—Equipment 25,000

1($750,000 ÷ 10 × 4/12)

**To record depreciation expense.**

**1 Cash 350,000**

**Accumulated Depreciation—**

**Equipment 550,000**

**Gain on Disposal2 150,000**

**Equipment 750,000**

**To record disposal of equipment.**

2Cost $750,000

Accumulated depreciation—equipment

[($750,000 ÷ 10) × 7 + $25,000)] 550,000

Carrying amount 200,000

Cash proceeds 350,000

Gain on disposal $150,000

**June 1 Cash 380,000**

**Notes Receivable 820,000**

**Land 300,000**

**Gain on Disposal 900,000**

**To record disposal of land.**

**July 1 Equipment 1,000,000**

**Accounts Payable 1,000,000**

**Purchase of equipment on account.**

**PROBLEM 9.9B (Continued)**

a. (Continued)

**Dec. 31 Depreciation Expense3 47,000**

**Accumulated Depreciation**

**—Equipment 47,000**

**3($470,000 ÷ 10)**

**To record depreciation expense.**

**Dec. 31 Accumulated Depreciation—**

**Equipment4 329,000**

**Loss on disposal 141,000**

**Equipment 470,000**

**To record disposal of equipment.**

**4Accumulated depreciation on equipment:**

**$329,000 [($470,000 ÷ 10) x 7 years]**

**b. Dec. 31 Depreciation Expense5 570,000**

Accumulated Depreciation—

**Building 570,000**

**5($28,500,000 ÷ 50)**

**To record depreciation expense.**

**31 Depreciation Expense6 4,728,000**

Accumulated Depreciation—

**Equipment 4,728,000**

**To record depreciation expense.**

6$46,780,000 ÷ 10 $4,678,000

$1,000,000 ÷ 10 × 6/12 50,000

$4,728,000

$48,000,000 − $750,000 − $470,000 = $46,780,000

**31 Interest Expense7 64,125**

**Interest Payable 64,125**

7($1,425,000 × 6% × 9/12)

To accrue interest expense.

**PROBLEM 9.9B (Continued)**

b. (Continued)

**Dec. 31 Interest Receivable 28,700**

**Interest Revenue8 28,700**

8($820,000 × 6% × 7/12)

To accrue interest revenue.

c. JAINA COMPANY

Balance Sheet (Partial)

December 31, 2021

Property, plant, and equipment9

Land $ 5,600,000

Building $28,500,000

Less: Accumulated depreciation 12,670,000 15,830,000

Equipment 47,780,000

Less: Accumulated depreciation 18,874,000 28,906,000

Total property, plant, and equipment $50,336,000

9See T accounts that follow for balances

Land

Jan. 1, 2021 4,000,000 June 1, 2021 300,000

April 1, 2021 1,900,000

Dec. 31, 2021 Bal. 5,600,000

Building

Jan. 1, 2021 28,500,000

Dec. 31, 2021 Bal. 28,500,000

Equipment

Jan. 1, 2021 48,000,000 May 1, 2021 750,000

July 1, 2021 1,000,000 Dec. 31, 2021 470,000

Dec. 31, 2021 Bal. 47,780,000

**PROBLEM 9.9B (Continued)**

c. (Continued)

Accumulated Depreciation—Building

Jan. 1, 2021 12,100,000

Dec. 31, 2021 570,000

Dec. 31, 2021 Bal. 12,670,000

Accumulated Depreciation—Equipment

May 1, 2021 550,000 Jan. 1, 2021 15,000,000

Dec. 31, 2021 329,000 May 1, 2021 25,000

Dec. 31, 2021 47,000

Dec. 31, 2021 4,728,000

Dec. 31, 2021 Bal. 18,921,000

**Taking It Further:**

**Although the use of the revaluation model is permitted for those companies adopting the International Financial Reporting Standards (IFRS), its adoption is voluntary, and somewhat rare. Once adopted, the business will need to be consistent with the application of the model in the future. Additional evidence will be required each year to support the values that are being used in the revaluation. This could become expensive and the costs may exceed the benefits of implementing the revaluation model. Comparability with other companies might also be affected.**

