

### Midterm Exam

**Question 1.** You will receive \$25,000 next year, followed by six more annual cash flows growing at 2.5% per year. Following this, you will receive a constant amount of cash every three months in perpetuity, where each payment equals 30% of the amount received at the end of year 7. Your discount rate is 18% per year. What is the PV of this cash flow stream?

**Question 2.** Your company plans to build three office towers per year for each of the next three years, starting now. Each tower costs \$100 million to build. Two towers will be sold per year at the end of years 1-3, and three will be sold at the end of year 4. Revenue per tower is projected at \$105 million one year from now, rising by 6% per year.

For tax purposes, towers are expensed on a first in-first out basis. The tax rate is 35% and the OCC is 13%.

- a. What is the NPV of this project?
- b. Now suppose projected inflation is increased by 2% and the OCC is raised to 15%. What is the NPV in this case?

**Question 3.** Holistic Hooch Co. is evaluating a new brand of organic whisky. Initial product rollout costs are \$400,000. Sales of the brand are forecast at \$225,000 over the first year, declining thereafter by 3% per year. In five years the brand will be discontinued. COGS and advertising costs are 40% and 15% of sales, respectively. In addition, working capital requirements are \$20,000, beginning now, and a stocking fee of \$15,000 per year must be paid.

For tax purposes, the rollout costs will be depreciated straight-line for five years to an ending book value of \$50,000. The tax rate is 35% and the OCC is 8%. What is the NPV of this project?