**Problem 6-3. Allocated Cost and Opportunity Cost**

Binder Manufacturing produces small electric motors used by appliance manufacturers. In the past year, the company has experienced severe excess capacity due to competition from a foreign company that has entered Binder’s market. The company is currently bidding on a potential order from Dacon Appliances for 6,000 Model 350 motors. The estimated cost of each motor is $40, as follows:

 Direct material $20

 Direct labor $5

 Overhead $15

 **Total $40**

The predetermined overhead rate is $3 per direct labor dollar. This was estimated by dividing estimated annual overhead ($15,000,000) by estimated annual direct labor ($5,000,000). The $15,000,000 of overhead is composed of $6,000,000 of variable costs and $9,000,000 of fixed costs. The largest fixed cost relates to depreciation of plant and equipment.

**REQUIRED**

1. With respect to overhead, what is the opportunity cost of producing a Model 350 motor?
2. Suppose Binder can win the Dacon business by bidding a price of $37 per motor (but no higher price will result in a winning bid). Should Binder bid $37?
3. Discuss how an allocation of overhead based on opportunity cost would facilitate an appropriate bidding decision.

**Problem 6-10. Cost allocation and apparent profitability**

Diamonds, Etc. manufactures jewelry settings and sells them to retail stores. In the past, most settings were made by hand, and the overhead allocation rate in the prior year was $12 per labor hour ($2,400,000 overhead ÷ 200,000 labor hours). In the current year, overhead increased by $800,000 due to acquisition of equipment. Labor, however, decreased by 40,000 hours because the equipment allows rapid creation of the settings. One of the company’s many customers is a local jewelry store, Jasmine’s Fine Jewelry. This store is relatively small, and the time to make an order of jewelry pieces is typically less than 10 labor hours. On such jobs (less than 10 labor hours), the new equipment is not used, and thus the jobs are relatively labor intensive.

**REQUIRED**

1. Assume that in the current year, the company continues to allocate overhead based on labor hours. What would be the overhead cost of a 10-labor-hour job requested by Jasmine’s Fine Jewelry? How does this compare to the overhead cost charged to such a job in the prior year?
2. Assume that the price charged for small jobs does not change in the current year. Are small jobs less profitable than they were in the past?

**Problem 7-6. Make-or-Buy Decision**

Curtis Corporation is beginning to manufacture Mighty Mint, a new mouthwash in a spray container. The product will be sold to wholesalers and large drugstore chains in packages of 30 containers for $20 per package. Management allocates $225,000 of fixed manufacturing overhead costs to Mighty Mint. The manufacturing cost per package of 30 containers for expected production of 100,000 packages is as follows:

 Direct Material $7.50

 Direct Labor $4.00

 Overhead (fixed and variable) $3.50

 **Total $15.00**

The company has contacted a number of package suppliers to determine whether it is better to buy or manufacture the spray containers. The lowest quote for the containers is $1.85 per 30 units. It is estimated that purchasing the containers from a supplier will save 10 percent of direct materials, 20 percent of direct labor, and 15 percent of variable overhead. Curtis’s manufacturing space is highly constrained. By purchasing the spray containers, the company will not have to lease additional manufacturing space, which is estimated to cost $17,000 per year. If the containers are purchased, one supervisory position can be eliminated. Salary plus benefits for this position are $72,000 per year.

**REQUIRED**

Should Curtis make or buy the containers? What is the incremental cost (benefit) of buying the containers as opposed to making them?

**Problem 7-8. Additional Processing Decision with a Production Constraint**

Mega Chemical Company produces ZylexA and a related product called ZylexB. ZylexB, which sells for $15.00 per gallon, is made from a base of ZylexA plus additional ingredients. It takes 25 minutes to manufacture a gallon of ZylexA and an additional 10 minutes to manufacture a gallon of ZylexB. ZylexA sells for $9.00 per gallon. The cost per gallon of manufacturing ZylexA and the additional costs to convert it into ZylexB are:

 **ZylexA Additional Cost to Convert ZylexA**

 **Into ZylexB**

Material $2.00 $1.75

Labor $2.50 $0.50

Variable overhead $2.25 $1.10

Both products have been successful, and demand for both products is strong beyond the company’s capacity. Since it takes additional time to manufacture ZylexB, the vice president of production is trying to determine whether ZylexB should be produced.

**REQUIRED**

Which product makes the largest contribution to company profit, given a capacity constraint measured in terms of production time?