

Multiple choice – 3 points each – 30 points total

1. 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.

2. The carrying value or book value of assets:
 - A. is determined under GAAP and is based on the cost of the asset.
 - B. represents the true market value according to GAAP.
 - C. is always the best measure of the company's value to an investor.
 - D. is always higher than the replacement cost of the assets.
 - E. None of the above.

3. At the end of the year, a company had current assets of \$260 and current liabilities of \$180. At the beginning of the year, current assets were \$220 and current liabilities were \$160. What was the change in net working capital for the company during the year?
 - A. \$20
 - B. \$40
 - C. \$60
 - D. \$80
 - E. \$160

4. Which of the following is not included in the computation of operating cash flow?
 - A. Earnings before interest and taxes
 - B. Interest paid
 - C. Depreciation
 - D. Taxes
 - E. All of the above are included.

5. Evanesence Corp. had an ROA of 8%. The profit margin was 4% on sales of \$250. What were total assets?
 - A. \$30
 - B. \$125
 - C. \$500
 - D. \$180
 - E. \$220

6. If its yield to maturity is less than its coupon rate, a bond will sell at a _____, and increases in market interest rates will _____.
- A. discount; decrease this discount
 - B. discount; increase this discount
 - C. premium; decrease this premium
 - D. premium; increase this premium
 - E. None of the above.
7. What is the effect on net working capital if the corporation decides to increase its investment in inventory and pay for it with cash?
- A. Increase in net working capital.
 - B. Decrease in net working capital.
 - C. Depends on the amount of the investment.
 - D. No change in net working capital.
 - E. None of the above.
8. What is the price of a bond with 12 years to maturity, a yield to maturity of 7.5 percent, and a coupon rate of 6.4 percent? Assume a par value of \$1,000 and semiannual coupon payments.
- A. \$938.27
 - B. \$929.72
 - C. \$902.19
 - D. \$964.18
 - E. \$913.95
9. You take out a mortgage on a \$150,000 house for 30 years with an interest rate of 9% and monthly payments. If you decide to sell the house in 16 years and pay off the mortgage, what is your final payment? Assume all payments were made exactly on time.
- A. \$88,321
 - B. \$93,806
 - C. \$98,415
 - D. \$106,320
 - E. \$115,063
10. The term structure of interest rates may be downward sloping if:
- A. the interest rate risk premium is the same for both short- and long-term bonds.
 - B. the inflation premium decreases with maturity.
 - C. the real rate is lower this year than last year.
 - D. default risk premiums are higher for longer terms bonds than shorter term bonds.
 - E. the bonds are risk-free.

Partial Credit Problems --- SHOW ALL WORK – Timelines required for Problems 1, 2, 3, 4, 5, 6

Problem 1 (12 points) You are saving for retirement and currently have \$50,000 in your retirement account. You plan to save \$700 per month in real terms for the next 25 years. When you retire, you will make monthly withdrawals for 30 years. Additionally, you want to go on a trip around the world in 10 years. You expect the cost of the trip will be \$100,000 in nominal terms at that time. You can earn a 12 percent nominal EAR before you retire and a 7 percent nominal EAR after you retire. If the inflation rate is a 3.8 percent EAR over the entire period, how much can you withdraw each month in real terms? What is the nominal value of your last withdrawal?

Problem 2 (8 points) You have just won the Joe Schmo Lottery™. You will receive 20 payments of \$500,000 every four years with the first payment 3 years from today. Since you don't think you will be around to receive all of the payments, you go to a broker to sell your winnings. If the appropriate interest rate is a 7 percent APR compounded daily, how much should you receive today for your winnings?

Problem 3 (8 points) An engineer in 1963 earned \$8,000 per year. In 2017, his salary had increased to \$91,000. Over the same period, the average price of goods has increased by 6.2 times. What is his real income in 1963 dollars?

Problem 4 (11 points) You have recently won the super jackpot in the Conch Republic Lottery. On reading the fine print, you discover that you have the following three options:

Option 1: You will receive 31 annual payments of \$175,000, with the first payment being delivered today. The payments will be taxed at a rate of 28 percent.

Option 2: You will receive \$530,000 now, and you will not have to pay taxes on this amount. In addition, beginning one year from today, you will receive \$125,000 each year for 30 years. These payments will be taxed at 32 percent.

Option 3: You will receive \$150,000 now, and you will not have to pay taxes on this amount. The payment next year will be \$125,000 and will grow at 4 percent per year for 30 payments. These payments will be taxed at a rate of 30 percent.

All taxes will be withheld when the checks are issued. Using an APR of 10 percent compounded monthly, which option should you select?

Problem 5 (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 6 (9 points) You have successfully started and operated a company for the past 10 years. You have decided that it is time to sell your company and spend time on the beaches of Hawaii. A potential buyer is interested in your company, but does not have the necessary capital to pay you a lump sum. Instead, he has offered \$500,000 today and annuity payments for the balance. The first payment will be for \$150,000 in three months. The payments will increase at 2 percent per quarter and a total of 25 quarterly payments will be made. If you require an EAR of 11 percent, how much are you being offered for your company?

Problem 7 (10 points) The most recent financial statements a company are shown below. Sales for next year are projected to grow by 20 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 90 percent capacity and wishes to increase its sales by 20 percent. Prepare the pro forma financial statements and calculate the EFN. Assume fixed assets can be increased in any dollar amount desired and the company wants to operate at full capacity.

Sales	\$99,000,000
COGS	54,300,000
Other expenses	10,750,000
Depreciation	<u>5,252,000</u>
EBIT	\$28,698,000
Interest	<u>2,175,000</u>
Taxable income	\$26,523,000
Taxes (40%)	<u>10,609,200</u>
Net income	\$15,913,800

Dividends	\$11,125,100
Add to RE	4,788,700

Assets		Liabilities & Equity	
Current assets		Current liabilities	
Cash and equivalents	\$679,000	Accounts payable	\$1,150,000
Accounts receivable	2,090,000	Notes payable	<u>2,915,000</u>
Inventories	<u>4,376,500</u>	Total current liabilities	\$4,065,000
Total current assets	\$7,145,500		
		Long-term debt	\$33,750,000
Total fixed assets	<u>\$62,740,000</u>	Stockholders' equity	
		Common stock	\$4,000,000
		Accumulated retained earnings	<u>28,070,500</u>
		Total equity	\$32,070,500
Total assets	\$69,885,500	Total liabilities and shareholders' equity	\$69,885,500