Exercises: Set B

**E22-1B** Warren Company is planning to produce 2,000 units of product in 2010. Each unit requires 3 pounds of materials at $5 per pound and a half hour of labor at $16 per hour. The overhead rate is 70% of direct labor.

**Instructions**
(a) Compute the budgeted amounts for 2010 for direct materials to be used, direct labor, and applied overhead.
(b) Compute the standard cost of one unit of product.
(c) What are the potential advantages to a corporation of using standard costs?

**E22-2B** Joey Benelli manufactures and sells homemade wine, and he wants to develop a standard cost per gallon. The following are required for production of a 50-gallon batch.
- 3,000 ounces of grape concentrate at $0.06 per ounce
- 54 pounds of granulated sugar at $0.30 per pound
- 60 lemons at $0.66 each
- 50 yeast tablets at $0.25 each
- 50 nutrient tablets at $0.20 each
- 2,500 ounces of water at $0.004 per ounce

Joey estimates that 4% of the grape concentrate is wasted, 10% of the sugar is lost, and 20% of the lemons cannot be used.

**Instructions**
Compute the standard cost of the ingredients for one gallon of wine. (Carry computations to two decimal places.)

**E22-3B** Saxson Company has gathered the information shown below about its product.

- **Direct materials:** Each unit of product contains 4.5 pounds of materials. The average waste and spoilage per unit produced under normal conditions is 0.5 pounds. Materials cost $3 per pound, but Saxson always takes the 2% cash discount all of its suppliers offer. Freight costs average $0.25 per pound.
- **Direct labor:** Each unit requires 2 hours of labor. Setup, cleanup, and downtime average 0.1 hours per unit. The average hourly pay rate of Saxson’s employees is $10. Payroll taxes and fringe benefits are an additional $3 per hour.
- **Manufacturing overhead:** Overhead is applied at a rate of $6 per direct labor hour.

**Instructions**
Compute Saxson’s total standard cost per unit.

**E22-4B** Quick Repair Services, Inc. is trying to establish the standard labor cost of a typical oil change. The following data have been collected from time and motion studies conducted over the past month.

- Actual time spent on the oil change: .8 hour
- Hourly wage rate: $12
- Payroll taxes: 10% of wage rate
- Setup and downtime: 10% of actual labor time
- Cleanup and rest periods: 30% of actual labor time
- Fringe benefits: 25% of wage rate

**Instructions**
(a) Determine the standard direct labor hours per oil change.
(b) Determine the standard direct labor hourly rate.
(c) Determine the standard direct labor cost per oil change.
(d) If an oil change took 1.3 hours at the standard hourly rate, what was the direct labor quantity variance?

**E22-5B** The standard cost of Product B manufactured by Kenji Company includes two units of direct materials at $4.00 per unit. During June, 27,000 units of direct materials are purchased at a cost of $3.75 per unit, and 27,000 units of direct materials are used to produce 13,000 units of Product B.

Compute budget and standard.
Compute standard materials costs.
Compute standard cost per unit.
Compute labor quantity variance.
Compute materials price and quantity variances.
Instructions
(a) Compute the total materials variance and the price and quantity variances.
(b) Repeat (a), assuming the purchase price is $4.15 and the quantity purchased and used is 25,200 units.

E22-6B Romine Company’s standard labor cost of producing one unit of Product DD is 3 hours at the rate of $10.00 per hour. During August, 30,600 hours of labor are incurred at a cost of $10.10 per hour to produce 10,000 units of Product DD.

Instructions
(a) Compute the total labor variance.
(b) Compute the labor price and quantity variances.
(c) Repeat (b), assuming the standard is 3.2 hours of direct labor at $10.20 per hour.

E22-7B Beltran Inc., which produces a single product, has prepared the following standard cost sheet for one unit of the product:

| Direct materials (6 pounds at $2.50 per pound) | $15 |
| Direct labor (3 hours at $12.00 per hour) | $36 |

During the month of April, the company manufactures 250 units and incurs the following actual costs:

| Direct materials purchased and used (1,600 pounds) | $4,160 |
| Direct labor (760 hours) | $8,740 |

Instructions
Compute the total, price, and quantity variances for materials and labor.

E22-8B The following direct materials and direct labor data pertain to the operations of Guillen Manufacturing Company for the month of August.

<table>
<thead>
<tr>
<th>Costs</th>
<th>Quantities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual labor rate</td>
<td>$13 per hour</td>
</tr>
<tr>
<td>Actual materials price</td>
<td>$89 per ton</td>
</tr>
<tr>
<td>Standard labor rate</td>
<td>$12 per hour</td>
</tr>
<tr>
<td>Standard materials price</td>
<td>$90 per ton</td>
</tr>
</tbody>
</table>

Instructions
(a) Compute the total, price, and quantity variances for materials and labor.
(b) Provide two possible explanations for each of the unfavorable variances calculated above, and suggest where responsibility for the unfavorable result might be placed.

E22-9B During March 2010, Sealey Tool & Die Company worked on four jobs. A review of direct labor costs reveals the following summary data.

