

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

1. Which one of the following statements is correct concerning ratio analysis?
  - A. Ratios cannot be used for comparison purposes over periods of time.
  - B. Ratios do not address the problem of size differences among firms.
  - C. Only a very limited number of ratios can be used for analytical purposes.
  - D. Each ratio has a specific formula that is used consistently by all analysts.
  - E. A single ratio is often computed differently by different individuals.
  
2. A firm has a total debt ratio of .47. This means that, that firm has 47 cents in debt for every:
  - A. \$1.47 in equity.
  - B. \$1 in total assets.
  - C. \$1 in current assets.
  - D. \$.53 in total assets.
  - E. \$1 in total sales.
  
3. Which one of the following statements is correct if a firm has a receivables turnover measure of 10?
  - A. It takes a firm 36.5 days to pay its creditors.
  - B. It takes a firm 36.5 days to sell its inventory and collect the payment from the sale.
  - C. The firm has an average collection period of 36.5 days.
  - D. The firm has ten times more in accounts receivable than it does in cash.
  - E. It takes a firm 10 days to collect payment from its customers.
  
4. You are comparing two investment options. The cost to invest in either option is the same today. Both options will provide you with \$20,000 of income. Option A pays five annual payments starting with \$8,000 the first year followed by four annual payments of \$3,000 each. Option B pays five annual payments of \$4,000 each. Which one of the following statements is correct given these two investment options?
  - A. Option A is preferable because it is an annuity due.
  - B. Option A is the better choice of the two given any positive rate of return.
  - C. Option B has a higher present value than option A given a positive rate of return.
  - D. Option B has a lower future value at year 5 than option A given a zero rate of return.
  - E. Both options are of equal value given that they both provide \$20,000 of income.

5. Which of the following statements concerning the effective annual rate are correct?
- I. When borrowing and choosing which loan to accept, you should select the offer with the highest effective annual rate.
  - II. Given the same APR, the more frequently interest is compounded, the higher the effective annual rate.
  - III. A quoted rate of 6% compounded daily has a higher effective annual rate than if the rate were compounded monthly.
  - IV. When making financial decisions, you should compare effective annual rates rather than annual percentage rates.
- A. II, III, and IV only  
B. I and IV only  
C. I, II, and III only  
D. I and II only  
E. I, II, III, and IV
6. If its yield to maturity is more its coupon rate, a bond will sell at a \_\_\_\_\_, and increases in market interest rates will \_\_\_\_\_.
- A. discount; increase this discount  
B. discount; decrease this discount  
C. premium; increase this premium  
D. premium; decrease this premium  
E. It depends.
7. The underlying assumption of the dividend growth model is that a stock is worth:
- A. the same amount as any other stock that pays the same current dividend and has the same required rate of return.  
B. the same amount to every investor regardless of his desired rate of return.  
C. an amount computed as the next annual dividend divided by the market rate of return.  
D. an amount computed as the next annual dividend divided by the required rate of return.  
E. the present value of the future dividends that the stock generates.
8. Assume that you are using the dividend growth model to value stocks. If you expect the rate of return to increase across the board on all equity securities, then you should also expect the:
- A. market values of all stocks to increase, all else constant.  
B. market values of all stocks to decrease, all else constant.  
C. dividend growth rates to increase to offset this change.  
D. stocks that do not pay dividends to decrease in price while the dividend-paying stocks maintain a constant price.  
E. market values of all stocks to remain constant as the dividend growth will offset the increase in the market rate.

9. Fred Flintlock wants to earn a total of 10% on his investments. He recently purchased shares of ABC stock at a price of \$20 a share. The stock pays a \$1 a year dividend. The price of ABC stock needs to \_\_\_\_\_ if Fred is to achieve his 10% rate of return.
- A. remain constant
  - B. decrease by 5%
  - C. increase by 5%
  - D. increase by 10%
  - E. increase by 15%
10. Protective covenants:
- A. are primarily designed to protect the issuing corporation from unreasonable demands of bondholders.
  - B. only apply to bonds that have a deferred call provision.
  - C. are limited to stating actions which a firm must take.
  - D. are consistent for all bonds issued by a corporation within the United States.
  - E. are primarily designed to protect bondholders from future actions of the bond issuer.

