CHAPTER 26

PROBLEMS: SET B

P26-1B Morello Inc. manufactures basketballs for the National Basketball Association (NBA). For the first 6 months of 2017, the company reported the following operating results while operating at 90% of plant capacity and producing 90,000 units.

<table>
<thead>
<tr>
<th>Amount</th>
<th>Per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$4,500,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>3,060,000</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>360,000</td>
</tr>
<tr>
<td>Net income</td>
<td>$1,080,000</td>
</tr>
</tbody>
</table>

Fixed costs for the period were cost of goods sold $900,000, and selling and administrative expenses $180,000.

In July, normally a slack manufacturing month, Morello receives a special order for 10,000 basketballs at $30 each from the Chinese Basketball Association (CBA). Acceptance of the order would increase variable selling and administrative expenses $0.50 per unit because of shipping costs but would not increase fixed costs and expenses.

Instructions
(a) Prepare an incremental analysis for the special order.
(b) Should Morello Inc. accept the special order?
(c) What is the minimum selling price on the special order to produce net income of $5.50 per ball?
(d) What nonfinancial factors should management consider in making its decision?

P26-2B The management of Gill Corporation is trying to decide whether to continue manufacturing a part or to buy it from an outside supplier. The part, called FIZBE, is a component of the company’s finished product.

The following information was collected from the accounting records and production data for the year ending December 31, 2017.

1. 5,000 units of FIZBE were produced in the Machining Department.
2. Variable manufacturing costs applicable to the production of each FIZBE unit were: direct materials $4.75, direct labor $4.60, indirect labor $0.45, utilities $0.35.
3. Fixed manufacturing costs applicable to the production of FIZBE were:
   - Cost Item | Direct | Allocated
   - Depreciation | $1,100 | $ 900
   - Property taxes | 500   | 200
   - Insurance    | 900   | 600
   - $2,500       | $1,700

All variable manufacturing and direct fixed costs will be eliminated if FIZBE is purchased. Allocated costs will have to be absorbed by other production departments.
4. The lowest quotation for 5,000 FIZBE units from a supplier is $56,000.
5. If FIZBE units are purchased, freight and inspection costs would be $0.30 per unit, and receiving costs totaling $500 per year would be incurred by the Machining Department.

Instructions
(a) Prepare an incremental analysis for FIZBE. Your analysis should have columns for (1) Make FIZBE, (2) Buy FIZBE, and (3) Net Income Increase/Decrease.
(b) Based on your analysis, what decision should management make?
(c) Would the decision be different if Gill Corporation has the opportunity to produce $6,000 of net income with the facilities currently being used to manufacture FIZBE? Show computations.
(d) What nonfinancial factors should management consider in making its decision?

P26-3B Last year (2016), Simmons Company installed new factory equipment. The owner of the company, Gene Simmons, recently returned from an industry equipment exhibition where he watched computerized equipment demonstrated. He was impressed with the equipment’s speed and cost efficiency. Upon returning from the exhibition, he asked his purchasing agent to collect price and operating cost data on the new equipment. In addition, he asked the company’s accountant to provide him with cost data on the company’s equipment. This information is presented on the next page.

Use incremental analysis for special order and identify nonfinancial factors in decision. (LO 2)

(a) NI increase $35,000

Use incremental analysis related to make or buy; consider opportunity cost and identify nonfinancial factors. (LO 2)

(a) NI (decrease) ($4,750)
(c) NI increase $1,250

Compute gain or loss, and determine if equipment should be replaced. (LO 2)
Incremental Analysis and Capital Budgeting

Old Equipment  New Equipment

<table>
<thead>
<tr>
<th></th>
<th>Old Equipment</th>
<th>New Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchase price</td>
<td>$210,000</td>
<td>$250,000</td>
</tr>
<tr>
<td>Estimated salvage value</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Estimated useful life</td>
<td>5 years</td>
<td>4 years</td>
</tr>
<tr>
<td>Depreciation method</td>
<td>Straight-line</td>
<td>Straight-line</td>
</tr>
</tbody>
</table>

Annual operating costs

<table>
<thead>
<tr>
<th></th>
<th>Old Equipment</th>
<th>New Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
<td>$50,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>Fixed</td>
<td>30,000</td>
<td>5,000</td>
</tr>
</tbody>
</table>

Annual revenues are $360,000, and selling and administrative expenses are $45,000, regardless of which equipment is used. If the old equipment is replaced now, at the beginning of 2017, Simmons Company will be able to sell it for $58,000.

**Instructions**

(a) Determine any gain or loss if the old equipment is replaced.
(b) Prepare a 4-year summarized income statement for each of the following assumptions:
   (1) The old equipment is retained.
   (2) The old equipment is replaced.
(c) Using incremental analysis, determine if the old equipment should be replaced.
(d) Write a memo to Gene Simmons explaining why any gain or loss should be ignored in the decision to replace the old equipment.

**P26-4B** Panda Corporation has four operating divisions. During the first quarter of 2017, the company reported aggregate income from operations of $129,000 and the divisional results shown below.

<table>
<thead>
<tr>
<th>Division</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$510,000</td>
<td>$400,000</td>
<td>$310,000</td>
<td>$170,000</td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>300,000</td>
<td>250,000</td>
<td>270,000</td>
<td>156,000</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>60,000</td>
<td>80,000</td>
<td>75,000</td>
<td>70,000</td>
</tr>
<tr>
<td>Income (loss) from operations</td>
<td>$150,000</td>
<td>$ 70,000</td>
<td>$(35,000)</td>
<td>$(56,000)</td>
</tr>
</tbody>
</table>

Analysis reveals the following percentages of variable costs in each division.