**Because the revaluation model is not acceptable under ASPE and most companies are private, this would be the primary reason why most companies use the cost model.**

LO 2,4,7 BT: AP Difficulty: C Time: 50 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.10B** |

**1. Research Expense 70,000**

**Patents 70,000**

**To correct recording error.**

**2. Patents 21,000**

**Professional Fees Expense 21,000**

**To correct recording error.**

**3. Amortization Expense 7,450**

**Accumulated Amortization—Patents 7,450**

**{[($45,000 + $21,000) ÷ 5 years] − $5,750}**

**To correct recording error.**

**Taking It Further:**

**Most intangible assets that are developed internally cannot be recognized as intangible assets on the balance sheet because the expenditures on internally developed intangibles cannot be distinguished from the costs of other research and development performed by the business. The costs cannot be separately measured and are therefore expensed as incurred.**

LO 6 BT: AP Difficulty: C Time: 20 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.11B** |

a. Jan. 2 Trademark 0. 7,000

Cash 7,000

To record successful defence of trademark.

July 1 Research Expense 275,000

Cash 275,000

Payment of research expense.

1 Patents 50,000

Cash 50,000

Payment of costs for patents.

Aug. 1 Prepaid Advertising 45,000

Cash 45,000

Paid advertising expense.

Oct. 1 Copyright #2 168,000

Cash 168,000

Purchase copyright #2.

Dec. 31 Amortization Expense1 1,250

Accumulated Amortization—

Patents 1,250

1[($50,000 ÷ 20) × 6/12]

To record amortization expense.

Dec. 31 Amortization Expense2 19,000

Accumulated Amortization—

Copyrights 19,000

2[($36,000 × 1/3) + ($168,000 × 1/6 × 3/12)] To record amortization expense.

**PROBLEM 9.11B (Continued)**

b.

**GHANI CORPORATION**

**Balance Sheet (Partial)**

#### December 31, 2021

**Assets**

Intangible assets

**Patents $ 50,000**

**Less: Accumulated amortization 1,250 $ 48,750**

**Copyrights1 204,000**

**Less: Accumulated amortization 43,000 161,000**

**Trademark2 59,000**

Total intangible assets 268,750

Goodwill 150,000

1 Copyright: Cost $36,000 + $168,000 = $204,000

Copyright: Amortization $24,000 + $19,000 = $43,000

2 Trademark: $52,000 + $7,000 = $59,000

**Taking It Further:**

Although intangible assets do not have physical substance, they have characteristics common to other assets in that they contribute to the revenue-producing ability of a business that owns them. They are owned and controlled by the business and therefore fit the definition of assets.

LO 6,7 BT: AP Difficulty: M Time: 40 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.12B** |

