CHAPTER 22

PROBLEMS: SET B

P22-1B The Sasoon Barber Shop employs four barbers. One barber, who also serves as the manager, is paid a salary of $3,000 per month. The other barbers are paid $1,500 per month. In addition, each barber is paid a commission of $3 per haircut. Other monthly costs are store rent $700 plus 60 cents per haircut, depreciation on equipment $400, barber supplies 40 cents per haircut, utilities $300, and advertising $100. The price of a haircut is $10.

Instructions
(a) Determine the variable costs per haircut and the total monthly fixed costs.
(b) Compute the break-even point in units and dollars.
(c) Prepare a CVP graph, assuming a maximum of 1,800 haircuts in a month. Use increments of 300 haircuts on the horizontal axis and $3,000 increments on the vertical axis.
(d) Determine the net income, assuming 1,800 haircuts are given in a month.

P22-2B All Frute Company bottles and distributes Frute Ade, a fruit drink. The beverage is sold for 50 cents per 16-ounce bottle to retailers, who charge customers 70 cents per bottle. For the year 2017, management estimates the following revenues and costs.

<table>
<thead>
<tr>
<th>Sales</th>
<th>$2,500,000</th>
<th>Selling expenses—variable</th>
<th>$80,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct materials</td>
<td>360,000</td>
<td>Selling expenses—fixed</td>
<td>250,000</td>
</tr>
<tr>
<td>Direct labor</td>
<td>450,000</td>
<td>Administrative expenses—variable</td>
<td>40,000</td>
</tr>
<tr>
<td>Manufacturing overhead—variable</td>
<td>270,000</td>
<td>Administrative expenses—fixed</td>
<td>150,000</td>
</tr>
<tr>
<td>Manufacturing overhead—fixed</td>
<td>380,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Instructions
(a) Prepare a CVP income statement for 2017 based on management’s estimates. (Show column for total amounts only.)
(b) Compute the break-even point in (1) units and (2) dollars.
(c) Compute the contribution margin ratio and the margin of safety ratio.
(d) Determine the sales dollars required to earn net income of $624,000.

P22-3B Olgivie Company had a bad year in 2016. For the first time in its history, it operated at a loss. The company’s income statement showed the following results from selling 60,000 units of product: sales $1,800,000; total costs and expenses $2,010,000; and net loss $210,000. Costs and expenses consisted of the amounts shown below.

<table>
<thead>
<tr>
<th>Total</th>
<th>Variable</th>
<th>Fixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of goods sold</td>
<td>$1,350,000</td>
<td>$930,000</td>
</tr>
<tr>
<td>Selling expenses</td>
<td>480,000</td>
<td>125,000</td>
</tr>
<tr>
<td>Administrative expenses</td>
<td>180,000</td>
<td>115,000</td>
</tr>
<tr>
<td></td>
<td>$2,010,000</td>
<td>$1,170,000</td>
</tr>
</tbody>
</table>

Management is considering the following independent alternatives for 2017.
1. Increase unit selling price 25% with no change in costs, expenses, and sales volume.
2. Change the compensation of salespersons from fixed annual salaries totaling $200,000 to total salaries of $20,000 plus a 5% commission on net sales.
3. Purchase new high-tech factory machinery that will change the proportion between variable and fixed cost of goods sold to 50:50.

Instructions
(a) Compute the break-even point in dollars for 2016.
(b) Compute the break-even point in dollars under each of the alternative courses of action. (Round all ratios to nearest full percent.) Which course of action do you recommend?

P22-4B Alma Ortiz is the advertising manager for CostLess Shoe Store. She is currently working on a major promotional campaign. Her ideas include the installation of a new lighting system and increased display space that will add $18,000 in fixed costs to the $216,000 currently spent. In addition, Alma is proposing that a 10% price decrease (from $30 to $27) will produce an increase in sales volume from 20,000 to 24,000 units. Variable costs will remain at $12 per pair of shoes. Management is impressed with Alma’s ideas but concerned about the effects that these changes will have on the break-even point and the margin of safety.

Instructions
(a) Compute the break-even point in dollars under each of the alternative courses of action.
(b) Determine variable and fixed costs, compute break-even point, prepare a CVP graph, and determine net income.

P22-4C

Instructions
(a) Prepare a CVP income statement, compute break-even point, contribution margin ratio, margin of safety ratio, and sales for target net income.
(b) Alternative 1, $1,750,000

P22-4D

Instructions
(a) VC $4
(b) (1) 3,000,000 units
(c) CM ratio 52%

P22-4E

Instructions
(a) VC $4
(b) Alternative 1, $1,750,000
(c) CM ratio 52%

P22-4F

Instructions
(a) VC $4
(b) Alternative 1, $1,750,000
(c) CM ratio 52%
Instructions
(a) Compute the current break-even point in units, and compare it to the break-even point in units if Alma’s ideas are used.
(b) Compute the margin of safety ratio for current operations and after Alma’s changes are introduced. (Round to nearest full percent.)
(c) Prepare a CVP income statement for current operations and after Alma’s changes are introduced. (Show column for total amounts only.) Would you make the changes suggested?

P22-5B Isaac Corporation has collected the following information after its first year of sales. Sales were $1,800,000 on 100,000 units; selling expenses $400,000 (30% variable and 70% fixed); direct materials $456,000; direct labor $250,000; administrative expenses $484,000 (50% variable and 50% fixed); manufacturing overhead $480,000 (40% variable and 60% fixed). Top management has asked you to do a CVP analysis so that it can make plans for the coming year. It has projected that unit sales will increase by 20% next year.

Instructions
(a) Compute (1) the contribution margin for the current year and the projected year, and (2) the fixed costs for the current year. (Assume that fixed costs will remain the same in the projected year.)

(b) Compute the break-even point in units and sales dollars.

(c) The company has a target net income of $213,000. What is the required sales in dollars for the company to meet its target?

(d) If the company meets its target net income number, by what percentage could its sales fall before it is operating at a loss? That is, what is its margin of safety ratio?

*P22-6B* FAB produces fabrics that are used for clothing and other applications. In 2016, the first year of operations, FAB produced 500,000 yards of fabric and sold 400,000 yards. In 2017, the production and sales results were exactly reversed. In each year, selling price per yard was $2.50, variable manufacturing costs were 30% of the sales price of units produced, variable selling expenses were 10% of the selling price of units sold, fixed manufacturing costs were $400,000, and fixed administrative expenses were $100,000.

Instructions
(a) Prepare income statements for each year using variable costing. (Use the format from Illustration 22A-5.)

(b) Prepare income statements for each year using absorption costing. (Use the format from Illustration 22A-4.)

(c) Reconcile the differences each year in income from operations under the two costing approaches.

(d) Comment on the effects of production and sales on net income under the two costing approaches.