REVIEW PROBLEM: BUDGET SCHEDULES

Mynor Corporation manufactures and sells a seasonal product that has peak sales in the third quarter. The following information concerns operations for Year 2—the coming year—and for the first two quarters of Year 3:

<table>
<thead>
<tr>
<th>Year 2 Quarter</th>
<th>Year 3 Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Budgeted unit sales</td>
<td>40,000</td>
</tr>
</tbody>
</table>

a. The company’s single product sells for $8 per unit. Budgeted sales in units for the next six quarters are as follows (all sales are on credit):

b. Sales are collected in the following pattern: 75% in the quarter the sales are made, and the remaining 25% in the following quarter. On January 1, Year 2, the company’s balance sheet showed $65,000 in accounts receivable, all of which will be collected in the first quarter of the year. Bad debts are negligible and can be ignored.

c. The company desires an ending finished goods inventory at the end of each quarter equal to 30% of the budgeted unit sales for the next quarter. On December 31, Year 1, the company had 12,000 units on hand.

d. Five pounds of raw materials are required to complete one unit of product. The company requires ending raw materials inventory at the end of each quarter equal to 10% of the following quarter’s production needs. On December 31, Year 1, the company had 23,000 pounds of raw materials on hand.

e. The raw material costs $0.80 per pound. Raw material purchases are paid for in the following pattern: 60% paid in the quarter the purchases are made, and the remaining 40% paid in the following quarter. On January 1, Year 2, the company’s balance sheet showed $81,500 in accounts payable for raw material purchases, all of which will be paid for in the first quarter of the year.

Required:
Prepare the following budgets and schedules for the year, showing both quarterly and total figures:
1. A sales budget and a schedule of expected cash collections.
2. A production budget.
3. A direct materials budget and a schedule of expected cash payments for purchases of materials.

Solution to Review Problem
1. The sales budget is prepared as follows:

<table>
<thead>
<tr>
<th>Year 2 Quarter</th>
<th>Year 3 Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Budgeted unit sales</td>
<td>40,000</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>×$8</td>
</tr>
<tr>
<td>Total sales</td>
<td>$320,000</td>
</tr>
</tbody>
</table>

Based on the budgeted sales above, the schedule of expected cash collections is prepared as follows:

2. Based on the sales budget in units, the production budget is prepared as follows:
3. Based on the production budget, raw materials will need to be purchased during the year as follows:

**THE FOUNDATIONAL 15**

Morganton Company makes one product and it provided the following information to help prepare the master budget for its first four months of operations:

a. The budgeted selling price per unit is $70. Budgeted unit sales for June, July, August, and September are 8,400, 10,000, 12,000, and 13,000 units, respectively. All sales are on credit.

b. Forty-percent of credit sales are collected in the month of the sale and 60% in the following month.

c. The ending finished goods inventory equals 20% of the following month’s unit sales.

d. The ending raw materials inventory equals 10% of the following month’s raw materials production needs. Each unit of finished goods requires 5 pounds of raw materials. The raw materials cost $2.00 per pound.

e. Thirty-percent of raw materials purchases are paid for in the month of purchase and 70% in the following month.

f. The direct labor wage rate is $15 per hour. Each unit of finished goods requires two direct labor-hours.

g. The variable selling and administrative expense per unit sold is $1.80. The fixed selling and administrative expense per month is $60,000.

**Required:**

1. What are the budgeted sales for July?
2. What are the expected cash collections for July?
3. What is the accounts receivable balance at the end of July?
4. According to the production budget, how many units should be produced in July?
5. If 61,000 pounds of raw materials are needed to meet production in August, how many pounds of raw materials should be purchased in July?

6. What is the estimated cost of raw materials purchases for July?

7. If the cost of raw materials purchases in June is $88,880, what are the estimated cash disbursements for raw materials purchases in July?

8. What is the estimated accounts payable balance at the end of July?

9. What is the estimated raw materials inventory balance at the end of July?

10. What is the total estimated direct labor cost for July assuming the direct labor workforce is adjusted to match the hours required to produce the forecasted number of units produced?

