Benchmark - Relevant Costs

Complete Problems P7-18, P7-19, P7-25, and P7-28 in the textbook and present your responses in an Excel spreadsheet.

PROBLEM 7–18 Relevant Cost Analysis in a Variety of Situations [LO 7–2, LO 7–3, LO 7–4] Andretti Company has a single product called a Dak. The company normally produces and sells 60,000 Daks each year at a selling price of $32 per unit. The company’s unit costs at this level of activity are given below:

Direct materials................................ $10.00

Direct labor ................................... 4.50

Variable manufacturing overhead............ 2.30

Fixed manufacturing overhead ................ 5.00………($300,000 total)

Variable selling expenses..................... 1.20

Fixed selling expenses ........................ 3.50………...($210,000 total)

Total cost per unit.......................... $26.50

A number of questions relating to the production and sale of Daks follow. Each question is independent.

**Required:**

1. Assume that Andretti Company has sufficient capacity to produce 90,000 Daks each year without any increase in fixed manufacturing overhead costs. The company could increase its sales by 25% above the present 60,000 units each year if it were willing to increase the fixed selling expenses by $80,000. Would the increased fixed selling expenses be justified?

2. Assume again that Andretti Company has sufficient capacity to produce 90,000 Daks each year. A customer in a foreign market wants to purchase 20,000 Daks. Import duties on the Daks would be $1.70 per unit, and costs for permits and licenses would be $9,000. The only selling costs that would be associated with the order would be $3.20 per unit shipping cost. Compute the per unit break-even price on this order.

3. The company has 1,000 Daks on hand that have some irregularities and are therefore considered to be “seconds.” Due to the irregularities, it will be impossible to sell these units at the normal price through regular distribution channels. What unit cost figure is relevant for set-ting a minimum selling price? Explain.

4. Due to a strike in its supplier’s plant, Andretti Company is unable to purchase more material for the production of Daks. The strike is expected to last for two months. Andretti Company has enough material on hand to operate at 30% of normal levels for the two-month period. As an alternative, Andretti could close its plant down entirely for the two months. If the plant were closed, fixed manufacturing overhead costs would continue at 60% of their normal level during the two-month period and the fixed selling expenses would be reduced by 20%. What would be the impact on profits of closing the plant for the two-month period?

5. An outside manufacturer has offered to produce Daks and ship them directly to Andretti’s customers. If Andretti Company accepts this offer, the facilities that it uses to produce Daks would be idle; however, fixed manufacturing overhead costs would be reduced by 75%. Because the outside manufacturer would pay for all shipping costs, the variable selling expenses would be only two-thirds of their present amount. Compute the unit cost that is relevant for comparison to the price quoted by the outside manufacturer.

PROBLEM 7–19 Dropping or Retaining a Segment [LO 7–2] Jackson County Senior Services is a nonprofit organization devoted to providing essential ser-vices to seniors who live in their own homes within the Jackson County area. Three services are provided for seniors—home nursing, Meals On Wheels, and housekeeping. Data on revenue and expenses for the past year follow:

 Total Home Nursing Meals On Wheels House-keeping

Revenues.......................... $900,000 $260,000 $400,000 $240,000

Variable expenses .................. 490,000 120,000 210,000 60,000

Contribution margin................. 410,000 140,000 190,000 80,000

Fixed expenses:

Depreciation ..................... 68,000 8,000 40,000 20,000

Liability insurance................. 42,000 20,000 7,000 15,000

Program administrators’ salaries . . . . 115,000 40,000 38,000 37,000

General administrative overhead\*... 180,000 52,000 80,000 48,000

Total fixed expenses ................ 405,000 120,000 165,000 120,000

Net operating income (loss) .......... $5,000 $20,000 $25,000 $(40,000)

\*Allocated on the basis of program revenues.

The head administrator of Jackson County Senior Services, Judith Miyama, is concerned about the organization’s finances and considers the net operating income of $5,000 last year to be razor-thin. (Last year’s results were very similar to the results for previous years and are representative of what would be expected in the future.) She feels that the organization should be building its financial reserves at a more rapid rate in order to prepare for the next inevitable recession. After seeing the above report, Ms. Miyama asked for more information about the financial advisability of perhaps discontinuing the housekeeping program.