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

**TIMELINE REQUIRED FOR PROBLEMS 1, 2, 3, and 6**

**Problem 1 (10 points)** When you retire in 37 years you would like to be able to withdraw \$8,000 per month in real terms for the 30 years you expect to be in retirement. You currently have \$20,000 in your retirement account. Additionally, you expect to receive a trust payment in 20 years. The current value of the trust is \$125,000 and you expect the value of the trust to keep pace with inflation until you receive it. You will then move the trust funds to your retirement account. To fund your retirement you will make monthly deposits. Before you retire, you expect to earn an 11 percent nominal EAR and you expect a 7 percent nominal EAR after you retire. Inflation will be a 3.2 percent EAR over the entire period. How much must you save each month to fund your retirement account?

**Problem 2 (10 points)** You have won the Perpetual Winner Lottery. The lottery will make payments of \$100,000 every other year beginning one year from now, and payments of \$200,000 every other year beginning two years from now. Both payments last forever. If the interest rate is an 8 percent APR compounded quarterly, what is the value of your winnings today?

**Problem 3 (9 points)** Jennifer Upton is responsible for financial planning at the Faulty Widget Company. The company has just developed a new widget and Jennifer has been instructed to develop a fund to cover all necessary repair costs over the next two years. Below are the estimated repair costs each month:

<u>Month</u>	<u>Repair cost per month</u>
1 – 4	\$250,000
5 – 18	\$500,000
19 – 24	\$400,000

Jennifer already has \$1,500,000 in a fund to cover repair costs. The appropriate interest rate is a 6 percent EAR. How much does the company have to deposit each month in order to cover all repair costs?

**Problem 4 (10 points)** Dahlia Florists is expected to grow rapidly over the next several years. Sales, which will be \$42.5 million in one year, are expected to grow at 15 percent, 13 percent, 10 percent, and 7 percent per year over the next four years, respectively. After this period, cash flows are expected to grow at 5 percent in perpetuity. Expenses including depreciation are 55 percent of revenues. Net investment, including net working capital and capital spending less depreciation, is 10 percent of revenues. Dahlia is an all-equity firm with 3.1 million shares outstanding and has a discount rate of 11 percent. What is the price per share of the company's stock?

**Problem 5 (9 points)** A general manager in 1971 earned \$10,300 per year. In 2018, his salary had increased to \$92,000. Over the same period, the average price of goods has increased by 4.73 times. What is his real income in 1971 dollars?

**Problem 6 (12 points)** You are planning to save for your retirement in 35 years and the college tuition for your two children. Your current monthly salary is \$9,000 per month and you expect your salary to keep pace with inflation. You expect inflation to be a 3.5 percent EAR for the rest of your life. You plan to deposit 12 percent of your salary each month into a retirement account. Additionally, your employer will deposit 4 percent of your salary into the account. You expect to earn a 10.8 nominal EAR in your retirement savings account until retirement. Your children will begin college 15 years and 17 years from now. The university that you plan for your children to attend has started a new legacy program where for a minimal donation today, the school will guarantee that the tuition for your first child will be \$130,000 and the tuition for your second child will be \$135,000. Each of these tuition payments will be made when your child starts college and will cover the entire four years of tuition. If you can earn an 8.7 percent nominal EAR after you retire, how much can you withdraw each month in real terms for the 25 years of your retirement?

**Problem 7 (10 points)** The most recent financial statements a company are shown below. Sales for next year are projected to grow by 15 percent. Interest expense, notes payable, long-term debt and depreciation will remain constant; the tax rate and the dividend payout rate will also remain constant. Costs, other expenses, current assets, and accounts payable increase spontaneously with sales. Suppose the company is operating at 85 percent capacity. Prepare the pro forma financial statements and calculate the EFN. Fixed assets can only be increased in increments of \$25 million and cannot be sold.

Sales	\$94,300,000
COGS	61,900,000
Other expenses	1,535,000
Depreciation	4,125,000
EBIT	<u>\$26,740,000</u>
Interest	<u>1,955,000</u>
Taxable income	\$24,785,000
Taxes	<u>8,674,750</u>
Net income	\$16,110,250

Dividends	\$6,500,000
Add to RE	9,610,250

Assets		Liabilities & Equity	
Current assets		Current liabilities	
Cash and equivalents	\$535,000	Accounts payable	\$ 978,000
Accounts receivable	1,935,000	Notes payable	<u>2,314,000</u>
Inventories	<u>4,873,600</u>	Total current liabilities	\$ 3,292,000
Total current assets	\$7,343,600	Long-term debt	\$ 26,500,000
		Stockholders' equity	
		Common stock	\$ 3,200,000
Fixed assets	<u>\$43,950,000</u>	Accumulated retained earnings	<u>18,301,600</u>
		Total equity	\$ 21,501,600
Total assets	\$51,293,600	Total liabilities and equity	\$ 51,293,600