11. If the company always uses an estimated predetermined plantwide overhead rate of $10 per direct labor-hour, what is the estimated unit product cost?

12. What is the estimated finished goods inventory balance at the end of July?

13. What is the estimated cost of goods sold and gross margin for July?

14. What is the estimated total selling and administrative expense for July?

15. What is the estimated net operating income for July?

EXERCISE 7–1 Schedule of Expected Cash Collections [LO2]
Midwest Products is a wholesale distributor of leaf rakes. Thus, peak sales occur in August of each year as shown in the company’s sales budget for the third quarter, given below:

<table>
<thead>
<tr>
<th></th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeted sales (all on account)</td>
<td>$600,000</td>
<td>$900,000</td>
<td>$500,000</td>
<td>$2,000,000</td>
</tr>
</tbody>
</table>

From past experience, the company has learned that 20% of a month’s sales are collected in the month of sale, another 70% are collected in the month following sale, and the remaining 10% are collected in the second month following sale. Bad debts are negligible and can be ignored. May sales totaled $430,000, and June sales totaled $540,000.

**Required:**
1. Prepare a schedule of expected cash collections from sales, by month and in total, for the third quarter.
2. Assume that the company will prepare a budgeted balance sheet as of September 30. Compute the accounts receivable as of that date.

EXERCISE 7–2 Production Budget [LO3]
Crystal Telecom has budgeted the sales of its innovative mobile phone over the next four months as follows:

<table>
<thead>
<tr>
<th></th>
<th>Sales in Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>30,000</td>
</tr>
<tr>
<td>August</td>
<td>45,000</td>
</tr>
<tr>
<td>September</td>
<td>60,000</td>
</tr>
<tr>
<td>October</td>
<td>50,000</td>
</tr>
</tbody>
</table>

The company is now in the process of preparing a production budget for the third quarter. Past experience has shown that end-of-month finished goods inventories must equal 10% of the next month’s sales.

**Required:**
Prepare a production budget for the third quarter showing the number of units to be produced each month and for the quarter in total.

EXERCISE 7–3 Direct Materials Budget [LO4]
Micro Products, Inc., has developed a very powerful electronic calculator. Each calculator requires three small “chips” that cost $2 each and are purchased from an overseas supplier. Micro Products has prepared a production budget for the calculator by quarters for Year 2 and for the first quarter of Year 3, as shown below:
Each calculator requires four small chips. The chip used in production of the calculator is sometimes hard to get, so it is necessary to carry large inventories as a precaution against stockouts. For this reason, the inventory of chips at the end of a quarter must equal 20% of the following quarter’s production needs.

**Required:**
Prepare a direct materials budget for chips, by quarter and in total, for Year 2. At the bottom of your budget, show the dollar amount of purchases for each quarter and for the year in total.

**EXERCISE 7–4 Direct Labor Budget [LO5]**
The production manager of Junnen Corporation has submitted the following forecast of units to be produced for each quarter of the upcoming fiscal year:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Units to be produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>5,000</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>4,400</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>4,500</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>4,900</td>
</tr>
</tbody>
</table>

Each unit requires 0.40 direct labor-hours and direct labor-hour workers are paid $11 per hour.

**Required:**
1. Construct the company’s direct labor budget for the upcoming fiscal year, assuming that the direct labor workforce is adjusted each quarter to match the number of hours required to produce the forecasted number of units produced.
2. Construct the company’s direct labor budget for the upcoming fiscal year, assuming that the direct labor workforce is not adjusted each quarter. Instead, assume that the company’s direct labor workforce consists of permanent employees who are guaranteed to be paid for at least 1,800 hours of work each quarter. If the number of required direct labor-hours is less than this number, the workers are paid for 1,800 hours anyway. Any hours worked in excess of 1,800 hours in a quarter are paid at the rate of 1.5 times the normal hourly rate for direct labor.

