

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>	2005	2006
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?