

# **BUDGETING AND PROFIT PLANNING**

## **Key Topics to Know**

- Major benefits of budgeting and how and why budgets are used.
- Sequence in which the budgets are prepared.
- Prepare a Sales Budget and Schedule of Expected Cash Collections.
- Prepare a Production Budget.
- Prepare a Direct Materials Budget and a Schedule of Expected Cash Disbursements.
- Prepare a Cash Budget.
- Direct labor, variable and fixed overhead, selling and administrative expense budgets
- Budgeted financial statements

## Problems

### **Problem #1**

The T Company has budgeted sales for the year as follows:

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>	<u>May</u>
Unit sales	10,000	12,000	14,000	16,000	11,000

The ending inventory of finished goods for each month should equal 25% of the next month's budgeted sales in units. The finished goods inventory at the start of the year is 2,500 units. Four pounds of raw material are required for each unit produced. Raw materials on hand at the start of the year total 4,200 pounds. The raw materials inventory at the end of each month should equal 10% of the next month's production needs in material.

Raw materials are purchased for \$4.00 per pound and are paid for 50% in the quarter of purchase and 50% in the following quarter.

- Required:
- a) Prepare a production budget for the first quarter of the year, including a quarter total column.
  - b) Prepare a raw material purchases budget for the first quarter including a quarter total column.
  - c) Prepare a cash disbursements budget for the first quarter including a quarter total column.

**Problem #2**

S Company needs a cash budget for October. The cash balance at the beginning of October is \$9,000. The actual sales for August and September and expected sales for October are:

	<u>August</u>	<u>September</u>	<u>October</u>
Cash sales	\$6,500	\$5,250	\$7,400
Sales on account	20,000	30,000	40,000
Total sales	26,500	35,250	47,400

Sales on account are collected over a three-month period as follows:

- 10% in the month of sale,
- 70% in the month following sale
- 18% in the second month following sale
- 2% remaining are uncollectible.

Additional information includes:

- Purchases of inventory will total \$25,000 for October; 20% will be paid for in October. Accounts payable from September's inventory purchases is \$16,000, all of which will be paid in October.
- Selling and administrative expenses are budgeted at \$13,000 for October; of which \$4,000 is for depreciation.
- Equipment costing \$18,000 will be purchased for cash during October, and cash dividends of \$3,000 will be paid during the month.
- The company must maintain a minimum cash balance of \$5,000. An open line of credit is available from the company's bank as needed.

- Required:
- a) Prepare a schedule of expected cash collections for October.
  - b) Prepare a schedule of expected cash payments for inventory purchases.
  - c) Prepare a cash budget for October including any borrowings required.

**Problem #3**

The P Company is preparing a Selling and Administrative expense budget for the year. Expenses are paid in cash in the month incurred. The following budget data are available:

	<u>Monthly Fixed Cost</u>	<u>Variable Cost per Unit</u>
Sales commissions		\$.80
Shipping		1.30
Advertising	\$40,000	.20
Executive salaries	25,000	
Office depreciation	20,000	
Other	7,000	

- Required:
- If budgeted sales were 18,000 units in January, determine the total budgeted variable selling and administrative expenses.
  - If budgeted sales were 16,000 units in February, determine the total budgeted fixed selling and administrative expenses.
  - If budgeted sales were 20,000 units in March, determine the budgeted cash disbursements for selling and administrative expenses.

**Problem #4**

H Company will open a new store on January 1. Based on experience from its other retail outlets, Home Company is making the following sales projections:

	<u>Cash Sales</u>	<u>Credit Sales</u>
January	\$60,000	\$40,000
February	30,000	50,000
March	40,000	60,000
April	18,000	80,000

H Company estimates that 70% of the credit sales will be collected in the month following the month of sale, with the balance collected in the second month following the month of sale.

- Required:
- Determine the balance in accounts receivable on January 31.
  - Determine the balance in accounts receivable on March 31.
  - Determine the cash collected in April.

**Problem #5**

F Company regarding the following data for the store's operations:

- Sales are budgeted at \$350,000 for November, \$320,000 for December, and \$300,000 for January.
- Collections are expected to be 80% in the month of sale, 16% in the month following the sale, and 4% uncollectible.
- The cost of goods sold is 70% of sales.
- The Company desires an ending merchandise inventory equal to 60% of the cost of goods sold in the following month. Payment for merchandise is made in the month following the purchase.
- The November beginning balance in the accounts receivable account is \$78,000.
- The November beginning balance in the accounts payable account is \$254,000.