**EXERCISE 7–5 Manufacturing Overhead Budget [LO6]**
The direct labor budget of Krispin Corporation for the upcoming fiscal year includes the following budgeted direct labor-hours:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Budgeted direct labor-hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>5,000</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>4,800</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>5,200</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>5,400</td>
</tr>
</tbody>
</table>

The company’s variable manufacturing overhead rate is $1.75 per direct labor-hour and the company’s fixed manufacturing overhead is $35,000 per quarter. The only noncash item included in fixed manufacturing overhead is depreciation, which is $15,000 per quarter.

**Required:**
1. Construct the company’s manufacturing overhead budget for the upcoming fiscal year.
2. Compute the company’s manufacturing overhead rate (including both variable and fixed manufacturing overhead) for the upcoming fiscal year. Round off to the nearest whole cent.

**EXERCISE 7–6 Selling and Administrative Expense Budget [LO7]**
The budgeted unit sales of Haerve Company for the upcoming fiscal year are provided below:

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Budgeted unit sales</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Quarter</td>
<td>12,000</td>
</tr>
<tr>
<td>2nd Quarter</td>
<td>14,000</td>
</tr>
<tr>
<td>3rd Quarter</td>
<td>11,000</td>
</tr>
<tr>
<td>4th Quarter</td>
<td>10,000</td>
</tr>
</tbody>
</table>

The company’s variable selling and administrative expenses per unit are $2.75. Fixed selling and administrative expenses include advertising expenses of $12,000 per quarter, executive salaries of $40,000 per quarter, and depreciation of $16,000 per quarter. In addition, the company will make insurance payments of $6,000 in the 2nd Quarter and $6,000 in the 4th Quarter. Finally, property taxes of $6,000 will be paid in the 3rd Quarter.
**Required:**
Prepare the company’s selling and administrative expense budget for the upcoming fiscal year.

**EXERCISE 7-7 Cash Budget [LO8]**
Forest Outfitters is a retailer that is preparing its budget for the upcoming fiscal year. Management has prepared the following summary of its budgeted cash flows:

<table>
<thead>
<tr>
<th></th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cash receipts</td>
<td>$340,000</td>
<td>$670,000</td>
<td>$410,000</td>
<td>$470,000</td>
</tr>
<tr>
<td>Total cash disbursements</td>
<td>$530,000</td>
<td>$450,000</td>
<td>$430,000</td>
<td>$480,000</td>
</tr>
</tbody>
</table>

The company’s beginning cash balance for the upcoming fiscal year will be $50,000. The company requires a minimum cash balance of $30,000 and may borrow any amount needed from a local bank at a quarterly interest rate of 3%. The company may borrow any amount at the beginning of any quarter and may repay its loans, or any part of its loans, at the end of any quarter. Interest payments are due on any principal at the time it is repaid.

**Required:**
Prepare the company’s cash budget for the upcoming fiscal year.

**EXERCISE 7–8 Budgeted Income Statement [LO9]**
Seattle Cat is the wholesale distributor of a small recreational catamaran sailboat. Management has prepared the following summary data to use in its annual budgeting process:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Budgeted unit sales</td>
<td>380</td>
</tr>
<tr>
<td>Selling price per unit</td>
<td>$1,850</td>
</tr>
<tr>
<td>Cost per unit</td>
<td>$1,425</td>
</tr>
<tr>
<td>Variable selling and administrative expenses (per unit)</td>
<td>$85</td>
</tr>
<tr>
<td>Fixed selling and administrative expenses (per year)</td>
<td>$105,000</td>
</tr>
<tr>
<td>Interest expense for the year</td>
<td>$11,000</td>
</tr>
</tbody>
</table>

**Required:**
Prepare the company’s budgeted income statement using an absorption income statement format as shown in Schedule 9.