**a. 2020**

**June 7 Resource 50,000,000**

**Cash 10,000,000**

**Mortgage Payable 40,000,000**

**To record purchase of timber land in**

**exchange for cash and a mortgage.**

**26 Equipment 196,000**

**Cash 196,000**

**To record cash purchase of equipment.**

### Dec. 31 Inventory1 5,280,000

##### Accumulated Depletion—

##### Resource 5,280,000

**1($50,000,000 − $2,000,000) ÷ 1,000,000 t = $48/t**

**$48/t × 110,000 t = $5,280,000**

**To record depletion.**

### 31 Cost of Goods Sold 5,280,000

**Inventory 5,280,000**

**To record cost of goods sold.**

### 31 Depreciation Expense 14,000

**Accumulated Depreciation**

**—Equipment 14,000**

**$196,000 ÷ 7 × 6/12 = $14,000**

**To record depreciation expense.**

#### 31 Interest Expense

**($40,000,000 × 7% × 7/12) 1,633,333**

**Cash 1,633,333**

**To record payment of interest.**

**PROBLEM 9.12B (Continued)**

**a. (Continued)**

**2021**

### Dec. 31 Inventory

### ($48/t × 240,000 t) 11,520,000

##### Accumulated Depletion —

##### Resource 11,520,000

**To record depletion.**

### 31 Cost of Goods Sold 11,520,000

**Inventory 11,520,000**

**To record cost of goods sold.**

### 31 Depreciation Expense 28,000

**Accumulated Depreciation**

**—Equipment 28,000**

**($196,000 ÷ 7) = $28,000**

**To record depreciation expense.**

**31 Interest Expense**

**($40,000,000 × 7%) 2,800,000**

**Cash 2,800,000**

**To record payment of interest.**

**b.**

**CYPRESS TIMBER COMPANY**

**Income Statement (partial)**

**Year Ended December 31, 2021**

### Cost of goods sold $11,520,000

**Operating expenses:**

**Depreciation expense $ 28,000**

**Other expenses:**

**Interest expense $ 2,800,000PROBLEM 9.12B (Continued)**

**b. (Continued)**

**CYPRESS TIMBER COMPANY**

**(Partial) Balance Sheet**

**December 31, 2021**

#### Property, plant, and equipment

**Resource $50,000,000**

**Less: Accumulated depletion1 16,800,000 $33,200,000**

#### Equipment 196,000

**Less: Accumulated depreciation2 42,000 154,000**

**Total property, plant, and equipment $33,354,000**

**1 $5,280,000 + $11,520,000 = $16,800,000**

**2 $14,000 (2020) + $28,000 (2021) = $42,000**

#### Taking It Further:

**Due to its nature, it is expected that the estimate of the total amount of units to be extracted from a timber tract would need to be adjusted as extraction occurs and better estimates can be made. Management should not be influenced by the need for changes in estimates when choosing the units-of-production method for recording depreciation of the timber tract. It is the depreciation method that best allocates the cost of the tract to the units of timber that are recorded to inventory.**

LO 3,5,7 BT: AP Difficulty: M Time: 30 min. AACSB: None CPA: cpa-t001 CM: Reporting

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| **PROBLEM 9.13B** |

**a. (in thousands)**

|  |  |  |
| --- | --- | --- |
|  | **Mock Orange Company** | **Cotoneaster Company** |
| **Asset turnover**  **2021** | **$9,428.0**  **[($5,829.1 + $5,771.4) ÷ 2]**  **= 1.63 to 1** | **$3,839.8**  **[($2,754.5 + $2,504.1) ÷ 2]**  **= 1.46 to 1** |
| **Asset turnover**  **2020** | **$8,894.3**  **[($5,771.4 + $5,343.9) ÷ 2]**  **= 1.60 to 1** | **$3,656.9**  **[($2,504.1 + $2,340.3) ÷ 2]**  **= 1.51 to 1** |
| **Return on assets**  **2021** | **$627.7**  **[($5,829.1 + $5,771.4) ÷ 2]**  **= 10.82%** | **$143.4**  **[($2,754.5 + $2,504.1) ÷ 2]**  **= 5.45%** |
| **Return on assets**  **2020** | **$597.8**  **[($5,771.4 + $5,343.9) ÷ 2]**  **= 10.76%** | **$137.9**  **[($2,504.1 + $2,340.3) ÷ 2]**  **= 5.69%** |

b. Mock Orange Company is more efficient in using its assets to generate sales–its asset turnover of 1.63 times is higher than the turnover of 1.46 for Cotoneaster Company and its ratio is increasing while Cotoneaster’s is decreasing. Mock Orange is also much more efficient in using assets to produce profit–with a return on assets of 10.82% compared to 5.45% for Cotoneaster Company. Moreover, Mock Orange's ratio is increasing while Cotoneaster’s is decreasing.

**PROBLEM 9.13B (Continued)**

**Taking it Further:**

**Although the ability to compare two companies in the same industry using ratios is affected by the depreciation methods adopted by the companies being compared, absolute conclusions cannot be drawn from these differences. In this particular comparison, in the early years of the useful lives of depreciable assets owed by Mock Orange, there will be lower amounts of depreciation recorded compared to Cotoneaster and therefore also higher carrying amounts for the assets. This is the case because Mock Orange uses the straight-line method of depreciation and Cotoneaster uses the diminishing-balance method, which results in higher charges of depreciation in the early years and lower amounts in the later years. The opposite effect would occur in the amount of depreciation recorded in the later years of the useful lives of the assets being depreciated. Since assets are acquired throughout the life of a company, it is not possible to determine the impact of the different methods without more information.**

