**TEST BANK AND SOLUTIONS**

**1-1: Accounting and Control**

The controller of a small private college is complaining about the amount of work she is required to do at the beginning of each month. The president of the university requires the controller to submit a monthly report by the fifth day of the following month. The monthly report contains pages of financial data from operations. The controller was heard saying, "Why does the president need all this information? He probably doesn't read half of the report. He's an old English professor and probably doesn't know the difference between a cost and a revenue."

**Required:**

a. What is the probable role of the monthly report?

b. What is the controller's responsibility with respect to a president who doesn't know much accounting?

**2-1: Fixed, Variable, and Average Costs**

Midstate University is trying to decide whether to allow 100 more students into the university. Tuition is $5000 per year. The controller has determined the following schedule of costs to educate students:

Number of Students Total Costs

4000 $30,000,000

4100 30,300,000

4200 30,600,000

4300 30,900,000

The current enrollment is 4200 students. The president of the university has calculated the cost per student in the following manner: $30,600,000/4200 students = $7286 per student. The president was wondering why the university should accept more students if the tuition is only $5000.

**Required:**

a. What is wrong with the president's calculation?

b. What are the fixed and variable costs of operating the university?

**2-2**: **The Elements of Cost Volume Profit**

The M Company’s variable costs are 75% of the sales price per unit and their fixed costs are $240,000. If the company earned $60,000 in selling 150,000 units, what was the sales price per unit?

**2-3: Opportunity Costs**

The First Church has been asked to operate a homeless shelter in part of the church. To operate a homeless shelter the church would have to hire a full time employee for $1,200/month to manage the shelter. In addition, the church would have to purchase $400 of supplies/month for the people using the shelter. The space that would be used by the shelter is rented for wedding parties. The church averages about 5 wedding parties a month that pay rent of $200 per party. Utilities are normally $1,000 per month. With the homeless shelter, the utilities will increase to $1,300 per month.

What is the opportunity cost to the church of operating a homeless shelter in the church?

**2-4: Fixed and Variable Costs**

The university athletic department has been asked to host a professional basketball game at the campus sports center. The athletic director must estimate the opportunity cost of holding the event at the sports center. The only other event scheduled for the sports center that evening is a fencing match that would not have generated any additional costs or revenues. The fencing match can be held at the local high school, but the rental cost of the high school gym would be $200. The athletic director estimates that the professional basketball game will require 20 hours of labor to prepare the building. Clean-up depends on the number of spectators. The athletic director estimates the time of clean-up to be equal to 2 minutes per spectator. The labor would be hired especially for the basketball game and would cost $8 per hour. Utilities will be $500 greater if the basketball game is held at the sports center. All other costs would be covered by the professional basketball team.

**Required:**

a. What is the variable cost of having one more spectator?

b. What is the opportunity cost of allowing the professional basketball team to use the sports center if 10,000 spectators are expected?

c. What is the opportunity cost of allowing the professional basketball team to use the sports center if 12,000 spectators are expected?

**2-5: Opportunity Cost of Attracting Industry**

The Itagi Computer Company From Japan is looking to build a factory for making DVD burners in the United States. The company is concerned about the safety and well-being of its employees and wants to locate in a community with good schools. The company also wants the factory to be profitable and is looking for subsidies from potential communities. Encouraging new business to create jobs for citizens is important for communities, especially communities with high unemployment.

Wellville has not been very well since the shoe factory left town. The city officials have been working on a deal with Itagi to get the company to locate in Wellville. Itagi officials have identified a 20 acre undeveloped site. The city has tentatively agreed to buy the site for $50,000 for Itagi and not require any payment of property taxes on the factory by Itagi for the first five years of operation. The property tax deal will save Itagi $3,000,000 in taxes over the five years. This deal was leaked to the local newspaper. The headlines the next day were: "Wellville Gives Away $3,000,000+ to Japanese Company".

**Required:**

a. Do the headlines accurately describe the deal with Itagi?

b. What are the relevant costs and benefits to the citizens of Wellville of making this deal?