**EXERCISE 7–9 Budgeted Balance Sheet [LO10]**
The management of Academic Copy, a photocopying center located on University Avenue, has compiled the following data to use in preparing its budgeted balance sheet for next year:

<table>
<thead>
<tr>
<th></th>
<th>Ending Balances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>?</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>$6,500</td>
</tr>
<tr>
<td>Supplies inventory</td>
<td>$2,100</td>
</tr>
<tr>
<td>Equipment</td>
<td>$28,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>$9,000</td>
</tr>
<tr>
<td>Accounts payable</td>
<td>$1,900</td>
</tr>
<tr>
<td>Common stock</td>
<td>$4,000</td>
</tr>
<tr>
<td>Retained earnings</td>
<td>?</td>
</tr>
</tbody>
</table>

The beginning balance of retained earnings was $21,000, net income is budgeted to be $8,600, and dividends are budgeted to be $3,500.

**Required:**
Prepare the company’s budgeted balance sheet.

**EXERCISE 7–10 Sales and Production Budgets [LO2, LO3]**
The marketing department of Graber Corporation has submitted the following sales forecast for the upcoming fiscal year:
The selling price of the company’s product is $22.00 per unit. Management expects to collect 75% of sales in the quarter in which the sales are made, 20% in the following quarter, and 5% of sales are expected to be uncollectible. The beginning balance of accounts receivable, all of which is expected to be collected in the first quarter, is $66,000.

The company expects to start the first quarter with 3,200 units in finished goods inventory. Management desires an ending finished goods inventory in each quarter equal to 20% of the next quarter’s budgeted sales. The desired ending finished goods inventory for the fourth quarter is 3,400 units.

Required:
1. Prepare the company’s sales budget and schedule of expected cash collections.
2. Prepare the company’s production budget for the upcoming fiscal year.

EXERCISE 7–11 Direct Materials and Direct Labor Budgets [LO4, LO5]
The production department of Priston Company has submitted the following forecast of units to be produced by quarter for the upcoming fiscal year:

<table>
<thead>
<tr>
<th>Units to be produced</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6,000</td>
<td>7,000</td>
<td>8,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

In addition, the beginning raw materials inventory for the 1st Quarter is budgeted to be 3,600 pounds and the beginning accounts payable for the 1st Quarter is budgeted to be $11,775.

Each unit requires three pounds of raw material that costs $2.50 per pound. Management desires to end each quarter with a raw materials inventory equal to 20% of the following quarter’s production needs. The desired ending inventory for the 4th Quarter is 3,700 pounds. Management plans to pay for 70% of raw material purchases in the quarter acquired and 30% in the following quarter. Each unit requires 0.50 direct labor-hours and direct labor-hour workers are paid $12 per hour.

Required:
1. Prepare the company’s direct materials budget and schedule of expected cash disbursements for purchases of materials for the upcoming fiscal year.
2. Prepare the company’s direct labor budget for the upcoming fiscal year, assuming that the direct labor workforce is adjusted each quarter to match the number of hours required to produce the forecasted number of units produced.

EXERCISE 7–12 Direct Labor and Manufacturing Overhead Budgets [LO5, LO6]
The Production Department of Harveton Corporation has submitted the following forecast of units to be produced by quarter for the upcoming fiscal year:

<table>
<thead>
<tr>
<th>Units to be produced</th>
<th>1st Quarter</th>
<th>2nd Quarter</th>
<th>3rd Quarter</th>
<th>4th Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16,000</td>
<td>15,000</td>
<td>14,000</td>
<td>15,000</td>
</tr>
</tbody>
</table>

Each unit requires 0.80 direct labor-hours and direct labor-hour workers are paid $11.50 per hour.

In addition, the variable manufacturing overhead rate is $2.50 per direct labor-hour. The fixed manufacturing overhead is $90,000 per quarter. The only noncash element of manufacturing overhead is depreciation, which is $34,000 per quarter.

Required:
1. Prepare the company’s direct labor budget for the upcoming fiscal year, assuming that the direct labor workforce is adjusted each quarter to match the number of hours required to produce the forecasted number of units produced.
2. Prepare the company’s manufacturing overhead budget.

