Inventory question (2 points)

In class, we discussed six possible inventory accounting systems, using (FIFO, LIFO, average cost) x (perpetual, periodic). For the following starting inventory and transactions, determine what the lowest and highest possible COGS is across these six system choices.

1. Started with 50 units at $80 each.

2. Sold 20 units.

3. Purchased 50 units at $128 each

4. Sold 60 units.

5. Purchased 50 units at $96 each

6. Sold 50 units.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Perpetual FIFO | Perpetual LIFO | Perpetual average cost |
| 1 | 50 @ 80 | 50 @ 80 | 50 @ 80 |
| 2 | 30 @ 80 | 30 @ 80 | 30 @ 80 |
| 3 | 30 @ 80, 50 @ 128 | 50 @ 128, 30 @ 80 | 80 @ 110 |
| 4 | 20 @ 120 | 20 @ 80 | 20 @ 110 |
| 5 | 20 @ 128, 50 @ 96 | 50 @ 96, 20 @ 80 | 70 @ 100 |
| 6 | 20 @ 96 | 20 @ 80 | 20 @ 100 |

COGS:

* = Starting inventory + purchases – remaining inventory
  + = 4,000 + 11,200 – Remaining inventory
  + = 15,200 – Remaining inventory
  + Perpetual FIFO = 15,200 – 1,920 = **13,280**
  + Perpetual LIFO = 15,200 – 1,600 = **13,600**
  + Perpetual average cost = 15,200 – 2,000 = **13,200**
* = Cost per sale
  + Periodic FIFO = Always the same as Perpetual FIFO = **13,280**
  + Periodic LIFO = 50 @ 96 + 50 @ 128 + 30 @ 80 = **13,600**
  + Period Average cost = 101.33 @ 130 = **13,173.33**

|  |  |  |  |
| --- | --- | --- | --- |
| Lowest COGS: | 13,600 | System for lowest COGS: | Periodic Average Cost |
| Highest COGS: | **13,173.33** | **System for highest COGS:** | **LIFO (either system)** |

PP&E Question, Part A (3 points)

The Hill Company purchased some equipment on July 1, 2008, for $16,000. Hill also paid freight costs $1,500 and sales tax $500 in addition. Hill’s fiscal year starts from January 1. Upon receipt, the following expenditures were incurred in 2008:

|  |  |
| --- | --- |
| Major repair prior to use | $1,000 |
| Installation | $600 |
| Testing prior to use | $400 |
| Operating costs after start of production | $2,000 |
| Minor repair and maintenance after start of production | $500 |

The company adopted a straight-line depreciation method and estimated that the useful life of the equipment to be ten years from July 1, 2008. Hill expects that the salvage value of the equipment will be $2,000 at the end of the useful life.

Required:

1) Determine the total depreciable value of the equipment, i.e., the total amount that will be depreciated over the life of the equipment.

Cost = 16,000 + 1,500 + 500 + 1,000 + 600 + 400 = 20,000

(Include the blue highlighted costs, ignore red highlighted costs)

Total depreciation over the equipment’s life = cost – salvage value = 20,000 – 2,000 = 18,000

|  |  |
| --- | --- |
| Total depreciable value: | 18,000 |

2) Determine the book value of the equipment at December 31, 2008.

On December 31, 2008, the equipment will have depreciated by 6 months.

Depreciation = (20,000 – 2,000)/10 x 6/12 = 900

Book value (i.e., NAV) = Cost – Accumulated depreciation = 20,000 – 900 = 19,100

|  |  |
| --- | --- |
| Net asset value, Dec 31: | 19,100 |

3) Hill received an offer to sell the equipment at January 1, 2009. If Hill sold the equipment for $23,000 in cash, what journal entry would they record for the sale of the equipment? No entry explanation is required.

|  |  |  |  |
| --- | --- | --- | --- |
| DATE | Accounts | DR | CR |
| Jan 1 | Cash  Acc. Depr. -- Equipment  Gain on asset sale  Equipment | 23,000  900 | 3,900  20,000 |

PP&E Question Part B (2 points)

Hill Company has another piece of equipment with a net asset value of $22,000 as of January 1, 2009. In early 2009, a major improvement to the equipment took place, costing $3,000. As a result, the annual capacity of the equipment was expanded, leaving it with 10 years of useful life and a salvage value of $2,000. In early 2010, due to signs of severe wear, Hill revised the equipment’s estimated useful life to be only five remaining years from January 1, 2010 with a salvage value of $1,000. Hill Company uses double declining balance depreciation for this equipment.

Required:

1) Determine the amount of depreciation expense for the equipment on Dec 31, 2009.

Depreciation: 25,000 x 2/10 = 5,000

|  |  |
| --- | --- |
| Depr. Expense, 2009 | 5,000 |

2) Determine the amount of depreciation expense for the equipment on Dec 31, 2010.

New asset value = Old NAV = 25,000 – 5,000 = 20,000

Depreciation: 20,000 x 2/5 = 8,000

|  |  |
| --- | --- |
| Depr. Expense, 2010 | 8,000 |

Intangibles Question (3 points)

In 2006, Toshiba acquired Westinghouse, a nuclear reactor company, for $5.4 billion US dollars. Assume that Westinghouse's net assets (market value of assets – liabilities) were worth $3.1 billion dollars at the time of the acquisition, and that Toshiba paid in cash.

In 2011, the well-known Fukushima Daiichi nuclear disaster occurred, drastically decreasing demand for nuclear reactors across the globe. At the time, Toshiba insisted that the Westinghouse was unaffected, due to high demand for its other services (such as nuclear reactor maintenance). However, due to pressure from their auditor, PwC, Toshiba proceeded to take a $2.3 billion US dollar impairment charge to goodwill in 2016, 5 years later.

In the end, Toshiba decided to sell off the Westinghouse group to Brookfield, a Canadian asset managing firm, in January of 2018. Brookfield was to acquire the firm for 4.6 billion US dollars, by paying 4 billion US dollars in cash, and assuming 600 million US dollars of Westinghouse's liabilities.

References:

[Toshiba sells nuclear group Westinghouse in $4.6bn deal](https://www.ft.com/content/74afda84-f174-11e7-b220-857e26d1aca4), Financial Times

[Toshiba admits to a ruinous overpayment for an American nuclear firm](https://www.economist.com/news/business/21713896-its-share-price-plunged-40-three-days-investors-worried-about-its-financial), The Economist

1. Record the initial purchase of Westinghouse, from Toshiba's perspective (in USD).

|  |  |  |  |
| --- | --- | --- | --- |
| DATE | Accounts | DR | CR |
|  | Westinghouse net assets  Goodwill  Cash | 3.1B  2.3B | 5.4B |

2. Record the subsequent goodwill impairment.

|  |  |  |  |
| --- | --- | --- | --- |
| DATE | Accounts | DR | CR |
|  | Impairment expense  Goodwill | 2.3B | 2.3B |

3. Record the sale of Westinghouse from Toshiba's perspective, using the following simplifying assumption. Treat Westinghouse as two accounts: one big PP&E asset (call it “Westinghouse assets”), and one big liability (“Westinghouse liabilities”). Further, assume that the only change in Westinghouse's assets and liabilities while owned by Toshiba was the goodwill impairment.

|  |  |  |  |
| --- | --- | --- | --- |
| DATE | Accounts | DR | CR |
|  | Cash  Westinghouse liabilities  Westinghouse assets  Gain on asset sale | 4B  0.6B | 3.7B  0.9B |