- Required:
- a) Prepare a Schedule of Expected Cash Collections for November and December.
  - b) Prepare a Merchandise Purchases Budget for November and December.

**Problem #6**

M Company provided the following data for next quarter:

	<u>April</u>	<u>May</u>	<u>June</u>
Sales	\$110,000	\$130,000	\$180,000
Merchandise purchases	85,000	92,000	105,000
Selling expenses	50,000	50,000	50,000

All sales are on credit. 40% are collected in the month of sale, 58% in the month following the sale, and the remaining 2% are uncollectible. Merchandise purchases are paid in full the month following the month of purchase. The selling expenses above include \$8,000 of depreciation on store fixtures. All other selling and administrative expenses are paid as incurred. M Company wants to maintain a cash balance of \$15,000. Borrowings can be made as needed in increments of \$1,000. All borrowings are made at month end.

- Required: Prepare McCracken's cash budget for May. McCracken expects to have \$24,000 of cash on hand at the beginning of May.

**Problem #7**

H Company manufactures and sells plastic boomerangs. Expected boomerang sales (in units) for the upcoming months are as follows:

	<u>Jul</u>	<u>Aug</u>	<u>Sep</u>	<u>Oct</u>	<u>Nov</u>	<u>Dec</u>
Budgeted Sales	12,000	15,000	10,000	8,000	7,000	11,000

H Company likes to maintain a finished goods inventory equal to 10% of the next month's estimated sales. Seven ounces of plastic resin are needed to produce every boomerang. H Company likes to have enough plastic resin on hand at the end of the month to cover 25% of the next month's production requirements. They expect to pay \$2.00 per pound for the resin.

Required:                   What is the cost of the resin Mate plans on purchasing during the month of October?

## Multiple Choice Questions

1. The starting point for preparing the master budget is the
  - a) Inventory policy
  - b) Sales budget
  - c) Production budget
  - d) Budgeted balance sheet
  
2. The budget that shows how many units will be produced each period is the
  - a) Direct materials budget
  - b) Direct labor budget
  - c) Sales budget
  - d) Production budget
  
3. If a manufacturing company is planning to increase the amount of inventory on hand,
  - a) production should exceed sales.
  - b) sales should exceed production.
  - c) production should equal sales.
  - d) production should equal inventory.
  
4. The direct or raw materials purchases budget should begin with
  - a) actual materials purchases from the previous year.
  - b) budgeted sales.
  - c) budgeted production.
  - d) budgeted cost of raw materials.
  
5. When preparing the direct labor budget, the starting point should be:
  - a) actual direct labor hours from the previous year.
  - b) budgeted sales.
  - c) budgeted production.
  - d) budgeted cost of direct labor.
  
6. Which of the following is not part of the cash budget?
  - a) Budgeted cash collections
  - b) Budgeted cash payments
  - c) Depreciation expense
  - d) Cash borrowed or repaid

7. The G Company makes and sells a single product called a Clop. Each Clop requires 1.1 direct labor-hours at \$8.20 per direct labor-hour. The direct labor workforce is fully adjusted each month to the required workload. The company is preparing a Direct Labor Budget for the first quarter of the year. If the company has budgeted to produce 20,000 Clops in January, then the budgeted direct labor cost for January is:
- a) \$164,000
  - b) \$180,400
  - c) \$172,200
  - d) \$195,600
8. The W Company makes collections on sales according to the following schedule:

25% in month of sale  
65% in month following sale  
5% in second month following sale  
5% uncollectible

The following sales have been budgeted:

	<b>Sales</b>
April	\$120,000
May	\$100,000
June	\$110,000

Budgeted cash collections in June would be:

- a) \$27,500
- b) \$98,500
- c) \$71,000
- d) \$15,500



9. J Company expects to generate the following sales for the next three months:

	<u>July</u>	<u>August</u>	<u>September</u>
Expected sales	\$460,000	\$580,000	\$620,000

J Company's cost of goods sold is 60% of sales dollars. At the end of each month, J Company wants a merchandise inventory balance equal to 20% of the following month's expected cost of goods sold. What dollar amount of merchandise inventory should J Company plan to purchase in August?

- a) \$257,400
  - b) \$314,600
  - c) \$352,800
  - d) \$327,800
10. F Company manufactures and sells stainless steel coffee mugs. Expected mug sales at Fab (in units) for the next three months are as follows:

	<u>October</u>	<u>November</u>	<u>December</u>
Budgeted unit sales	28,000	25,000	31,000

F Company likes to maintain a finished goods inventory equal to 30% of the next month's estimated sales. How many mugs should F Company plan on producing during the month of November?