EXERCISE 7–13 Production and Direct Materials Budgets [LO3, LO4]
Tonga Toys manufactures and distributes a number of products to retailers. One of these products, Playclay, requires three pounds of material A135 in the manufacture of each unit. The company is now planning raw materials needs for
the third quarter—July, August, and September. Peak sales of Playclay occur in the third quarter of each year. To keep production and shipments moving smoothly, the company has the following inventory requirements:

a. The finished goods inventory on hand at the end of each month must be equal to 5,000 units plus 30% of the next month’s sales. The finished goods inventory on June 30 is budgeted to be 17,000 units.

b. The raw materials inventory on hand at the end of each month must be equal to one-half of the following month’s production needs for raw materials. The raw materials inventory on June 30 for material A135 is budgeted to be 64,500 pounds.

c. The company maintains no work in process inventories.

A sales budget for Playclay for the last six months of the year follows:

<table>
<thead>
<tr>
<th>Month</th>
<th>Budgeted Sales in Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>40,000</td>
</tr>
<tr>
<td>August</td>
<td>50,000</td>
</tr>
<tr>
<td>September</td>
<td>70,000</td>
</tr>
<tr>
<td>October</td>
<td>35,000</td>
</tr>
<tr>
<td>November</td>
<td>20,000</td>
</tr>
<tr>
<td>December</td>
<td>10,000</td>
</tr>
</tbody>
</table>

Required:

1. Prepare a production budget for Playclay for the months July, August, September, and October.
2. Examine the production budget that you prepared. Why will the company produce more units than it sells in July and August and less units than it sells in September and October?
3. Prepare a direct materials budget showing the quantity of material A135 to be purchased for July, August, and September and for the quarter in total.

PROBLEM 7–19A Integration of Sales, Production, and Direct Materials Budgets [LO2, LO3, LO4]

Crydon, Inc., manufactures an advanced swim fin for scuba divers. Management is now preparing detailed budgets for the third quarter, July through September, and has assembled the following information to assist in preparing the budget:

a. The Marketing Department has estimated sales as follows for the remainder of the year (in pairs of swim fins):

<table>
<thead>
<tr>
<th>Month</th>
<th>Budgeted Sales in Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
<td>6,000</td>
</tr>
<tr>
<td>August</td>
<td>7,000</td>
</tr>
<tr>
<td>September</td>
<td>5,000</td>
</tr>
<tr>
<td>October</td>
<td>4,000</td>
</tr>
<tr>
<td>November</td>
<td>3,000</td>
</tr>
<tr>
<td>December</td>
<td>3,000</td>
</tr>
</tbody>
</table>

b. All sales are on account. Based on past experience, sales are expected to be collected in the following pattern:

The beginning accounts receivable balance (excluding uncollectible amounts) on July 1 will be $130,000.

40% in the month of sale
50% in the month following sale
10% uncollectible

c. The company maintains finished goods inventories equal to 10% of the following month’s sales. The inventory of finished goods on July 1 will be 600 pairs.

d. Each pair of swim fins requires 2 pounds of geico compound. To prevent shortages, the company would like the inventory of geico compound on hand at the end of each month to be equal to 20% of the following month’s production needs. The inventory of geico compound on hand on July 1 will be 2,440 pounds.

e. Geico compound costs $2.50 per pound. Crydon pays for 60% of its purchases in the month of purchase; the remainder is paid for in the following month. The accounts payable balance for geico compound purchases will be $11,400 on July 1.
Required:

1. Prepare a sales budget, by month and in total, for the third quarter. (Show your budget in both pairs of swim fins and dollars.) Also prepare a schedule of expected cash collections, by month and in total, for the third quarter.

2. Prepare a production budget for each of the months July through October.

3. Prepare a direct materials budget for geico compound, by month and in total, for the third quarter. Also prepare a schedule of expected cash disbursements for geico compound, by month and in total, for the third quarter.