1. award: **10.00 points**

*P8-8 Calculating Salvage Value*

An asset used in a 4-year project falls in the 5-year MACRS class (MACRS Table) for tax purposes. The asset has an acquisition cost of $15,810,000 and will be sold for $3,570,000 at the end of the project. If the tax rate is 35 percent, the aftertax salvage value of the asset is $ _____. **(Do not include the dollar sign ($). Round your answer to the nearest whole dollar amount. (e.g., 32))**

rev: 05_30_2011

| Worksheet | *P8-8 Calculating Salvage Value* | Difficulty: Basic |
|---|---|---|

2. award: **10.00 points**

*P8-12 Comparing Mutually Exclusive Projects*

CBOE Manufacturing is trying to decide between two different conveyor belt systems. System A costs $442,000, has a 4-year life, and requires $137,000 in pretax annual operating costs. System B costs $532,000, has a 6-year life, and requires $56,000 in pretax annual operating costs. Both systems are to be depreciated straight-line to zero over their lives and will have zero salvage value. Whichever project is chosen, it will *not* be replaced when it wears out. If the tax rate is 32 percent and the discount rate is 22 percent, the NPV for project A is $ _____ and the NPV for project B is $ _____. Therefore, the firm should choose project (Click to select). **(Do not include the dollar signs ($). Negative amounts should be indicated by a minus sign. Round your answers to 2 decimal places. (e.g., 32.16))**

| Worksheet | *P8-12 Comparing Mutually Exclusive Projects* | Difficulty: Intermediate |
|---|---|---|

3. award: **10.00 points**

*P8-25 Calculating Project NPV*

You have been hired as a consultant for Pristine Urban-Tech Zither, Inc. (PUTZ), manufacturers of fine zithers. The market for zithers is growing quickly. The company bought some land three years ago for $1,030,000 in anticipation of using it as a toxic waste dump site but has recently hired another company to handle all toxic materials. Based on a recent appraisal, the company believes it could sell the land for $830,000 on an aftertax basis. At the end of the project, the land could be sold for $1,030,000 on an aftertax basis. The company also hired a marketing firm to analyze the zither market, at a cost of $135,000. An excerpt of the marketing report is as follows:

> The zither industry will have a rapid expansion in the next four years. With the brand name recognition that PUTZ brings to bear, we feel that the company will be able to sell 2,960, 3,770, 2,760, and 1,820 units each year for the next four years, respectively. Again, capitalizing on the name recognition of PUTZ, we feel that a premium price of $700 can be charged for each zither. Since zithers appear to be a fad, we feel at the end of the four-year period, sales should be discontinued.

PUTZ feels that fixed costs for the project will be $320,000 per year, and variable costs are 16 percent of sales. The equipment necessary for production will cost $3,900,000 and will be depreciated according to a three-year MACRS schedule (MACRS Table). At the end of the project, the equipment can be scrapped for $330,000. Net working capital of $140,000 will be required immediately and will be recaptured at the end of the project. PUTZ has a 39 percent tax rate and the required return on the project is 14 percent. Assume the company has other profitable projects.

**Requirement 1:**
Calculate the aftertax salvage value. **(Do not include the dollar sign ($). Round your answer to the nearest whole dollar amount. (e.g., 32))**

Aftertax salvage value $ _____

**Requirement 2:**
Calculate the operating cash flow for each year. **(Do not include the dollar signs ($). Negative amount should be indicated by a minus sign. Round your answers to the nearest whole dollar amount. (e.g., 32))**

Cash Flow

| | Cash Flow |
|---|---|
| Year 1 | $ |
| Year 2 | $ |
| Year 3 | $ |
| Year 4 | $ |

**Requirement 3:**
What is the NPV of the project? **(Do not include the dollar sign ($). Negative amount should be indicated by a minus sign. Round your answer to 2 decimal places. (e.g., 32.16))**

Net present value $

rev: 11_23_2011, 07_10_2012

| Worksheet | *P8-25 Calculating Project NPV* | Difficulty: Intermediate |
|---|---|---|

4. award: **10.00 points**

*P8-44 Calculating Project NPV*

J. Smythe, Inc., manufactures fine furniture. The company is deciding whether to introduce a new mahogany dining room table set. The set will sell for $7,000, including a set of eight chairs. The company feels that sales will be 1,880, 2,030, 2,580, 2,430, and 2,180 sets per year for the next five years, respectively. Variable costs will amount to 40 percent of sales, and fixed costs are $1.88 million per year. The new tables will require inventory amounting to 10 percent of sales, produced and stockpiled in the year prior to sales. It is believed that the addition of the new table will cause a loss of 200 tables per year of the oak tables the company produces. These tables sell for $3,600 and have variable costs of 35 percent of sales. The inventory for this oak table is also 10 percent of sales. J. Smythe currently has excess production capacity. If the company buys the necessary equipment today, it will cost $15.5 million. However, the excess production capacity means the company can produce the new table without buying the new equipment. The company controller has said that the current excess capacity will end in two years with current production. This means that if the company uses the current excess capacity for the new table, it will be forced to spend the $15.5 million in two years to accommodate the increased sales of its current products. In five years, the new equipment will have a market value of $3.03 million if purchased today, and $7.34 million if purchased in two years. The equipment is depreciated on a seven-year MACRS schedule (MACRS Table). The company has a tax rate of 39 percent, and the required return for the project is 14 percent.

**Requirement 1:**
**(a)** Calculate NPV of the project. **(Do not include the dollar sign ($). Round your answer to 2 decimal places. (e.g., 1,234,567.89))**

Net present value $

**(b)** Should J. Smythe undertake the new project?

(Click to select)

**Requirement 2:**
**(a)** Can you perform an IRR analysis on this project?

(Click to select)

**(b)** How many IRRs would you expect to find?

Number of IRRs

rev: 05_30_2011

| Worksheet | *P8-44 Calculating Project NPV* | Difficulty: Challenge |
|---|---|---|