Carter Corporation applies manufacturing overhead on the basis of machine-hours. At the beginning of the most recent year, the company based its predetermined overhead rate on total estimated overhead of $135,850. Actual manufacturing overhead for the year amounted to $145,000 and actual machine-hours were 5,660. The company's predetermined overhead rate for the year was $24.70 per machine-hour.

87. The predetermined overhead rate was based on how many estimated machine-hours?
   A. 5,870
   B. 5,500
   C. 6,081
   D. 5,660

\[
\text{Estimated Total} \times \frac{\text{Machine-Hours}}{\text{Total Machine-Hours}} = \text{Predetermined Overhead Rate} = \frac{135,850}{\text{Estimated Machine-Hours}} = 24.70 \text{ per machine-hour}
\]

\[
\text{Estimated Machine-Hours} = 5,600
\]

88. The applied manufacturing overhead for the year was closest to:
   A. $135,850
   B. $149,218
   C. $143,869
   D. $139,802

\[
\text{Predetermined Overhead Rate} \times \text{Actual Machine-Hours} = \text{Applied Machine-Hours}
\]

\[
24.70 \times 5,660 = 139,802 \text{ applied MOH}
\]

89. The overhead for the year was:
   A. $5,198 overapplied
   B. $3,952 underapplied
   C. $3,952 overapplied
   D. $5,198 underapplied

\[
\text{Actual Machine-Hours} - \frac{139,802}{\text{Applied Machine-Hours}} = \frac{5,198}{\text{Underapplied Machine-Hours}}
\]

\[
5,198 \text{ underapplied}
\]
Babb Company is a manufacturing firm that uses job-order costing. The company's inventory balances were as follows at the beginning and end of the year:

<table>
<thead>
<tr>
<th></th>
<th>Beginning Balance</th>
<th>Ending Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw materials</td>
<td>$11,000</td>
<td>$15,000</td>
</tr>
<tr>
<td>Work in process</td>
<td>$32,000</td>
<td>$14,000</td>
</tr>
<tr>
<td>Finished goods</td>
<td>$108,000</td>
<td>$123,000</td>
</tr>
</tbody>
</table>

The company applies overhead to jobs using a predetermined overhead rate based on machine-hours. At the beginning of the year, the company estimated that it would work 17,000 machine-hours and incur $272,000 in manufacturing overhead cost. The following transactions were recorded for the year:

- **Raw materials** were purchased, $416,000.
- **Raw materials** were requisitioned for use in production, $412,000 ($376,000 direct and $36,000 indirect).
- The following employee costs were incurred: direct labor, $330,000; indirect labor, $69,000; and administrative salaries, $157,000.
- **Selling costs** ($113,000).
- **Factory utility costs**, $29,000.
- **Depreciation for the year** was $121,000 of which $114,000 is related to factory operations and $7,000 is related to selling, general, and administrative activities.
- **Manufacturing overhead was applied to jobs.** The actual level of activity for the year was 15,000 machine-hours.
- **Sales for the year totaled** $1,282,000.

**Required:**

a. Prepare a schedule of cost of goods manufactured in good form.

b. Was the overhead underapplied or overapplied? By how much?

c. Prepare an income statement for the year in good form. The company closes any underapplied or overapplied manufacturing overhead to **Cost of Goods Sold**.
a. Schedule of cost of goods manufactured

Estimated total manufacturing overhead (a) .......... $272,000
Estimated total machine-hours (b) .................. 17,000
Predetermined overhead rate (a) ÷ (b) ............. $16.00

Actual total machine-hours (a) ............. 15,000
Predetermined overhead rate (b) ...... $16.00
Overhead applied (a) ÷ (b) ............. $240,000

