

# BUDGETING AND PROFIT PLANNING

## Key Terms and Concepts to Know

### **Profit Planning and Budgeting:**

- Profit plan is the steps taken by the business to achieve their planned levels of profits.
- Budget is a quantitative plan for acquiring and using resources over a specific time period to achieve its goals and objectives.
- Budget is used for two distinct purposes:
  - Planning which is developing goals and preparing various budgets to achieve those goals
  - Control which involves steps taken by management to increase the likelihood that all parts of the organization are working together to achieve the goals set down at the planning stage
- Budgets help to:
  - Communicate management's plans throughout the organizations
  - Force managers to think and plan for future
  - Allocate resources where they can be used most effectively
  - Uncover potential bottlenecks.
  - Coordinate the activities of the entire organization
  - Serve as benchmarks for evaluating subsequent performance.
- Operating budgets ordinarily cover a one-year period corresponding to the company's fiscal year. Organization may also divide their budget year into quarters and the quarters into months with operating budgets for each period.

### **Master Budget:**

- Includes a number of separate but interdependent budgets that formally report the company's sales, production, and financial goals.
- The starting point of the master budget is the sales budget.
- The ending point of the master budget is the budgeted financial statements.
- Since the budgeted financial statements include both an income statement and balance sheet, each step in the master budget has both an income statement and balance sheet component. Sometimes they are presented in the same budget and other times they are presented as separate budgets.

## Key Topics to Know

### Sales and Cash Collections Budget

- The foundation and starting point for the master budget.
- Determines the anticipated unit and dollar sales for the budgeted income statement.
- May also include a schedule of expected cash collections that determines the amount of expected cash collections from customers for each period based on an expected collections pattern.
- Sales for which cash has not been collected represent the accounts receivable balance at the end of the period.

#### **Example #1**

J Company is expecting to sell 10,000 cases in July, 20,000 cases in August, and 30,000 in September of Year 2. Selling price per case is \$30. All sales are on account. The sales are collected 70% in the month of sale and 30% in the month following sale. June sales totaled \$200,000. Bad debts are negligible and can be ignored.

- Required:
- a) Prepare a sales budget.
  - b) Prepare a schedule of expected cash collections from sales, by month and in total, for the third quarter.
  - c) Assume that the company will prepare a budgeted balance sheet as of September 30. Determine the accounts receivable as of that date.

#### **Solution #1**

- a) Sales budget:

	July	August	September	Quarter Total
Budgeted Sales	10,000	20,000	30,000	60,000
x Selling price per unit	\$30	\$30	\$30	\$30
Total Sales	\$300,000	\$600,000	\$900,000	\$1,800,000

b) Schedule of expected cash collections:

	<u>July</u>	<u>August</u>	<u>September</u>	<u>Quarter Total</u>
June sales (\$200,000 X 30%)	\$60,000			\$60,000
July sales (\$300,000 X 70%, 30%)	\$210,000	\$90,000		300,000
August sales (\$600,000 X 70%, 30%)		420,000	\$180,000	600,000
September sales (\$900,000 X 70%)			<u>630,000</u>	<u>630,000</u>
Total cash collections	\$270,000	\$510,000	\$810,000	\$1,590,000

c) Account Receivable as of September 30:

From September (\$900,000 X 30%) = \$270,000

### Production Budget

- Determines the number of units of finished goods that must be produced each budget period to satisfy expected sales needs (from the sales budget) and to provide for the desired finished ending inventory.
- Although it is prepared in units of finished goods, the production budget may be used to determine several items on the budgeted financial statements:
  - Budgeted cost of goods sold by multiplying units sold by cost per unit
  - Budgeted beginning and ending finished goods inventory by multiplying units in inventory by the cost per unit
  - Budgeted cost of goods manufactured by multiplying units produced by the cost per unit.

**Example #2**

F Company has budgeted sales of its innovative mobile phone for next four months as follows:

<u>Sales Budget in Units</u>	
July	30,000
August	45,000
September	60,000
October	50,000

The company is now in the process of preparing a production budget for the third quarter. Ending inventory level must equal 10% of the next month's sales.

- Required:
- a) Calculate the ending inventory as of June 30.
  - b) Prepare a production budget for the third quarter showing the number of units to be produced each month and for the quarter in total.