<table>
<thead>
<tr>
<th>Job Number</th>
<th>Actual</th>
<th>Standard</th>
<th>Total Variance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>Costs</td>
<td>Hours</td>
</tr>
<tr>
<td>A257</td>
<td>220</td>
<td>$5,500</td>
<td>230</td>
</tr>
<tr>
<td>A258</td>
<td>450</td>
<td>12,600</td>
<td>430</td>
</tr>
<tr>
<td>A259</td>
<td>240</td>
<td>6,180</td>
<td>240</td>
</tr>
<tr>
<td>A260</td>
<td>115</td>
<td>2,530</td>
<td>110</td>
</tr>
<tr>
<td>Total variance</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Analysis reveals that Job A257 was a repeat job. Job A258 was a rush order that required overtime work at premium rates of pay. Job A259 required a more experienced replacement worker on one shift. Work on Job A260 was done for one day by a new trainee when a regular worker was absent.
**Instructions**
Prepare a report for the plant supervisor on direct labor cost variances for March. The report should have columns for (1) Job No., (2) Actual Hours, (3) Standard Hours, (4) Quantity Variance, (5) Actual Rate, (6) Standard Rate, (7) Price Variance, and (8) Explanation.

**E22-10B**
Manufacturing overhead data for the production of Product H by Jimenez Company are as follows.

| Overhead incurred for 35,000 actual direct labor hours worked | $142,000 |
| Direct labor hours | 36,000 |
| Standard hours allowed for work done | 34,000 |
| Overhead rate (variable $3; fixed $1) at normal capacity of 36,000 direct labor hours | $4 |

**Instructions**
Compute the total overhead variance.

**E22-11B**
Harper Company produces one product, a putter called LO-Putter. Harper uses a standard cost system and determines that it should take one hour of direct labor to produce one LO-Putter. The normal production capacity for this putter is 100,000 units per year. The total budgeted overhead at normal capacity is $1,000,000 comprised of $200,000 of variable costs and $800,000 of fixed costs. Harper applies overhead on the basis of direct labor hours.

During the current year, Harper produced 90,000 putters, worked 94,000 direct labor hours, and incurred variable overhead costs of $186,000 and fixed overhead costs of $800,000.

**Instructions**
(a) Compute the predetermined variable overhead rate and the predetermined fixed overhead rate.
(b) Compute the applied overhead rate for Harper for the year.
(c) Compute the total overhead variance.

**E22-12B**
Edmonds Company purchased (at a cost of $12,900) and used 3,300 pounds of materials during May. Edmonds’ standard cost of materials per unit produced is based on 2 pounds per unit at a cost $4 per pound. Production in May was 1,530 units.

**Instructions**
(a) Compute the total, price, and quantity variances for materials.
(b) Assume Edmonds also had an unfavorable labor quantity variance. What is a possible scenario that would provide one cause for the variances computed in (a) and the unfavorable labor quantity variance?

**E22-13B**
Greenlee Landscaping plants grass seed as the basic landscaping for business campuses. During a recent month the company worked on three projects (Ball, Korman, and Matheny). The company is interested in controlling the material costs, namely the grass seed, for these plantings projects.

In order to provide management with useful cost control information, the company uses standard costs and prepares monthly variance reports. Analysis reveals that the purchasing agent mistakenly purchased poor-quality seed for the Ball project. The Korman project, however, received higher-than-standard-quality seed that was on sale. The Matheny project received standard-quality seed; however, the price had increased and a new employee was used to spread the seed.

Shown below are quantity and cost data for each project.

<table>
<thead>
<tr>
<th>Project</th>
<th>Actual Quantity</th>
<th>Actual Costs</th>
<th>Standard Quantity</th>
<th>Standard Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball</td>
<td>500 lbs.</td>
<td>$1,400</td>
<td>460 lbs.</td>
<td>$1,380</td>
</tr>
<tr>
<td>Korman</td>
<td>400</td>
<td>1,140</td>
<td>410</td>
<td>1,230</td>
</tr>
<tr>
<td>Matheny</td>
<td>425</td>
<td>1,360</td>
<td>400</td>
<td>1,200</td>
</tr>
</tbody>
</table>

**Instructions**
(a) Prepare a variance report for the purchasing department with the following columns: (1) Project, (2) Actual pounds purchased, (3) Actual price, (4) Standard price, (5) Price variance, and (6) Explanation.
Prepare a variance report for the production department with the following columns: (1) Project, (2) Actual pounds, (3) Standard pounds, (4) Standard price, (5) Quantity variance, and (6) Explanation.

