## HILTON CHAPTER 3&4 P3-54 AND P4-27 PROBLEM SOLUTION

## Problem 3-54

|  |  |
| --- | --- |
| 1. |  |
| 2. | Calculation of applied manufacturing overhead: |
|  | Applied manufacturing overhead = machine hrs. used x predetermined overhead rate $36,000 = 6,000 hrs. x $6 per hr. |
|  |  |  |  |
| 3. | Underapplied overhead | = | actual overhead – applied overhead |
|  | $2,000 | = | $38,000 – $36,000 |
|  |  |  |  |
| 4. | Cost of Goods Sold  | 2,000 |  |
|  |  Manufacturing Overhead  |  | 2,000 |

## Problem 3-54 (continued)

|  |  |  |
| --- | --- | --- |
| 5. | (a) | Calculation of proration amounts: |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Account | Explanation | Amount\* | Percentage | Calculationof Percentage |
| Work in Process | Job B19 only | $10,800 | 30% | 10,800  36,000 |
| Finished Goods | Job T28 only | 18,000 | 50% | 18,000  36,000 |
| Cost of Goods |  |  |  |  |
|  Sold | Job M07 only |   7,200 |  20% |  7,200  36,000 |
| Total |  | $36,000 | 100% |  |
|  |
| \*Machine hours used on jobpredetermined overhead rate. |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Account | Underapplied Overhead | × | Percentage | Amount Addedto Account |
| Work in Process | $2,000 | × | 30% | $  600 |
| Finished Goods |  2,000 | × | 50% |  1,000 |
| Cost of Goods Sold |  2,000 | × | 20% |   400 |
|  Total |  |  |  | $2,000 |
|  |  |
| (b) | Journal entry: |
|  |  |  |  |
|  | Work-in-Process Inventory  | 600 |  |
|  | Finished-Goods Inventory  | 1,000 |  |
|  | Cost of Goods Sold  | 400 |  |
|  |  Manufacturing Overhead  |  | 2,000 |

## Problem 4-27

|  |  |  |
| --- | --- | --- |
| 1. | Physical flow of units: |  |
|  |  | Physical Units |
|  | Work in process, 1/1/x4  | 210,000 |
|  | Units started during 20x4  | 1,100,000 |
|  | Total units to account for  | 1,310,000 |
|  |  |  |
|  | Units completed and transferred out during 20x4  | 1,000,000 |
|  | Work in process, 12/31/x4  |   310,000 |
|  | Total units accounted for  | 1,310,000 |
|  |  |  |  |  |  |
| 2. | Equivalent units: |  |  |  |  |
|  |  | Physical Units | Percentage of Completion with Respect to Conversion | Equivalent Units |
| Direct  Material | Conversion |
|  | Work in process, 1/1/x4  | 210,000 | 83% |  |  |
|  | Units started during 20x4  | 1,100,000 |  |  |  |
|  | Total units to account for  | 1,310,000 |  |  |  |
|  | Units completed and transferred out during 20x4  | 1,000,000 | 100% | 1,000,000 | 1,000,000 |
|  | Work in process, 12/31/x4  |   310,000 | 48% | 310,000 | 148,800 |
|  | Total units accounted for  | 1,310,000 |  | \_\_\_\_\_\_\_\_ | \_\_\_\_\_\_\_\_ |
|  | Total equivalent units  |  |  | 1,310,000 | 1,148,800 |

## Problem 4-27 (Continued)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 3. | Costs per equivalent unit: |  |  |  |
|  |  | Direct Material | Conversion | Total |
|  | Work in process, 1/1/x4  | $  300,000 | $ 620,800a | $  920,800 |
|  | Costs incurred during 20x4  |  1,403,000 | 3,400,000b |  4,803,000 |
|  | Total costs to account for  | $1,703,000 | $4,020,800 | $5,723,800 |
|  | Equivalent units  | 1,310,000 | 1,148,800 |  |
|  | Costs per equivalent unit  | $1.30c | $3.50d | $4.80e |
|  |  |  |  |  |
|  | aConversion cost | = | direct labor + overhead |  |
|  |  | = | direct labor + (100%direct labor) |  |
|  |  | = | 200%direct labor |  |
|  |  | = | 200%$310,400 |  |
|  |  | = | $620,800 |  |
|  | bConversion cost | = | 200%direct labor |  |
|  |  | = | 200%$1,700,000 |  |
|  |  | = | $3,400,000 |  |
|  | c$1.30 = $1,703,000 ÷ 1,310,000 |  |
|  | d$3.50 = $4,020,800 ÷ 1,148,800 |  |
|  | e$4.80 = $1.30 + $3.50 |  |

## Problem 4-27 (Continued)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4. | Cost of ending inventories: |  |  |  |
|  |  |  |  |  |
|  | Cost of goods completed and transferred out: |  |  |  |
|  |  |  |  |
|  |   | 1,000,000$4.80 | $4,800,000 |
|  |  |  |  |
|  | Cost remaining in 12/31/x4 work-in-process inventory: |  |  |
|  |  |  |  |  |
|  | Direct material: |  |  |  |
|  |  |  |  |  |
|  |   | 310,000$1.30 |  | $403,000 |
|  |  |  |  |  |
|  | Conversion: |  |  |  |
|  |  |  |  |  |
|  |   | 148,800$3.50 |  |  520,800 |
|  |  |  |  |
|  | Total cost of 12/31/x4 work in process  |  | $923,800 |
|  |  |  |  |  |
|  | Check: Cost of goods completed and transferred out  | $4,800,000 |
|  |  Cost of 12/31/x4 work-in-process inventory  |    923,800 |
|  |  Total costs accounted for  | $5,723,800 |
|  |  |  |  |
|  | The cost of the ending work-in-process inventory is $923,800. |  |  |
|  |  |
|  |  Ending finished-goods inventory: Of the 1,000,000 units completed during 20x4, 250,000 units remain in finished-goods inventory on December 31, 20x4. Therefore: |
|  |  |
|  | $4,800,000(250,000 ÷ 1,000,000) = $1,200,000\* |
|  |  |
|  | The cost of the ending finished-goods inventory is $1,200,000. |
|  |  |
|  | \*Also, $1,200,000 = 250,000$4.80 per unit |