**Solution #2**

- a) Ending inventory:  
 Since the ending inventory level must equal 10% of the next month's sales, the ending inventory for the month of June must be 10% of July's sales of 30,000 or 3,000 units.

- b) Production Budget

	July	August	September	<u>Quarter Total</u>	October
Budgeted sales in units	30,000	45,000	60,000	135,000	50,000
+ ending inventory	<u>4,500</u>	<u>6,000</u>	<u>5,000</u>	<u>5,000</u>	
= Total needs	34,500	51,000	65,000	140,000	
- beginning inventory	<u>3,000</u>	<u>4,500</u>	<u>6,000</u>	<u>3,000</u>	<u>5,000</u>
= Required production	31,500	46,500	59,000	137,000	

<b>Budgeted Cost per Unit</b>
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Budgeted cost per unit for finished goods produced has three components: direct materials, direct labor and variable and fixed overhead. Each type of cost requires a separate budget in the master budget.

## Direct Materials and Cash Disbursements Budget

### Direct Material Budget:

- Determines the quantity of direct raw materials that must be purchased each period to meet anticipated production needs (from the production budget) and to provide for adequate levels of direct raw materials inventories.
- Remember that raw materials inventory may also include indirect materials. This budget addresses only the direct materials portion of raw materials inventory. The indirect materials portion is addressed as part of the overhead budget.
- Production needs are stated in units of finished goods and multiple units of direct materials may be required to produce one unit of finished goods. The first step in the direct materials budget is to convert units of finished goods produced into direct materials needed to produce them by multiplying the number of units produced by the direct materials required to produce one unit of finished goods.
- The final step in the direct materials budget is to determine the cost of the direct materials purchased by multiplying the quantity to be purchased by the purchase price per unit.
- May also include a schedule of expected cash disbursements that determines the amount of expected cash payments to suppliers and vendors for each period based on an expected payment pattern.

### Example #3

P Company produces calculators. Each calculator requires three chips costing \$2.00 each, purchased from an overseas supplier. P Company has prepared a production budget for the calculator by quarter for Year 2 and for the first quarter of Year 3:

	<u>Year 2</u>				<u>Year 3</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>
Budgeted production, in calculators	60,000	90,000	150,000	100,000	80,000

The inventory of the chips at the end of a quarter must be equal to 20% of the following quarter's production needs. There will be 36,000 chips on hand to start Year 2. Purchases are paid for 50% in the quarter of purchase and 50% in the following quarter.

- Required:
- a) Prepare direct materials budget for the chips, by quarter and in total, for Year 2.
  - b) Prepare cash disbursements budget for the chips, by quarter and in total, for Year 2.
  - c) Determine the accounts payable balance at the end of Year 2.

**Solution #3**

	<u>Year 2</u>				<u>Year 3</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>
Calculators produced	60,000	90,000	150,000	100,000	80,000
X Chips per calculator	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>	<u>3</u>
= Production needs - chips	180,000	270,000	450,000	300,000	240,000
+ Ending inventory - chips	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>48,000</u>	<u>48,000</u>
= Total needs - chips	234,000	360,000	510,000	348,000	1,248,000
- Beginning inventory - chips	<u>36,000</u>	<u>54,000</u>	<u>90,000</u>	<u>60,000</u>	<u>36,000</u>
= Required purchases - chips	198,000	306,000	420,000	288,000	1,212,000
X Purchase cost per chip	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>
= Total purchase cost	\$396,000	\$612,000	\$840,000	\$576,000	\$2,424,000

## Cash Disbursements:

Fourth Quarter Year 1  
purchases

36,000 chips x \$2.00 x 50%	\$36,000				\$36,000
First Quarter purchases	198,000	\$198,000			\$396,000
Second Quarter purchases		306,000	\$306,000		\$612,000
Third Quarter purchases			420,000	\$420,000	\$840,000
Fourth Quarter purchases				288,000	\$288,000
Total cash disbursements	\$234,000	\$504,000	\$726,000	\$708,000	\$2,172,000

Accounts payable at end of  
Year 2 is the balance of the  
fourth quarter purchases

\$288,000

<b>Direct Labor Budget</b>
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- Determines the direct labor hours and direct labor dollars required each period to meet anticipated production needs (from the production budget).
- The indirect labor costs are addressed as part of the overhead budget.
- Direct labor budget may be affected by overtime costs, inelastic supply of labor, a minimum number of hours to be worked and other unique requirements.