HENNESSEY CORPORATION
Variance Report—Purchasing Department
for Week Ended January 9, 2011

<table>
<thead>
<tr>
<th>Type of Materials</th>
<th>Quantity Purchased</th>
<th>Actual Price</th>
<th>Standard Price</th>
<th>Price Variance</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sand</td>
<td>25 lbs.</td>
<td>$5.20</td>
<td>$5.00</td>
<td>$3,200</td>
<td>Price increase</td>
</tr>
<tr>
<td>Brown</td>
<td>36 oz.</td>
<td>?</td>
<td>4.25</td>
<td>1,050 U</td>
<td>Rush order</td>
</tr>
<tr>
<td>Green</td>
<td>48 units</td>
<td>0.55</td>
<td>?</td>
<td>660 F</td>
<td>Bought larger quantity</td>
</tr>
</tbody>
</table>

Instructions
Fill in the appropriate amounts or letters for the question marks in the report.

Nieko Company uses a standard cost accounting system. During January, the company reported the following manufacturing variances.

Materials price variance $2,250 U
Labor quantity variance $725 U
Materials quantity variance 700 F
Overhead variance 500 U
Labor price variance 525 U

In addition, 7,000 units of product were sold at $8 per unit. Each unit sold had a standard cost of $6. Selling and administrative expenses were $6,000 for the month.

Instructions

*Stiner Company installed a standard cost system on January 1. Selected transactions for the month of January are as follows.

1. Purchased 24,000 units of raw materials on account at a cost of $4.50 per unit. Standard cost was $4.20 per unit.
2. Issued 24,000 units of raw materials for jobs that required 23,500 standard units of raw materials.
3. Incurred 20,300 actual hours of direct labor at an actual rate of $4.80 per hour. The standard rate is $5.50 per hour. (Credit Wages Payable)
4. Performed 20,300 hours of direct labor on jobs when standard hours were 20,600.
5. Applied overhead to jobs at the rate of 100% of direct labor cost for standard hours allowed.

Instructions
Journalize the January transactions.

*Pedro Company uses a standard cost accounting system. Some of the ledger accounts have been destroyed in a fire. The controller asks your help in reconstructing some missing entries and balances.

Instructions
Answer the following questions.

(a) Materials Price Variance shows a $2,000 favorable balance. Accounts Payable shows $148,000 of raw materials purchases. What was the amount debited to Raw Materials Inventory for raw materials purchased?
(b) Materials Quantity Variance shows a $5,000 unfavorable balance. Raw Materials Inventory shows a zero balance. What was the amount debited to Work in Process Inventory for direct materials used?
(c) Labor Price Variance shows a $1,500 unfavorable balance. Factory Labor shows a debit of $170,000 for wages incurred. What was the amount credited to Wages Payable?
(d) Factory Labor shows a credit of $170,000 for direct labor used. Labor Quantity Variance shows a $900 unfavorable balance. What was the amount debited to Work in Process for direct labor used?
(e) Overhead applied to Work in Process totaled $195,000. If the total overhead variance was $1,200 unfavorable, what was the amount of overhead costs debited to Manufacturing Overhead?

(f) Overhead Controllable Variance shows a debit balance of $2,500. What was the amount and type of balance (debit or credit) in Overhead Volume Variance?

*E22-18B Data for Beltran Inc. are given in E22-7B.

**Instructions**
Journalize the entries to record the materials and labor variances.

*E22-19B The following information was taken from the annual manufacturing overhead cost budget of Petagine Company.

- Variable manufacturing overhead costs: $33,000
- Fixed manufacturing overhead costs: $21,000
- Normal production level in labor hours: 12,000
- Normal production level in units: 3,000
- Standard labor hours per unit: 4

During the year, 2,900 units were produced, 11,700 hours were worked, and the actual manufacturing overhead was $53,500. Actual fixed manufacturing overhead costs equaled budgeted fixed manufacturing overhead costs. Overhead is applied on the basis of direct labor hours.

**Instructions**
(a) Compute the total, fixed, and variable predetermined manufacturing overhead rates.
(b) Compute the total, controllable, and volume overhead variances.
(c) Briefly interpret the overhead controllable and volume variances computed in (b).

*E22-20B The loan department of Lebo Bank uses standard costs to determine the overhead cost of processing loan applications. During the current month a fire occurred, and the accounting records for the department were mostly destroyed. The following data were salvaged from the ashes.

- Standard variable overhead rate per hour: $8
- Standard hours per application: 2
- Standard hours allowed: 2,000
- Standard fixed overhead rate per hour: $5
- Actual fixed overhead cost: $11,500
- Variable overhead budget based on standard hours allowed: $16,000
- Fixed overhead budget: $11,500
- Overhead controllable variance: $1,500 U

**Instructions**
(a) Determine the following.
1. Total actual overhead cost.
2. Actual variable overhead cost.
3. Variable overhead cost applied.
4. Fixed overhead cost applied.
5. Overhead volume variance.
(b) Determine how many loans were processed.

*E22-21B Kingston Company’s overhead rate was based on estimates of $198,000 for overhead costs and 18,000 direct labor hours. Kingston’s standards allow 2 hours of direct labor per unit produced. Production in May was 900 units, and actual overhead incurred in May was $20,700. The overhead budgeted for 1,800 standard direct labor hours is $18,600 ($6,000 fixed and $12,600 variable).

**Instructions**
(a) Compute the total, controllable, and volume variances for overhead.
(b) What are possible causes of the variances computed in part (a)?