- a) 23,200
- b) 26,800
- c) 25,900
- d) 34,300

- 11.

<u>Budgeted:</u>	<u>Sales (units)</u>	<u>Production (units)</u>
April	15,000	18,000
May	20,000	19,000
June	18,000	16,000

Two pounds of material are required for each finished unit. The inventory of materials at the end of each month should equal 20% of the following month's production needs. Purchases of raw materials for May should be:

- a) 39,200
- b) 52,000
- c) 36,800
- d) 38,000

12. V Company's sales budget shows 6,600 units are planned to be sold in April. The variable selling and administrative expense is \$9.70 per unit. The budgeted fixed selling and administrative expense is \$127,380 per month, which includes depreciation of \$8,580 per month. The remainder of the fixed selling and administrative expense represents current cash flows. The cash disbursements for selling and administrative expenses on the April selling and administrative expense budget should be:
- \$191,400
  - \$118,800
  - \$64,020
  - \$182,820

13. K Company has the following budgeted sales data:

	<u>January</u>	<u>February</u>	<u>March</u>	<u>April</u>
Cash Sales	\$70,000	\$90,000	\$80,000	\$70,000
Credit Sales	\$400,000	\$350,000	\$300,000	\$320,000

The regular pattern of collection of credit sales is 40% in the month of sale, 50% in the month following sale, and the remainder in the second month following the month of sale. There are no bad debts. The budgeted accounts receivable balance on February 28 would be:

- \$250,000
  - \$210,000
  - \$175,000
  - \$215,000
14. Each unit of Product WZ requires 3.5 hours of direct labor at the rate of \$16.00 per direct labor-hour. The company would like you to prepare a Direct Labor Budget for June. It plans to sell 31,000 units of Product WZ in June. The finished goods inventories on June 1 and June 30 are budgeted to be 100 and 600 units, respectively. Budgeted direct labor costs for June would be:
- \$1,764,000
  - \$504,000
  - \$1,708,000
  - \$1,736,000
15. P Company bases the overhead budget on direct labor-hours. The direct labor

budget indicates that 8,900 direct labor-hours will be required in May. The budgeted variable overhead rate is \$5.50 per direct labor-hour and budgeted fixed manufacturing overhead is \$133,500 per month, including depreciation of \$30,260. The company recomputes its predetermined overhead rate every month. The predetermined overhead rate and total overhead for May are:

- a) \$5.50 and \$48,950
- b) \$17.10 and \$133,500
- c) \$20,50 and \$182,450
- d) \$15.00 and \$152,190

16. B Company is estimating the following raw material purchases for the final four months of the year.

September	\$800,000
October	\$920,000
November	\$840,000
December	\$760,000

At B Company, 30% of raw materials purchases are normally paid for in the month of purchase. The remaining 70% is paid for in the month following the purchase. In B Company's budgeted balance sheet at December 31, at what amount will accounts payable for raw materials be shown?

- a) \$760,000
- b) \$532,000
- c) \$228,000
- d) \$588,000

## Solutions to Problems

### Problem #1

	<u>January</u>	<u>February</u>	<u>March</u>	<u>Quarter</u>	<u>April</u>
Units Sold	10,000	12,000	14,000	36,000	16,000
Ending Inventory	<u>3,000</u>	<u>3,500</u>	<u>4,000</u>	<u>4,000</u>	<u>2,750*</u>
Units Needed	13,000	15,500	18,000	40,000	18,750
Beginning Inventory	<u>2,500</u>	<u>3,000</u>	<u>3,500</u>	<u>2,500</u>	<u>4,000</u>
Units to be Produced	10,500	12,500	14,500	37,500	14,750

\* May sold = 11,000 X 25% = 2,750 ending inventory

	<u>January</u>	<u>February</u>	<u>March</u>	<u>Quarter</u>	<u>April</u>
Units to be Produced	10,500	12,500	14,500	37,500	14,750
Pounds per unit	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Raw Materials Used	42,000	50,000	58,000	150,000	59,000
Ending Inventory	<u>5,000</u>	<u>5,800</u>	<u>5,900</u>	<u>5,900</u>	
Raw Materials Needed	47,000	55,800	63,900	155,900	
Beginning Inventory	<u>4,200</u>	<u>5,000</u>	<u>5,800</u>	<u>4,200</u>	
Materials to be Purchased	42,800	50,800	58,100	151,700	
Cost per pound	<u>\$4.00</u>	<u>\$4.00</u>	<u>\$4.00</u>	<u>\$4.00</u>	
Total cost of purchases	\$171,200	\$203,200	\$232,400	\$606,800	