**Example #4**

The production department of the D Company has submitted the following forecast of units to be produced by quarter for the upcoming fiscal year:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Units to be produced	10,000	8,000	8,500	9,000

Each unit requires 0.6 direct labor-hours and at a cost of \$15.00 per direct labor hour. The workforce can be adjusted each quarter for the expected production level

Required: Prepare the company's direct labor budget for the next fiscal year.

**Solution #4**

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Required production – units	10,000	8,000	8,500	9,000
X Direct labor hours per unit	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>	<u>0.6</u>
= Total direct labor-hours needed	6,000	4,800	5,100	5,400
X Direct labor cost per hour	<u>\$15.00</u>	<u>\$15.00</u>	<u>\$15.00</u>	<u>\$15.00</u>
= Total direct labor cost	\$90,000	\$72,000	\$76,500	\$81,000

### Manufacturing Overhead Budget

- The manufacturing overhead budget has two components – variable and fixed overhead.
- Budgeted variable overhead expenses depend on the number of units produced from the production budget and a budgeted variable overhead cost per unit.
- Budgeted fixed overhead expenses depend on the total cost expected to be incurred for each type of fixed overhead cost.
- Any noncash fixed manufacturing overhead costs, such as depreciation expense, is deducted from the total manufacturing overhead to determine the cash disbursements for manufacturing overhead. (Remember that depreciation expense is a non-cash expense. The cash was spent when the depreciable asset was acquired and not when the asset is depreciated.)

**Example #5**

Y Company's variable manufacturing overhead rate is \$2.00 per direct labor-hour and the company's fixed manufacturing overhead is \$40,250 per quarter. The only non-cash expense included in the fixed overhead is depreciation of \$12,000 per quarter.

The budgeted direct labor-hours for each quarter are as followed:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Budgeted direct labor hours	5,000	6,500	6,000	5,500

- Required:
- Construct company's manufacturing overhead budget for the year.
  - Compute the company's variable, fixed and total manufacturing overhead rates for the year.

**Solution #5**

## a) Overhead budget

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
Budgeted direct labor-hours	5,000	6,500	6,000	5,500	23,000
X Variable overhead rate	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>	<u>\$2.00</u>
= Variable overhead	\$10,000	\$13,000	\$12,000	\$11,000	\$46,000
+ Fixed overhead	40,250	40,250	40,250	40,250	161,000
= Total overhead	\$50,250	\$53,250	\$52,250	\$51,250	\$207,000
- Depreciation	<u>12,000</u>	<u>12,000</u>	<u>12,000</u>	<u>12,000</u>	<u>48,000</u>
= Cash disbursements	\$38,250	\$41,250	\$40,250	\$39,250	\$159,000

## b) Overhead rate

	<u>Overhead</u>		<u>Direct Labor Hours</u>		<u>Overhead Rate</u>
Variable overhead	\$46,000	/	23,000	=	\$2.00
Fixed overhead	<u>\$161,000</u>	/	23,000	=	<u>\$7.00</u>
Total overhead	\$207,000	/	23,000	=	\$9.00

**Selling and Administrative Expense Budget**

- Selling and Administrative (S&A) expense budget is similar to the manufacturing overhead budget as it includes variable and fixed expenses.
- Budgeted variable S&A expenses depend on the number of units sold or sales dollars from the sales budget.



- Budgeted fixed S&A expenses depend on the total cost expected to be incurred for each type of fixed S&A cost.
- Any noncash fixed S&A costs, such as depreciation expense, is deducted from the total S&A expenses to determine the cash disbursements for S&A expenses. (Remember that depreciation expense is a non-cash expense. The cash was spent when the depreciable asset was acquired and not when the asset is depreciated.)

## Cash Budget

- Cash budget is composed of four major sections:
  - Cash Receipts
  - Cash Disbursements
  - Cash Excess or Deficiency
  - Financing
- The cash budget uses information from all of the other budgets: cash receipts from the sales budget, cash disbursements from direct materials budget, cash disbursements from the direct labor, manufacturing overhead and selling administrative expense budget.
- It may also include other sources of cash receipts such as proceeds from the sale of plant assets, issuance of stock or issuance of bonds.
- It may also include other sources of cash disbursements such as the purchase of plant assets and the payment of cash dividends.
- The company may also have to meet a minimum balance requirement for its cash account that is imposed by the bank. If the cash balance falls short of the minimum required, the company will have to borrow money to increase the cash balance to the minimum. If the company has cash in excess of the minimum balance required, it is obligated to pay off any outstanding borrowings and the related interest payable. After the borrowings and interest have been paid off, the company may leave the "excess" cash in the cash account.