**2-6: Cost, Volume, Profit Analysis**

With the possibility of the US Congress relaxing restrictions on cutting old growth, a local lumber company is considering an expansion of its facilities. The company believes it can sell lumber for $0.18/board foot. A board foot is a measure of lumber. The tax rate for the company is 30 percent. The company has the following two opportunities:

• Build Factory A with annual fixed costs of $20 million and variable costs of $0.10/board foot. This factory has an annual capacity of 500 million board feet.

• Build Factory B with annual fixed costs of $10 million and variable costs of $0.12/board foot. This factory has an annual capacity of 300 million board feet.

**Required:**

a. What is the break-even point in board feet for Factory A?

b. If the company wants to generate an after tax profit of $2 million with Factory B, how many board feet would the company have to process and sell?

c. If demand for lumber is uncertain, which factory is riskier?

d. At what level of board feet would the after-tax profit of the two factories be the same?

**2-7: Cost, Volume, Profit Analysis**

Leslie Mittelberg is considering the wholesaling of a leather handbag from Kenya. She must travel to Kenya to check on quality and transportation. The trip will cost $3000. The cost of the handbag is $10 and shipping to the United States can occur through the postal system for $2 per handbag or through a freight company which will ship a container that can hold up to a 1000 handbags at a cost of $1000. The freight company will charge $1000 even if less than 1000 handbags are shipped. Leslie will try to sell the handbags to retailers for $20. Assume there are no other costs and benefits.

**Required:**

a. What is the break-even point if shipping is through the postal system?

b. How many units must be sold if Leslie uses the freight company and she wants to have a profit of $1000?

c. At what output level would the two shipping methods yield the same profit?

d. Suppose a large discount store asks to buy an additional 1000 handbags beyond normal sales. Which shipping method should be used and what is the minimum sales price Leslie should consider in selling those 1000 handbags?

**2-8**: **Multiple Product Cost Volume Profit**

A company sells three products as shown below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Product X | Product Y | Product Z | Total |
| Units | 60,000 | 140,000 | 50,000 | 250,000 |
| Sales | $90,000 | $150,000 | $60,000 | $300,000 |
| Variable Costs | $63,000 | $93,000 | $19,000 | $175,000 |
| Contribution Margin |  |  |  | $125,000 |
| Fixed Costs |  |  |  | $100,000 |

**Required:**

a. How many units of each product need to be sold to breakeven?

b. How many units must of each product must be sold if the company wants to have a profit of $50,000?

**2-9**: **Make Buy**

A company has needs 10,000 units of a component used in producing one of its products. The latest internal accounting reports show that the per unit manufacturing cost to be $150.00. The manufacturing cost per component broken down into type of costs is as follows: Variable manufacturing costs = $110.00 and fixed manufacturing overhead = $40. The company recently received an offer from another manufacturer to produce the component for $144.00. If they buy the component on the outside 40% of the fixed overhead can be avoided.

**Required:**

a. If the company decides to have the component made by the outside supplier at $144.00, what is the impact on income?

b. What price would make the company indifferent between making the component internally and having the outside supplier make it?

**2-10: Cost, Volume, Profit Analysis**

Kalifo Company manufactures a line of electric garden tools that are sold in general hardware stores. The company's controller, Sylvia Harlow, has just received the sales forecast for the coming year for Kalifo's three products: weeders, hedge clippers, and leaf blowers. Kalifo has experienced considerable variations in sales volumes and variable costs over the past two years, and Harlow believes the forecast should be carefully evaluated from a cost-volume-profit viewpoint. The preliminary budget information for 1996 is presented below.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Weeders | Hedge Clippers | Leaf Blowers |
| Unit sales | 50,000 | 50,000 | 100,000 |
| Unit selling price | $28.00 | $36.00 | $48.00 |
| Variable manufacturing cost per unit | 13.00 | 12.00 | 25.00 |
| Variable selling cost per unit | 5.00 | 4.00 | 6.00 |

For 1996, Kalifo's fixed factory overhead is budgeted at $2 million, and the company's fixed selling and administrative expenses are forecast to be $600,000. Kalifo has a tax rate of 40 percent.