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of goods sold</td>
<td>70%</td>
<td>80%</td>
<td>70%</td>
<td>90%</td>
</tr>
<tr>
<td>Selling and administrative expenses</td>
<td>40%</td>
<td>50%</td>
<td>60%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Discontinuance of any division would save 50% of the fixed costs and expenses for that division.

Top management is very concerned about the unprofitable divisions (III and IV). Consensus is that one or both of the divisions should be discontinued.

**Instructions**

(a) III $76,000
(b) Prepare an incremental analysis concerning the possible discontinuance of (1) Division III and (2) Division IV. What course of action do you recommend for each division?
(c) II $63,900
(c) Prepare a columnar condensed income statement for Panda Corporation, assuming Division IV is eliminated. (Use the CVP format.) Division IV’s unavoidable fixed costs are allocated equally to the continuing divisions.
(d) Reconcile the total income from operations ($129,000) with the total income from operations without Division IV.

**P26-5B** The Borders and Noble partnership is considering three long-term capital investment proposals. Each investment has a useful life of 5 years. Relevant data on each project are as follows.
Problems: Set B

### Project Mary
- Capital investment: $140,000
- Annual net income:
  - Year 1: $10,000
  - Year 2: $10,000
  - Year 3: $10,000
  - Year 4: $10,000
  - Year 5: $10,000
- Total: $50,000

### Project Winnie
- Capital investment: $175,000
- Annual net income:
  - Year 1: $12,500
  - Year 2: $12,000
  - Year 3: $11,000
  - Year 4: $8,000
  - Year 5: $6,000
- Total: $49,500

### Project Sarah
- Capital investment: $190,000
- Annual net income:
  - Year 1: $19,000
  - Year 2: $16,000
  - Year 3: $14,000
  - Year 4: $9,000
  - Year 5: $8,000
- Total: $66,000

Depreciation is computed by the straight-line method with no salvage value. The company’s cost of capital is 12%. (Assume cash flows occur evenly throughout the year.)

**Instructions**

(a) Compute the cash payback period for each project. (Round to two decimals.)
(b) Compute the net present value for each project. (Round to nearest dollar.)
(c) Compute the annual rate of return for each project. (Round to two decimals.)

(***Hint:*** Use average annual net income in your computation.)
(d) Rank the projects on each of the foregoing bases. Which project do you recommend?

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**P26-6B**

Ben Paul is an accounting major at a western university located approximately 60 miles from a major city. Many of the students attending the university are from the metropolitan area and visit their homes regularly on the weekends. Ben, an entrepreneur at heart, realizes that few good commuting alternatives are available for students doing weekend travel. He believes that a weekend commuting service could be organized and run profitably from several suburban and downtown shopping mall locations. Ben has gathered the following investment information.

1. Five used vans would cost a total of $90,000 to purchase and would have a 3-year useful life with negligible salvage value. Ben plans to use straight-line depreciation.
2. Ten drivers would have to be employed at a total payroll expense of $43,000.
3. Other annual out-of-pocket expenses associated with running the commuter service would include Gasoline $26,000, Maintenance $4,000, Repairs $5,300, Insurance $4,500, Advertising $2,200.
4. Ben desires to earn a return of 15% on his investment.
5. Ben expects each van to make ten round trips weekly and carry an average of six students each trip. The service is expected to operate 32 weeks each year, and each student will be charged $15 for a round-trip ticket.

**Instructions**

(a) Determine the annual (1) net income and (2) net annual cash flows for the commuter service.
(b) Compute (1) the cash payback period and (2) the annual rate of return. (Round to two decimals.)
(c) Compute the net present value of the commuter service. (Round to the nearest dollar.)
(d) What should Ben conclude from these computations?

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**P26-7B**

Platteville Eye Clinic is considering investing in new optical-scanning equipment. It has two options: Option A would have an initial lower cost but would require a significant expenditure for rebuilding after 3 years. Option B would require no rebuilding expenditure, but its maintenance costs would be higher. Since the Option B machine is of initial higher quality, it is expected to have a salvage value at the end of its useful life. The following estimates were made of the cash flows. The company’s cost of capital is 11%.

<table>
<thead>
<tr>
<th></th>
<th>Option A</th>
<th>Option B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial cost</td>
<td>$100,000</td>
<td>$160,000</td>
</tr>
<tr>
<td>Annual cash inflows</td>
<td>$56,000</td>
<td>$60,000</td>
</tr>
<tr>
<td>Annual cash outflows</td>
<td>$24,000</td>
<td>$24,000</td>
</tr>
<tr>
<td>Cost to rebuild (end of year 3)</td>
<td>$53,000</td>
<td>$0</td>
</tr>
<tr>
<td>Salvage value</td>
<td>$0</td>
<td>$24,000</td>
</tr>
<tr>
<td>Estimated useful life</td>
<td>6 years</td>
<td>6 years</td>
</tr>
</tbody>
</table>

**Instructions**

(a) Compute the (1) net present value, (2) profitability index, and (3) internal rate of return for each option. (***Hint:*** To solve for internal rate of return, experiment with alternative discount rates to arrive at a net present value of zero.)
(b) Which option should be accepted?