## Budgeted Financial Statements

- Budgeted financial statements are prepared after all of the other budgets, including the cash budget, have been prepared.
- They serve as a benchmark against which subsequent actual company performance can be measured.

**Example #6**

W Company wants to prepare a cash budget. The cash balance on July 1 is \$10,400. Cash receipts other than for loans received for July, August, and September are forecasted as \$24,000, \$32,000, and \$40,000, respectively. Payments other than for loan or interest payments for the same period are planned at \$28,000, \$30,000, and \$32,000, respectively.

W Company requires a minimum \$10,000 cash balance. If necessary, loans are taken to meet this requirement at a cost of 1% interest per month (paid monthly). If the ending cash balance exceeds the minimum, the excess will be applied to repaying any outstanding loan balance. At July 1, there are no outstanding loans

**Solution #6**

	<b>July</b>	<b>August</b>	<b>September</b>
Cash Balance:			
Balance (Beginning)	\$10,400	\$10,000	\$10,000
Cash Receipts	24,000	32,000	40,000
Cash Disbursements	(28,000)	(30,000)	(32,000)
Interest paid	<u>0</u>	<u>(36)</u>	<u>(16)</u>
Preliminary Balance	\$6,400	\$11,964	\$17,984
Loan	3,600	0	0
Repaid	<u>0</u>	<u>(1,964)</u>	<u>(1,636)</u>
Balance (Ending)	<u>\$10,000</u>	<u>\$10,000</u>	<u>\$16,348</u>

## Practice Problems

### **Practice Problem #1**

Peak sales for J Company, a wholesale distributor of leaf rakes, occur in August. Sales the company's planning budget for the third quarter are shown below:

	<u>July</u>	<u>August</u>	<u>September</u>	<u>Total</u>
Budgeted Sales on account	\$600,000	\$900,000	\$500,000	\$2,000,000

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:
- a) Prepare a schedule of expected cash collections from sales, by month and in total, for the third quarter.
  - b) Compute the accounts receivable as September 30.

### **Practice Problem #2**

M Company has budgeted sales of its microchips for next four month as follows:

	<u>Units Sold</u>
April	20,000
May	25,000
June	35,000
July	40,000

The company is preparing a production budget for the third quarter. Ending inventory level must equal 20% of the next month's sales.

- Required:
- a) Calculate the ending inventory as of March 31.
  - b) Prepare a production budget for the third quarter by month and in total.

**Practice Problem #3**

Z Company sells a single product. Each unit takes two pounds of material and costs \$3.00 per pound. Company A has prepared a production budget by quarters for Year 2 and for the first quarter of Year 3, as follows:

	<u>Year 2</u>				<u>Year 3</u>
	First	Second	Third	Fourth	First
Budgeted production	30,000	60,000	90,000	100,000	50,000

The ending inventory at the end of a quarter must be equal to 25% of the following quarter's production needs. 26,000 pounds of material are on hand to start the first quarter of Year 2. Purchases are paid for 40% in the quarter of purchase and 60% in the following quarter.

- Required:
- Prepare direct materials budget for the chips by quarter and in for Year 2 in total including the dollar amount of purchases.
  - Prepare cash disbursements budget for the chips by quarter and in for Year 2 in total including the dollar amount of payments.

**Practice Problem #4**

The production department of the H Company has submitted the following forecast of units to be produced by quarter for the upcoming fiscal year.

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Units to be produced	8,000	7,500	7,000	9,500

Each unit requires 0.4 direct labor-hours. Direct labor rate is \$10.00 per hour.

- Required: Prepare the direct labor budget for the upcoming fiscal year.

**Practice Problem #5**

The budgeted direct labor-hours for the T Company are as followed:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Budgeted direct labor hours	15,000	16,500	16,000	15,500

T Company's variable manufacturing overhead rate is \$1.5 per direct labor-hour and the company's fixed manufacturing overhead is \$60,000 per quarter. The only non-cash item included in the fixed mfg. overhead is depreciation, which is \$18,000.