#### Cash Disbursements:

December inventory 4,200 pounds x \$4.00 x 50%				\$8,400	\$8,400
January	\$85,600	\$85,600		\$171,200	
February		\$101,600	\$101,600	\$203,200	
March			\$116,200	\$116,200	
Total disbursements	\$94,000	\$187,200	\$217,800	\$499,000	

**Problem #2**

## Schedule of expected cash receipts:

October cash sales	\$7,400
October collections on account:	
August sales: \$20,000 X 18%	3,600
September sales: \$30,000 X 70%	21,000
October sales: \$40,000 X 10%	<u>4,000</u>
Total cash receipts	\$36,000

## Schedule of payments to suppliers:

September purchases (accounts payable)	\$16,000
October purchases: \$25,000 X 20%	<u>5,000</u>
Total cash payments	\$21,000

## Cash Budget:

Cash balance, October 1	\$ 9,000
Add: Cash receipts	<u>36,000</u>
Cash available before financing	45,000
Less: Cash disbursements:	
Payments to suppliers	\$21,000
Selling and administrative expenses	9,000
Equipment purchases	18,000
Dividends paid	3,000
Total disbursements	<u>51,000</u>
Excess (deficiency) of available over disbursements	(6,000)
Borrowing	<u>11,000</u>
Cash balance, October 31	\$ 5,000

**Problem #3**

- a)  $18,000 \times (\$.80 + \$1.30 + \$.20) = \$41,400$   
 b)  $\$40,000 + 25,000 + 20,000 + 7,000 = \$92,000$   
 c)

Variable cost (20,000 X \$2.30)	\$46,000
Fixed cost excluding depreciation	<u>72,000</u>
Budgeted cash disbursements	\$118,000

**Problem #4**

a) January credit sales \$40,000 X 100%	\$40,000
b) February credit sales \$50,000 X 30%	\$15,000
March credit sales \$60,000 X 100%	<u>60,000</u>
March accounts receivable	\$75,000
c) February credit sales \$50,000 X 30%	\$15,000
March credit sales \$60,000 X 70%	42,000
April cash sales \$18,000 X 100%	<u>18,000</u>
April cash collections	\$75,000

**Problem #5**

		<u>Collections</u>	
	<u>Sales</u>	<u>November</u>	<u>December</u>
Accounts receivable		\$78,000	
November sales	\$350,000		
	X 80%	280,000	
	X 16%		\$56,000
December sales	\$320,000		
	X 80%		<u>256,000</u>
Total collections		\$358,000	\$312,000
		<u>November</u>	<u>December</u>
Cost of goods sold	\$350,000 x 70%	\$245,000	
	\$320,000 x 70%		\$224,000
Ending inventory	\$224,000 x 60%	134,400	
	\$300,000 x 70% x 60%		126,000
- Beginning inventory	\$245,000 x 60%	147,000	
	\$224,000 x 60%		<u>134,400</u>
Purchases		\$232,400	\$215,600

**Problem #6**

<u>Cash Budget</u>		
Beginning cash balance		\$24,000
Add cash collections	\$130,000 x 40% + \$110,000 x 58%	<u>115,800</u>
Total cash available		139,800
Less disbursements:		
Merchandise purchases		85,000
Selling and administrative	\$50,000 – 8,000	<u>42,000</u>
Excess of cash available over disbursements		<u>12,800</u>
Financing:		
Borrowings		3,000
Ending cash balance		\$15,800

**Problem #7**

<u>Production Budget</u>			
	<u>October</u>	<u>November</u>	<u>December</u>
Sales	8,000	7,000	11,000
Ending inventory	<u>700</u>	<u>1,100</u>	
	8,700	8,100	
- Beginning inventory	<u>800</u>	<u>700</u>	
Required production	7,900	7,400	

<u>Direct Materials Budget</u>			
	<u>October</u>	<u>November</u>	<u>December</u>
Required production	7,900	7,400	
Raw materials per unit	<u>7</u>	<u>7</u>	
Raw materials needed	55,300	51,800	
Ending inventory	<u>12,950</u>		
	68,250		
- Beginning inventory	<u>13,825</u>		
Required purchases			
in ounces	54,425		
/ Ounces per pound	<u>16</u>		
Pounds of resin to be purchased	3,401.56		
Cost per pound	<u>\$2.00</u>		
Purchase cost	\$6,803		

## Solutions to Multiple Choice Questions

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