The depreciation in housekeeping is for a small van that is used to carry the housekeepers and their equipment from job to job. If the program were discontinued, the van would be donated to a charitable organization. None of the general administrative overhead would be avoided if the housekeeping program were dropped, but the liability insurance and the salary of the program administrator would be avoided.

**Required:**

1. Should the Housekeeping program be discontinued? Explain. Show computations to support your answer.

 2. Recast the above data in a format that would be more useful to management in assessing the long-run financial viability of the various services.

PROBLEM 7–25 Utilization of a Constrained Resource [LO 7–5, LO 7–6] The Walton Toy Company manufactures a line of dolls and a doll dress sewing kit. Demand for the dolls is increasing, and management requests assistance from you in determining an economical sales and production mix for the coming year. The company has provided the following data:

Product Demand Next Year (units) Selling Price per Unit Direct Materials Direct Labor

Debbie .......... 50,000 $13.50 $4.30 $3.20

Trish ............ 42,000 $5.50 $1.10 $2.00

Sarah ........... 35,000 $21.00 $6.44 $5.60

Mike ............ 40,000 $10.00 $2.00 $4.00

Sewing kit ....... 325,000 $8.00 $3.20 $1.60

The following additional information is available:

 a. The company’s plant has a capacity of 130,000 direct labor-hours per year on a single-shift basis. The company’s present employees and equipment can produce all five products.

b. The direct labor rate of $8 per hour is expected to remain unchanged during the coming year.

c. Fixed costs total $520,000 per year. Variable overhead costs are $2 per direct labor-hour.

d. All of the company’s nonmanufacturing costs are fixed.

e. The company’s finished goods inventory is negligible and can be ignored.

**Required:**

 1. Determine the contribution margin per direct labor-hour expended on each product.

2. Prepare a schedule showing the total direct labor-hours that will be required to produce the units estimated to be sold during the coming year.

3. Examine the data you have computed in requirements 1 and 2. How would you allocate the 130,000 direct labor-hours of capacity to Walton Toy Company’s various products?

4. What is the highest total contribution margin that the company can earn if it makes optimal use of its constrained resource?

5. What is the highest price, in terms of a rate per hour, that Walton Toy Company would be willing to pay for additional capacity (that is, for added direct labor time)?

6. Assume again that the company does not want to reduce sales of any product. Identify ways in which the company could obtain the additional output.

(CMA, adapted)

PROBLEM 7–28 Make or Buy Analysis [LO 7–3] “In my opinion, we ought to stop making our own drums and accept that outside supplier’s offer,” said Wim Niewindt, managing director of Antilles Refining, N.V., of Aruba. “At a price of $18 per drum, we would be paying $5 less than it costs us to manufacture the drums in our own plant. Since we use 60,000 drums a year, that would be an annual cost savings of $300,000.” Antilles Refining’s current cost to manufacture one drum is given below (based on 60,000 drums per year):

Direct materials..................................................................................................................................$10.35

Direct labor ............................................................................................................................................6.00

Variable overhead .................................................................................................................................1.50

Fixed overhead ($2.80 general company overhead, $1.60 depreciation and, $0.75 supervision) ....... 5.15

Total cost per drum ............................................................................................................................$23.00

A decision about whether to make or buy the drums is especially important at this time because the equipment being used to make the drums is completely worn out and must be replaced. The choices facing the company are:

 Alternative 1: Rent new equipment and continue to make the drums. The equipment would be rented for $135,000 per year.

Alternative 2: Purchase the drums from an outside supplier at $18 per drum.

The new equipment would be more efficient than the equipment that Antilles Refining has been using and, according to the manufacturer, would reduce direct labor and variable overhead costs by 30%. The old equipment has no resale value. Supervision cost ($45,000 per year) and direct materials cost per drum would not be affected by the new equipment. The new equipment’s capacity would be 90,000 drums per year.

The company’s total general company overhead would be unaffected by this decision.

**Required:**

1. To assist the managing director in making a decision, prepare an analysis showing the total cost and the cost per drum for each of the two alternatives given above. Assume that 60,000 drums are needed each year. Which course of action would you recommend to the managing director?

2. Would your recommendation in requirement 1 be the same if the company’s needs were: (a) 75,000 drums per year or (b) 90,000 drums per year? Show computations to support your answer, with costs presented on both a total and a per unit basis.

3. What other factors would you recommend that the company consider before making a decision?