- Required:
- Prepare a manufacturing overhead budget for the year.
  - Compute the variable, fixed and total manufacturing overhead rates for the year.

**Practice Problem #6**

G Company had cash of \$13,000 on hand on January 1, 2010. During 2010, the company expected the following cash collections from customers by quarter:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Cash collections	110,000	177,500	183,700	136,000

Direct materials purchases in tons were budgeted as follows:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Direct materials purchases	65,000	75,000	55,000	50,000

The production budget showed the following unit production by quarter with an average labor rate of \$40.00:

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>
Units to be produced	1,500	2,000	1,700	1,500

G Company planned to pay dividends of \$10,000 per quarter during the year. During July, new equipment costing \$60,000 will be purchased. An additional \$16,000 was planned to installation costs during the fourth quarter.

The company was required to maintain a minimum cash balance of \$15,000. A line of credit was available for short-term borrowings in increments of \$1,000. All borrowings will be made at the beginning of a quarter and repaid at the end of a quarter. Interest on the short-term borrowings will be paid at 0.5% per quarter on the amount repaid in any quarter when a loan repayment is made. All other interest expense will be accrued each quarter.

Required:            Prepare a cash budget by quarter and for the year in total.

## True / False Questions

1. A short-term objective is a specific action managers use to reach their long-term goals.  
True False
2. The strategic plan is management's vision of what they desire the organization to achieve over the long term.  
True False
3. An advantage of budgeting is that it requires managers to evaluate why things did not progress according to the plan.  
True False
4. Participative budgeting allows employees throughout the organization to have input into the budget-setting process.  
True False
5. Budgets that are tight but attainable are less likely to motivate people than budgets that are easy to achieve.  
True False
6. Operating budgets focus on the financial resources needed to support operations.  
True False
7. The direct labor budget is based on budgeted sales levels.  
True False
8. Budgeted manufacturing overhead includes indirect manufacturing costs, but not selling or administrative costs.  
True False
9. Cash budget is a detailed plan showing how the cash will be acquired and used over a specific time period.  
True False
10. A short-term objective is a specific action managers use to reach their long-term goals.  
True False

11. The strategic plan is management's vision of what they desire the organization to achieve over the long term.  
True False
12. Merchandising companies prepare the production budget after preparing the sales budget.  
True False
13. Budget preparation is best determined in a top-down managerial approach.  
True False
14. Past performance is the best overall basis for evaluating current performance and assessing the need for corrective action.  
True False



## Multiple Choice Questions

1. A master budget consists of
  - a) An interrelated long-term plan and operating budgets
  - b) Financial budgets and a long-term plan
  - c) Interrelated financial budgets and operating budgets
  - d) All the accounting journals and ledgers used by a company
  
2. A production budget is prepared after the direct materials budget because:
  - a) Direct materials are needed in the production process
  - b) The order in which the budgets are prepared doesn't matter
  - c) The production budget is not prepared before the direct materials budget.
  - d) Production budgets but not direct materials budgets are prepared by merchandising firms.
  
3. L Company produces hand tools. March budgeted sales are 12,000 units. Beginning finished goods inventory will be 1,200 units, and ending finished goods inventory will be 1,400 units. March production will be?
  - a) 10,900
  - b) 11,800
  - c) 12,200
  - d) 14,600
  
4. J Company produces hand tools. Budgeted sales will be: March 12,000 units, April 14,000, May 16,000 and June 19,000. Ending finished goods inventory policy is 10% of the following month's sales. What is budgeted finished goods inventory for May?
  - a) 1,000
  - b) 1,300
  - c) 1,600
  - d) 1,900
  
5. J Company produces hand tools. Budgeted sales will be: March 12,000 units, April 13,000, May 15,000 and June 19,000. Ending finished goods inventory policy is 10% of the following month's sales. March 1 inventory is projected to be 1,500 units. How many units will be produced in March?
  - a) 11,800
  - b) 12,200
  - c) 13,000
  - d) 14,800