Direct materials:
  Raw materials inventory, beginning ............ $11,000
  Add: purchases of raw materials ............. 416,000
  Total raw materials available ............... 427,000
  Deduct: raw materials inventory, ending ...... 15,000
  Raw materials used in production ............ 412,000
  Less: indirect materials ...................... 36,000
  Direct materials .................................. 376,000
  Direct labor ....................................... 330,000
  Manufacturing overhead applied ............. 240,000
  Total manufacturing costs .................... 946,000
  Add: Beginning work in process inventory .... 32,000
       .............................................. 978,000
  Deduct: Ending work in process inventory .... 14,000
  Cost of goods manufactured .................. $964,000

b. Overhead underapplied or overapplied

Actual manufacturing overhead cost incurred:
  Indirect materials.................................. $36,000
  Indirect labor..................................... 69,000
  Factory utilities.................................. 29,000
  Factory depreciation ................................ 114,000
  Manufacturing overhead cost incurred ........ 248,000
  Manufacturing overhead applied ............ 240,000
  Underapplied overhead ......................... $8,000

c. Income Statement

Beginning finished goods inventory .............. $108,000
Cost of goods manufactured .................... 964,000
Cost of goods available for sale ............. 1,072,000
Ending finished goods inventory ............... 123,000
Unadjusted cost of goods sold .................. 949,000
Add: underapplied overhead ..................... 8,000
Adjusted cost of goods sold .................... $957,000
Sales .......................................................... $1,282,000
Cost of goods sold (adjusted) ....................... 957,000
Gross margin ............................................... 325,000
Selling and administrative expenses:
   Administrative salaries ......................... $157,000
   Selling costs ...................................... 113,000
   Depreciation ........................................ 7,000 277,000
Net operating income ................................. $48,000

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Bloom's: Application
Learning Objective: 03-01 Compute a predetermined overhead rate
Learning Objective: 03-02 Apply overhead cost to jobs using a predetermined overhead rate
Learning Objective: 03-06 Prepare schedules of cost of goods manufactured and cost of goods sold and an income statement
Learning Objective: 03-07 Compute underapplied or overapplied overhead cost and prepare the journal entry to close the balance in Manufacturing Overhead to the appropriate accounts
Level: Medium
152. Shapiro Corporation has provided the following data for the most recent month:

Raw materials, beginning balance .............................................. $13,000
Work in process, beginning balance ............................................. $29,000
Finished Goods, beginning balance ............................................. $50,000

Transactions:
(1) Raw materials purchases ................................................................. $64,000
(2) Raw materials used in production (all direct materials) .......... $69,000
(3) Direct labor ................................................................................. $57,000
(4) Manufacturing overhead costs incurred ......................... $85,000
(5) Manufacturing overhead applied ........................................... $87,000
(6) Cost of units completed and transferred from Work in Process to Finished Goods ................................................. $216,000
(7) Any overapplied or underapplied manufacturing overhead is closed to Cost of Goods Sold .......... ?
(8) Finished goods are sold ............................................................ $262,000

Required:

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td></td>
<td>Beginning balance</td>
<td>Beginning balance</td>
<td>Beginning balance</td>
<td>(4) Manufacturing overhead incurred</td>
<td>(8) Cost of goods sold</td>
</tr>
<tr>
<td></td>
<td>13,000</td>
<td>29,000</td>
<td>50,000</td>
<td>85,000</td>
<td>262,000</td>
</tr>
<tr>
<td>(1) Raw materials purchases</td>
<td>64,000</td>
<td>(2) Direct materials</td>
<td>(6) Transfer to FG</td>
<td>(5) Manufacturing overhead applied</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>69,000</td>
<td>216,000</td>
<td>87,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ending balance</td>
<td>Ending balance</td>
<td>Ending balance</td>
<td>(7) Manufacturing overhead overapplied</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8,000</td>
<td>26,000</td>
<td>4,000</td>
<td>2,000</td>
<td>2,000</td>
</tr>
</tbody>
</table>

AACSB: Analytic
AICPA BB: Critical Thinking
AICPA FN: Measurement
Bloom’s: Application
Learning Objective: 03-05 Use T-accounts to show the flow of costs in a job-order costing system
Level: Medium