

Sample Midterm Exam

Question 1. Your company is considering purchasing an executive jet for \$1 million. The jet will cost \$20,000 per year to operate, but it will save \$200,000 per year in airline fares. It will be sold at the end of year four for \$300,000. These figures are today's prices.

For tax purposes the jet can be depreciated straight-line for four years to an ending book value of \$200,000. The tax rate is 35% and the projected inflation rate is 4% per year. Forecast cash flows from the project.

Question 2. Calculate the PVs of the following cash flow streams at the given discount rates:

- a. \$45,000 received four years from now, followed by cash flows at the end of every future year that rise by 9% per year, discount rate 17%.
- b. \$176,000 now, followed by monthly cash flows that decline by 1.5% per month for three years, followed by quarterly cash flows that remain constant at the year 3 level for three more years, discount rate 12% per year.

Question 3. Trendy Products, Inc., is planning to market a line of surgically implanted cell phones. The product line requires an investment of \$100 million, and it is projected to generate sales of \$80 million at the end of this year. After this, annual sales will decline by 25% per year for six more years. The product line will be discontinued at the end of year seven. Production and marketing costs will be 60% of sales. The project also requires initial inventory of \$15 million, rising to \$20 million by the end of the first year. Inventories will remain at 20% of annual sales in future years.

The initial investment will be depreciated straight-line to an ending book value of zero million at the end of year seven. The tax rate is 35% and the OCC is 14% per year.

- a. Forecast cash flows from the project.
- b. Calculate the NPV of the project. Should the project be accepted or rejected?