

**E120 Engineering Economics**  
**Prof. Robert C. Leachman**  
**Midterm Examination**  
**Fall, 2007**

Open book and notes. Work all problems. Each problem is worth 20 points.

1. During 2006, ABC Company has sales of \$1,000, cost of goods sold was \$400, depreciation was \$100, and interest paid was \$150. The tax rate was 34%. At year-end 2005, ABC had liabilities as follows: Notes payable of \$1,200, Accounts payable of \$2,400, and Long-term debt of \$3,000. Corresponding entries for year-end 2006 were \$1,600, \$2,000 and \$2,800. Assets for end-of-year 2005 and 2006 were as follows:

<u>Current Assets</u>	<b>2005</b>	<b>2006</b>
Cash	\$800	\$500
Marketable securities	\$400	\$300
Accounts receivable	\$900	\$800
Inventory	\$1,800	\$2,000
<u>Fixed Assets</u>		
Net plant and equipment	\$6,000	\$8,000

- a. (5 points) What was the operating cash flow in 2006?
  - b. (5 points) Compute net capital spending in 2006.
  - c. (5 points) What was net working capital at the end of 2005? At the end of 2006?
  - d. (5 points) What was ABC's total cash flow from assets in 2006?
2. A pawn shop makes 12-month loans. The terms are as follows: The borrower makes monthly payments over 12 months. Each payment is equal to one-tenth of the loan amount.
- a. (12 points) Set up an equation that must be satisfied by the monthly interest rate and simplify.
  - b. (5 points) By trial and error, determine which of the following is closest to the correct numerical value of the monthly interest rate: 1 percent, 2 percent, or 3 percent.
  - c. (3 points) For your answer to part b, what is the EAR?
3. A firm issues a bond with a \$1,000 face value, \$80 annual coupons, and a 25-year maturity. Five years later, the bond has a purchase price of \$1,100.
- a. (15 points) Set up an equation which must be satisfied by the yield to maturity at that time (i.e., five years later).
  - b. (5 points) Which value is closest to the yield to maturity at that time: 7%, 7.5% or 8%?
4. The annual dividend just paid on a share of common stock is \$10. If the required return is 10% and the dividends have been growing and will continue to grow at a 5% rate,
- a. (6 points) What is the value of the stock today?
  - b. (7 points) What will be the value of the stock one year from now?
  - c. (7 points) What was the value of the stock one year ago?