6. What is the proper preparation sequencing of the following budgets?
- 1 - Budgeted Balance Sheet
  - 2 - Sales Budget
  - 3 - Selling and Administrative Budget
  - 4 - Budgeted Income Statement
- a) 1, 2, 3, 4  
b) 2, 3, 1, 4  
c) 2, 3, 4, 1  
d) 2, 4, 1, 3
7. A Company produces leather handbags. The production budget for the next four months is: July 6,000 units, August 8,000, September 7,500, October 8,000. Each handbag requires 0.5 square meters of leather. Albertville Inc's leather inventory policy is 30% of next month's production needs. On July 1 leather inventory was expected to be 2,000 square meters. Leather is expected to cost \$5.00 per square meter in June, but go up to \$6.00 per square meter in July. What is the expected cost of leather purchases in July?
- a) \$13,100  
b) \$13,200  
c) \$16,200  
d) \$16,300
8. A Company produces leather handbags. The production budget for the next four months is: July 5,000 units, August 8,000, September 9,500, October 10,800. Each handbag requires 1.3 hours of unskilled labor (paid \$8 per hour) and 2.2 hours of skilled labor (paid \$15 per hour). How many unskilled and skilled labor hours will be budgeted for August?
- a) 10,400  
b) 17,600  
c) 28,000  
d) 28,800
9. A Company produces leather handbags. The production budget for the next four months is: July 6,000 units, August 7,000, September 7,500, October 8,000. Each handbag requires 1.3 hours of unskilled labor (paid \$8 per hour) and 2.2 hours of skilled labor (paid \$15 per hour). How much will be paid to skilled labor during the Quarter 3 (July-September)?
- a) \$292,500  
b) \$676,500  
c) \$677,500  
d) \$742,500

10. B Company has forecast production for the next three months as follows: July 5,000 units, August 6,600 units, September 7,500 units. Monthly manufacturing overhead is budgeted to be \$17,000 plus \$5 per unit produced. What is budgeted manufacturing overhead for July?
- a) \$24,500
  - b) \$41,500
  - c) \$42,000
  - d) \$47,000
11. T Company has forecast sales for the next three months as follows: July 7,000 units, August 8,000 units, September 8,500 units. T Company's policy is to have an ending inventory of 40% of the next month's sales needs on hand. July 1 inventory is projected to be 1,500 units. Selling and administrative costs are budgeted to be \$15,000 per month plus \$5 per unit sold. What are budgeted selling and administrative expenses for July?
- a) \$24,500
  - b) \$38,500
  - c) \$49,000
  - d) \$50,000
12. S Company has forecast sales to be \$120,000 in February, \$145,000 in March, \$170,000 in April, and \$180,000 in May. The average cost of goods sold is 60% of sales. All sales are on made on credit and sales are collected 60% in the month of sale, and 40% the month following. What are budgeted cash receipts in March?
- a) \$131,000
  - b) \$135,000
  - c) \$94,500
  - d) \$91,700
13. U Company has forecast sales to be \$215,000 in February, \$260,000 in March, \$300,000 in April, and \$310,000 in May. All sales are made on credit and sales are collected 50% in the month of sale, 30% the month following and the remainder two months after the sale. What are budgeted cash receipts in April?
- a) \$174,000
  - b) \$217,000
  - c) \$271,000
  - d) \$371,500

14. F Company has forecast purchases on account to be \$210,000 in March, \$270,000 in April, \$320,000 in May, and \$390,000 in June. Seventy percent of purchases are paid for in the month of purchase, the remaining thirty percent are paid in the following month. What are budgeted cash payments for April?
- a) \$252,000
  - b) \$285,000
  - c) \$159,000
  - d) \$126,000
15. E Company has forecast sales to be \$225,000 in February, \$235,000 in March, \$250,000 in April, and \$240,000 in May. All sales are made on credit and sales are collected 60% in the month of sale, and 40% the month following. What is the budgeted Accounts Receivable balance on May 31?
- a) \$69,000
  - b) \$96,000
  - c) \$98,000
  - d) \$106,000
16. X Company sells a single product. Forecasted sales are July 4,000 units, August 7,000 units, September 7,500 units. Company's policy is to have an ending inventory of 40% of the next month's sales needs on hand. July 1 inventory is projected to be 1,500 units. What are budgeted units for August?
- a) 6,600 units
  - b) 7,400 units
  - c) 7,200 units
  - d) 1,400 units
17. C Company's production budget for the first quarter was based on sales on 442,000 units and a beginning inventory of 12,900 units. How many units should be produced during the quarter if the company desires 15,000 units available to start the next quarter?
- a) 431,500
  - b) 439,900
  - c) 441,400
  - d) 444,100