LO 7 BT: AN Difficulty: M Time: 25 min. AACSB: Analytic CPA: cpa-t001 cpa-t005

CM: Reporting and Finance

|  |
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| **BYP 9.1 FINANCIAL REPORTING PROBLEM** |

**a. (in thousands) on February 25, 2018**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1.** |  | **2.**  **Accumu-**  **lated Deprecia-tion** |  | **3.**  **Net Carrying Amount** | |
|  |  |
|  |  |
|  | **Cost** |  |  |
| **Leasehold improvements** | **$169,605** |  | **$80,369** |  | **$89,236** |
| **Furniture and equipment** | **38,214** |  | **21,816** |  | **16,398** |
| **Computer hardware** | **12,625** |  | **7,765** |  | **4,860** |
| **Computer software** | **6,121** |  | **4,292** |  | **1,829** |
| **Construction-in-process** | **23,349** |  |  |  | **23,349** |
| **$249,914** |  | **$114,242** |  | **$135,672** |

**b. (in thousands) on February 25, 2018**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **1.**  **Cost** |  | **2.** |  | **3.** |
|  | **Accumu-**  **lated** |  | **Net Carrying Amount** |
|  | **Amorti-**  **zation** |  |
| **Indefinite life trade name** | **$46,092** |  |  |  | **$46,092** |
| **Definite life trade name** | **17,175** |  | **$10,240** |  | **6,935** |
| **Trademarks** | **1,709** |  | **1,709** |  | **0** |
| **Computer software** | **26,725** |  | **18,365** |  | **8,360** |
| **Other intangible assets** | **3,519** |  | **3,519** |  | **0** |
| **$95,220** |  | **$33,833** |  | **$61,387** |
|  |  |  |  |  |
| **Goodwill** | **$151,682** |  |  |  | **$151,682** |

**4. Impairments: In fiscal 2017 and 2018, the company performed annual impairment tests of goodwill and indefinite life trade name (intangible) and determined that there was no impairment in these assets; therefore, there is no amount recorded for impairment of goodwill or the trade name.**

**BYP 9.1 (Continued)**

**c. As part of the disclosure provided in note 6 to the financial statements, disposals occurred during the year ended February 25, 2018 for the following assets in the cost amounts, that follow: (in thousands)**

|  |  |  |
| --- | --- | --- |
| **Furniture and equipment** | **$ 337** |  |
| **Computer hardware** | **1,784** |  |
| **Computer software** | **2,847** |  |
| **Total** | **$4,968** |  |

**d. The amount of depreciation and amortization expense for the fiscal year ending February 25, 2018 was $20,932,000 for depreciation and $1,912,000 for amortization (total is $22,844,000). The individual amounts are reported in notes 6 and 7, and the total in the statement of cash flows.**

**e. 1. Aritzia uses the cost model.**

**2. Aritzia uses the straight-line method of depreciation for property and equipment.**

**3. The estimated useful lives for property and equipment are:**

**Computer hardware and software 3-10 years**

**Furniture and equipment 3-10 years**

**Leasehold improvements shorter of lease term and**

**estimated useful life**

**4. Aritzia discloses depreciation and amortization on the statement of cash flows ($22,844,000). As disclosed in note 25, Aritzia included $17,807,000 depreciation expense in cost of goods sold for the year ended February 25, 2018.**

|  |
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| **BYP 9.2 INTERPRETING FINANCIAL STATEMENTS** |

a. WestJet could use the units-of-production method of depreciation for engine, airframe and landing gear overhaul. For safety reasons, the overhaul costs are done at fixed points following the use of the specific overhauled equipment. These fixed points are likely based on the number of hours this equipment is used in flight. If the use of the assets varied over time, or were seasonal, the units-of-production method would provide a better measure of the charge for depreciation against the revenue produced. It is likely that the amount of use of these assets does not vary a great deal over time, which justifies WestJet’s choice of the straight-line method. If the amount of use varies greatly over time, WestJet should use the units-of-production method.

