

**Multiple choice – 3 points each – 30 points total**

1. Last year a firm had a profit margin of 7%. This year the profit margin is 6%. Sales remained constant. Which one of the following statements is correct based on this information?
- A. The return on assets declined.
  - B. The return on equity increased.
  - C. The net income increased.
  - D. The price earnings ratio decreased.
  - E. The interval measure decreased.

2. You have just won the lottery and have been presented with two payments options. Assuming that the interest rate is positive, which option should you choose?

<u>Year</u>	<u>Option A</u>	<u>Option B</u>
0	\$100,000	\$100,000
1	\$ 40,000	\$ 50,000
2	\$ 60,000	\$ 50,000
3	\$ 50,000	\$ 50,000
4	\$ 50,000	\$ 50,000

- A. Option A
  - B. Option B
  - C. Both options are the same.
  - D. Insufficient information.
3. An equity multiplier of 1.64 means that for every \$1 the firm raises in new equity, the firm can:
- A. acquire an additional \$1.64 in new assets.
  - B. acquire an additional \$1.64 in new debt.
  - C. earn \$1.64 in additional profits.
  - D. earn \$1.64 in additional profits per share.
  - E. pay \$1.64 in additional dividends per share.
4. Assume a company uses cash to pay off current liabilities. What will happen to the current ratio?
- A. It will increase.
  - B. It will remain the same.
  - C. It will decrease.
  - D. It will move further away from 1.0.
  - E. It will move closer to 1.0.
5. What is the price of a bond with a par value of \$2,000, 13 years to maturity, a yield to maturity of 7.5 percent, and a coupon rate of 6.4 percent?
- A. \$1,926.14
  - B. \$1,783.20
  - C. \$1,892.40
  - D. \$1,964.18
  - E. \$1,819.30

6. You take out a mortgage on a \$250,000 house for 30 years with an interest rate of 4.2% and monthly payments. If you decide to sell the house in exactly 8 years and pay off the mortgage, what is your final payment including the last monthly payment?
- A. \$214,127.11
  - B. \$213,284.16
  - C. \$211,650.47
  - D. \$215,436.24
  - E. \$210,429.13
7. A company has fixed assets of \$1,345, current assets of \$260, current liabilities of \$180 and shareholders' equity of \$775. What is the net working capital?
- A. \$80
  - B. \$180
  - C. \$240
  - D. \$260
  - E. \$390
8. Vito Corleone will loan you money on a “five-for-six arrangement”; i.e., for every \$5 he gives you today, you owe him \$6 in one week. What is the EAR of the loan?
- A. 792%
  - B. 869%
  - C. 14,104%
  - D. 1,310,363%
  - E. 2,382,541%
9. \_\_\_\_\_ returns measure the percentage change in purchasing power, i.e., the change in the standard of living.
- A. Holding period
  - B. Nominal
  - C. Real
  - D. Inflation
  - E. Capital gain
10. If you divide a bond's annual coupon payment by its current yield, you get the:
- A. yield to maturity.
  - B. investor's required rate of return.
  - C. annual coupon rate.
  - D. par value.
  - E. bond price.

**Partial Credit Problems --- SHOW ALL WORK**

**TIMELINES REQUIRED FOR PROBLEMS 2, 3, 4, 5, and 6**

**Problem 1 (10 points)** J&R Homes had sales of \$117 million this year. Costs were \$53 million, and net investment was \$11 million. Each of these values is expected to grow at 20 percent next year, with the growth rate declining by 4 percent per year until the growth rate reaches 4 percent, where it is expected to remain indefinitely. There are 4.8 million shares of stock outstanding and the return on the company's stock is 11 percent return on the company's stock. The corporate tax rate is 40 percent. What is the price per share?

**Problem 2 (9 points)** Babe Ruth was the highest paid baseball player in 1931 with a salary of \$80,000. In 2017, Clayton Kershaw has baseball's highest salary at \$35,571,428. Assume that the inflation index, which stood at 43.16 in 1931, was 637.74 in 2017. What was the real growth rate in the highest baseball salary? What real salary was Clayton Kershaw paid in 2017 assuming he received the same real salary as Babe Ruth?

**Problem 3 (11 points)** You have just won the Forever Lottery and been approached by someone to buy your winnings. You will be paid \$2.5 million today. Additionally, you will receive \$450,000 every other year beginning in one year and \$550,000 every three years beginning two years from today. The appropriate interest rate is an APR of 4.6 percent, compounded monthly. What is the minimum price you should ask for your winnings?

**Problem 4 (12 points)** You want to save for your retirement. You currently have \$125,000 in an account that will earn a nominal EAR of 10.4 percent until you retire in 35 years. After you retire, you want to withdraw \$15,000 per month in real terms for 15 years. For the last 10 years of your retirement, you will slow down so you will only withdraw \$8,500 per month in real terms. When you make the last withdrawal, you believe that you will be hit by a driverless car killed, which means you will need no money after this withdrawal. After you retire, you will earn a nominal EAR of 6.8 percent. Additionally, in 20 years, you would like to give Belmont \$500,000 in nominal terms to name a chair after your favorite Finance professor! The inflation rate will be an effective annual rate of 3.3 percent over the next 60 years. How much will you have to deposit each month to accomplish your goals? What is the nominal value of your account when you retire?

**Problem 5 (9 points)** Credit terms are often stated in the following manner: 1.5/10, net 30. This means that if you pay within 10 days, you can take a 1.5 percent discount on the price, else the full amount is due in 30 days. For example, if you buy \$1,000 in goods, you can pay \$985 within 10 days or pay \$1,000 within 30 days. What is the APR and EAR on this arrangement if you do not take advantage of the discount?

**Problem 6 (9 points)** A financial advisor is trying to sell you an increasing perpetuity. One year from today you will receive \$5,000, and the payments will increase at \$5,000 per year. Thus, in 2 years you will receive \$10,000, in 3 years you will receive \$15,000, and so on. If the interest rate is a 4 percent APR compounded quarterly, how much should you pay for this perpetuity today?

**Problem 7 (10 points)** The most recent financial statements a company are shown below. The company is mature and will grow at the sustainable growth rate. Interest expense, depreciation, the tax rate and the dividend payout rate will remain constant. Costs, other expenses, current assets, fixed assets, and accounts payable increase spontaneously with sales. The firm is operating at 90 percent capacity and never sells fixed assets. Show the pro forma financial statements for next year. What is the EFN for next year? The tax rate is 40 percent.

Sales	\$169,400,000
COGS	121,165,000
Other expenses	20,240,000
Depreciation	<u>8,400,000</u>
EBIT	\$19,595,000
Interest	<u>2,900,000</u>
Taxable income	\$16,695,000
Taxes (40%)	<u>6,678,000</u>
Net income	\$10,017,000

Dividends	\$4,719,435
Add to RE	5,297,565

Assets		Liabilities & Equity	
Current Assets		Current liabilities	
Cash	\$1,257,000	Accounts payable	\$2,200,300
Accounts rec.	3,760,000	Notes payable	<u>1,740,000</u>
Inventory	<u>7,429,000</u>	Total CL	\$3,940,300
Total CA	\$12,446,000		
		Long-term debt	\$22,500,000
Fixed assets		Shareholder equity	
Net PP&E	<u>\$94,157,300</u>	Common stock	\$7,500,000
		Retained earnings	<u>\$72,663,000</u>
		Total equity	<u>\$80,163,000</u>
Total assets	\$106,603,300	Total L&E	\$106,603,300