18. B Company desires a December 31 ending inventory of 2,840 units. Budgeted sales for December are 4,000 units. The November 30 inventory was 1,800 units. Budgeted purchases are:
- a) 5,040 units
  - b) 1,240 units
  - c) 6,840 units
  - d) 4,000 units
19. A department store has budgeted sales of 12,000 men's suits in September. Management wants to have 6,000 suits in inventory at the end of the month to prepare for the winter season. Beginning inventory for September is expected to be 4,000 suits. What is the dollar amount of purchase of suits? Each suit has a cost of \$75.
- a) \$750,000
  - b) \$900,000
  - c) \$1,050,000
  - d) \$1,200,000
20. N Company is preparing a cash budget for June. The company has \$12,000 cash at the beginning of June and anticipates \$30,000 in cash receipts and \$34,500 in cash disbursements during June. N Company has an agreement with its bank to maintain a cash balance of at least \$10,000. As of May 31, the company owes \$15,000 to the bank. To maintain the \$10,000 required balance, during June the company must:
- a) Borrow \$4,500
  - b) Borrow \$2,500
  - c) Borrow \$10,000
  - d) Borrow \$7,500

## Solutions to Practice Problems

### Practice Problem #1

a) Schedule of Cash Collections:

	<u>July</u>	<u>August</u>	<u>September</u>	<u>Total</u>
May sales (\$430,000 X 10%)	\$43,000			\$43,000
June sales (\$540,000 X 70%, 10%)	378,000	54,000		432,000
July sales (\$600,000 X 20%, 70%, 10%)	120,000	420,000	60,000	600,000
August sales (\$900,000 X 20%, 70%)		180,000	630,000	810,000
September sales (\$500,000 X 20%)			<u>100,000</u>	<u>100,000</u>
Total cash collections	\$541,000	\$654,000	\$790,000	\$1,985,000

b) Account receivable at September 30:

From August sales: \$900,000 X 10%	\$90,000
From September sales: \$500,000 X (70% + 10%)	<u>400,000</u>
Total account receivable	\$490,000

### Practice Problem #2

a) Since the ending inventory for the month of March must be 20% of April's sales of 20,000 units, ending inventory = 4,000 units.

b) Production Budget:

	<u>April</u>	<u>May</u>	<u>June</u>	<u>Quarter</u>
Budgeted sales in units	20,000	25,000	35,000	80,000
Add desired ending inventory*	<u>5,000</u>	<u>7,000</u>	<u>8,000**</u>	<u>8,000</u>
Total needs	25,000	32,000	43,000	88,000
Less beginning inventory	<u>4,000</u>	<u>5,000</u>	<u>7,000</u>	<u>4,000</u>
Required production	21,000	27,000	36,000	84,000

\*10% of the following month's unit sales

\*\*July sales = 40,000 X 20% = 8,000

### **Practice Problem #3**

	<u>Quarter - Year 2</u>				<u>Year 3</u>
	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>First</u>
Required production	30,000	60,000	90,000	100,000	50,000
Pounds of material per unit	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>2</u>
Total production needs	60,000	120,000	180,000	200,000	100,000
Production needs	60,000	120,000	180,000	200,000	560,000
Add desired ending inventory	<u>30,000</u>	<u>45,000</u>	<u>50,000</u>	<u>25,000</u>	<u>25,000</u>
Total needs	90,000	165,000	230,000	225,000	585,000
Less beginning inventory	<u>26,000</u>	<u>30,000</u>	<u>45,000</u>	<u>50,000</u>	<u>26,000</u>
Required purchases	64,000	135,000	185,000	175,000	559,000
Cost of purchase per unit	<u>\$3.00</u>	<u>\$3.00</u>	<u>\$3.00</u>	<u>\$3.00</u>	<u>\$3.00</u>
Total costs of purchase	\$192,000	\$405,000	\$555,000	\$525,000	\$1,677,000

#### Cash Disbursements:

Fourth quarter Year 1 26,000 x 60% x \$3.00	\$46,800				\$46,800
First quarter purchases	\$76,800	\$115,200			\$192,000
Second quarter purchases		\$162,000	\$243,000		\$405,000
Third quarter purchases			\$222,000	\$333,000	\$555,000
Fourth quarter purchases				\$210,000	\$210,000
Total disbursements	\$123,600	\$277,200	\$465,000	\$543,000	\$1,408,800