b. Major overhaul expenditures involve equipment that must be overhauled as a function of amount of use, typically hours in flight. These overhauls must be performed for safety reasons. The expected life between overhauls is very predictable, and likely dictated by safety associations or regulators. Since the timing of the benefit is easily measured, the best match of the major overhaul costs to the revenues is achieved by capitalizing the costs and then depreciating the capitalized overhauls over the benefiting periods. This is an appropriate technique as it is the best and fairest way to deal with major overhaul costs. Other fleet maintenance is minor and less predictable and WestJet’s policy of expensing these costs immediately is appropriate.

**BYP 9.2 (Continued)**

c. Leasehold improvements frequently have physical lives that are longer than the terms of the lease. But since the control and enjoyment of leasehold improvements is limited to the term of a lease, it is appropriate to use the term of the lease for purposes of calculating depreciation. Consequently, the maximum length of benefit to the lessee is the term of lease, which is appropriate in the calculation of depreciation. If, on the other hand, the leasehold improvements have a physical life shorter than the term of the lease, the shorter period should be used for purposes of calculating depreciation.

d. WestJet uses component depreciation for engine, airframe and landing gear overhaul. Engines in particular are constantly being overhauled, and so spares are needed to ensure that the airplane can be used during the period needed to perform the overhaul. Since the period of benefit of these major overhauls is considerably shorter than the useful life of the aircraft, this technique is a good example of where component depreciation is very appropriate.

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| **BYP 9.3 COLLABORATIVE LEARNING ACTIVITY** |

**All the material supplementing the collaborative learning activity, including a suggested solution, can be found in the Collaborative Learning section of the Instructor Resources site accompanying this textbook.**

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| **BYP 9.4 COMMUNICATION ACTIVITY** |

Memorandum

To: **Jason Long, Owner**

From: **Ken Bond, Controller**

Re: **Exchange of Long-Lived Assets**

I am writing to you about the proposed exchange of one of our semi-trucks for a garage we could use as a branch of our repair operations.

The truck we intend to exchange has a carrying value on our books of $100,000 but its fair value in its current condition is $75,000. The garage we would get in exchange has a fair value of $90,000. Consequently, we would need to pay cash of $15,000 ($90,000 less $75,000), the difference in the fair values of the two assets exchanged.

1. Because the fair value of the semi-truck is not the same as the carrying amount on our books, a gain or loss must be recorded at the date of the exchange. The exchange transaction is a disposal combined with a purchase. In our case, the fair value is lower than the carrying amount and a loss of $25,000 ($100,000 carrying amount less $75,000 fair value) would have to be recorded. This loss will reduce profit for the period. The garage we obtain would be recorded at its fair value of $90,000. Because these are different types of assets with different useful lives, the garage will be depreciated at a different rate than the semi-truck. We will be consistent in our methods of depreciation with other assets in the same group. It is likely the depreciation on the garage will be lower than the depreciation we were recording on the semi-truck. As well, the garage would not need to be repaired as often as the semi-truck.

BYP 9.4 (Continued)

2. The exchange of assets would be recorded as follows:

**Building 90,000**

**Accumulated Depreciation—**

**Vehicles 65,000**

### Loss on Disposal 25,000

### Vehicles 165,000

**Cash 15,000**

**To record exchange of assets.**

As I mentioned earlier, we will be consistent and use the same depreciation method for the garage as is already used for buildings. Once we have estimated the useful life of the garage, we will be able to calculate and record depreciation as soon as the garage is available for use.

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| BYP 9.5 “ALL ABOUT YOU” ACTIVITY |

**a. Generally, copyright means the sole right to produce or reproduce a work or a substantial part of it in any form. It also includes the right to perform a work, or in the case of a lecture, to deliver it, and the right to publish an unpublished work.**

**Copyright applies to all original literary, artistic, dramatic, or musical works. These include books, other writings, music, sculptures, paintings, maps, photographs, films, plays, television and radio programs, and computer programs. Copyright also applies to other subject matter including recordings (such as records, cassettes, DVDs, videos and tapes), performer's performances, and communication signals.**

**b. A person acquires a copyright automatically when he or she creates an original work or other subject matter, provided the conditions set out in the *Copyright Act* have been met. Since you automatically obtain copyright, the law automatically protects you. You do not have to register your copyright to be protected.**

**c. The *Copyright Act* provides that a certificate of registration is evidence that the copyright exists and that the person registered is the owner of the copyright. Being on the Register of Copyrights may also assist those wishing to seek permission to use the work.**

**d. Registration of a copyright is done by completing an application and sending it to the Copyright Office, along with the appropriate fee.**

**BYP 9.5 (Continued)**

**e. The fee for filing online is $50 and is so small that it is not material. Consequently, most businesses decide to expense the fee immediately. It is possible that with several copyrights, a meaningful amount can be recorded as an asset as the fees have been incurred to protect the right to the works and will bring benefit to the business in the future.**

**f. Copyright infringement refers to unlawful use of copyright material. Plagiarism—passing off someone else's work as your own—is a form of infringement.**

**g. A copyright generally lasts for the life of the author, plus 50 years following the calendar year the author dies.**

|  |
| --- |
| BYP 9.6 Santé Smoothie Saga |

**a. Purchase price $28,400**

**Painting 3,000**

**Shelving 1,600**

**Cost of van $33,000**

**b. 1. STRAIGHT-LINE METHOD**

**End of Year**

**Depreciable Depr. Depr. Accum. Carrying**

**Year Amount × Rate = Expense Depr. Amount**

**2022 $28,0001 20% × 5/12 $ 2,333 $ 2,333 $30,667**

**2023 28,000 20% 5,600 7,933 25,067**

**2024 28,000 20% 5,600 13,533 19,467**

**2025 28,000 20% 5,600 19,133 13,867**

**2026 28,000 20% 5,600 24,733 8,267**

**2027 28,000 20% × 7/12 3,267 28,000 5,000**

**Total $28,000**

**1 ($33,000 − $5,000 = $28,000)**

**2. DIMINISHING-BALANCE AT DOUBLE THE STRAIGHT-LINE RATE METHOD**

**Carrying End of Year**

**Amount (Beg. Depr. Depr. Accum. Carrying**

**Year of Year × Rate = Expense Depr. Amount**

**2022 $33,000 40%2 × 5/12 $ 5,500 $ 5,500 $27,500**

**2023 27,500 40% 11,000 16,500 16,500**

**2024 16,500 40% 6,600 23,100 9,900**

**2025 9,900 40% 3,960 27,060 5,940**

**2026 5,940 40% 9403 28,000 5,000**

**$28,000**

**2 40% = 20% × 2 [double the straight-line rate]**

3 amount required for carrying amount to equal residual value

**BYP 9.6 (Continued)**

**b. (Continued)**

**3. UNITS-OF-PRODUCTION METHOD**

**End of Year**

**Units of Depreciable Depr. Accum. Carrying**

**Year Production × Cost/Unit = Expense Depr. Amount**

**2022 30,000 $0.144 $ 4,200 $ 4,200 $28,800**

**2023 37,500 0.14 5,250 9,450 23,550**

**2024 40,000 0.14 5,600 15,050 17,950**

**2025 47,500 0.14 6,650 21,700 11,300**

**2026 35,000 0.14 4,900 26,600 6,400**

**2027 10,000 0.14 1,400 28,000 5,000**

**$28,000**

**4 ($33,000 − $5,000) ÷ 200,000 km = $0.14 per km**

**c. The units-of-production method of depreciation will result in the greatest amount of profit reported for the year ended May 31, 2023 because it has the lowest depreciation expense for the year. There will be no difference in the total profit over the life of the asset.**

**d. As indicated in the three different schedules prepared in part b., the carrying amount on the balance sheet at May 31, 2023 would be the highest if the straight-line method were used. By the end of the useful life, the carrying amount will be the same under all depreciation methods.**

**e. I recommend the units-of-production method of depreciation because this method will provide Natalie with the best pattern to match the economic benefits of the van. It will provide the fairest charge for each year.**

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