**Practice Problem #4**

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
Required production	8,000	7,500	7,000	9,500	32,000
Direct labor-hour per unit	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>	<u>0.4</u>
Total direct labor hours	3,200	3,000	2,800	3,800	12,800
Direct labor costs per dlh	<u>\$10.00</u>	<u>\$10.00</u>	<u>\$10.00</u>	<u>\$10.00</u>	<u>\$10.00</u>
Total direct labor cost*	\$32,000	\$30,000	\$28,000	\$38,000	\$128,000

\*Assume that the direct labor workforce will be fully adjusted to the total direct labor-hours needed each quarter

**Practice Problem #5**

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
Budgeted direct labor-hours	15,000	16,500	16,000	15,500	63,000
Variable mfg. overhead rate	<u>\$1.50</u>	<u>\$1.50</u>	<u>\$1.50</u>	<u>\$1.50</u>	<u>\$1.50</u>
Variable mfg. overhead	\$22,500	\$24,750	\$24,000	\$23,250	\$94,500
Fixed mfg. overhead	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>60,000</u>	<u>240,000</u>
Total mfg. overhead	\$82,500	\$84,750	\$84,000	\$83,250	\$334,500
Less depreciation	<u>18,000</u>	<u>18,000</u>	<u>18,000</u>	<u>18,000</u>	<u>72,000</u>
Cash disbursement for mfg. overhead.	\$64,500	\$66,750	\$66,000	\$65,250	\$262,500
Total manufacturing overhead					<u>\$334,500</u>
Budgeted direct labor-hours					63,000
Predetermined overhead rate for the year					= \$5.31



**Practice Problem #6**

	<u>First</u>	<u>Second</u>	<u>Third</u>	<u>Fourth</u>	<u>Year</u>
Beginning cash balance	\$13,000	\$15,000	\$15,380	\$15,080	\$13,000
+ Cash collections	<u>110,000</u>	<u>177,500</u>	<u>183,700</u>	<u>136,000</u>	<u>607,200</u>
= Cash available	\$123,000	\$192,500	\$199,080	\$151,080	\$620,200
- Cash Disbursements:					
Direct materials purchases	65,000	75,000	55,000	50,000	245,000
Direct labor	60,000	80,000	68,000	60,000	268,000
Plant assets			60,000	16,000	76,000
Dividends	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>10,000</u>	<u>40,000</u>
Excess (deficiency)	(\$12,000)	\$27,500	\$6,080	\$15,080	(\$8,800)
Financing:					
+ Borrowings	27,000		9,000		36,000
- Repayments		(12,000)			(12,000)
- Interest paid		(120)			(120)
= Ending cash balance	\$15,000	\$15,380	\$15,080	\$15,080	\$15,080
- Interest paid	\$12,000	X 0.5%	X 2 qtrs	=	\$120

## Solutions to True / False Problems

1. False - A short-term objective is not an action but rather a specific goal to be achieved within one year to reach long-term goals.
2. True
3. False - This is not a requirement of budgeting.
4. True
5. False - Budgets that are tight but attainable are more motivating people than budgets that are too easy or too difficult to achieve.
6. False - Operating budgets cover the organization's planned operating activities for a particular period; financial budgets focus on the financial resources needed to support operations
7. False - The direct labor budget is based on budgeted production levels not the budgeted sales levels.
8. True
9. True
10. False - A continuous or perpetual budget is a 12-month budget that rolls forward one period as the current period is completed.
11. True
12. False – merchandising companies do not prepare a production budget, as they do not make any products.
13. False – Budgets should be developed from the bottom-up to encourage all employees to strive to achieve budgeted goals.
14. False – Past performance is only one component of evaluating current performance

## Solutions to Multiple Choice Questions

- |     |   |
|-----|---|
| 1.  | C |
| 2.  | C |
| 3.  | C |
| 4.  | D |
| 5.  | A |
| 6.  | C |
| 7.  | B |
| 8.  | C |
| 9.  | B |
| 10. | C |
| 11. | D |
| 12. | B |
| 13. | C |
| 14. | A |
| 15. | B |
| 16. | C |
| 17. | D |
| 18. | A |
| 19. | C |
| 20. | B |