

Name \_\_\_\_\_

Student Number \_\_\_\_\_

MGF 301 Corporation Finance  
Fall 2009

TEST 1

Please sign name in box

Please tear off the answer sheet and answer all of the following questions on the answer sheet.  
(Note: Total Points = 100; Multiple Choice = 4 points each)

1. If you are earning interest at a 3% annual rate on deposits, which of the following will have the highest value after 10 years?
  - (a) a bank account that uses simple interest without compounding
  - (b) a bank account that compounds interest quarterly (i.e., 4 times per year)
  - (c) a bank account that compounds interest daily (i.e., 365 times per year)**
  - (d) cannot be determined
  
2. ABC corp. reported no news yesterday, but its price decreased yesterday by 10% in trading on the New York Stock Exchange. Which of the following is true about ABC yesterday?
  - (a) the market value of the equity stayed the same
  - (b) the book value of equity decreased by 10%
  - (c) the decrease in the stock price decreased the amount of cash that ABC has
  - (d) none of the above is true.**
  
3. If you pay interest compounded semi-annually that has an annual percentage rate (APR) of 6%, what is the equivalent annual rate (EAR)? Show your calculation. (6 points)

$$\text{EAR} = [1 + .06/2]^2 - 1 = .0609 \text{ or } 6.09\%$$

4. A 10 year bond with a coupon rate of 8% was issued 6 six years ago. It has a \$1,000 face value and pays a semi-annual coupon. If the yield to maturity is 6%, how would you calculate the bond price? Set up your calculation in detail but do not solve it. (6 points)

$$\text{Price} = 40/(1.03) + 40/(1.03^2) + 40/(1.03^3) + \dots + 1040/(1.03^6)$$

5. Julia is planning for retirement and wants to have \$500,000 forty years from now (in time 40). Which formula will calculate how much she needs to save today (time 0) to reach her goal?
  - (a)  $PV = [500,000 \times (1+r)^{40}] / (1+r)^{40}$
  - (b)  $PV = [500,000 \times 40] / (1+r)^{40}$
  - (c)  $PV = 500,000 / (1+r)^{40}$**
  - (d)  $FV_{40} = 500,000 \times (1+r)^{40}$

6. Your retirement plan will begin making fixed monthly payments of \$1,000 to you 30 years from today. These payments will continue forever in perpetuity (and will go to your beneficiaries after you die). Set up a formula using monthly compounding to calculate the present value of this retirement plan. Note: you do not need to solve your formula. ( 6 points)

$$PV = 1000/(r/12)/(1+r/12)^{358}$$

7. The lottery is currently paying a prize that pays \$15,000 five years from today (in time 5). If you invest the prize immediately in time 5 and you earn 7% interest, how much will your investment be worth in time 7? Write both your formula and your answer on the answer sheet. (6 points)

$$FV_7 = 15000 \times (1.07^2) = 17173.50$$

8. Ben is buying a car for \$15,000. If Ben wants to make four annual payments and the interest rate is 7%, which of the following is most consistent with time value of money principles if interest is compounded monthly?

- (a) **The annual payment can be calculated using a four year annuity and the EAR with monthly compounding**
- (b) The annual payment equals \$15,000 divided by 4
- (c) The annual payment can be calculated by applying the annuity formula to find forty eight equal monthly payments and then multiplying this payment times 12
- (d) None of the above is consistent

9. Jason has a choice of receiving \$15,000 next year (time 1) or \$17,000 in two years (time 2). If the discount rate is 6%, which choice has a higher present value? Write your solution method along with your answer on the answer sheet. (6 points)

$$PV \text{ choice 1} = 15000/1.06 = 14150.94$$

$$PV \text{ choice 2} = 17000/1.06^2 = 15129.94$$

**Choice 2 has the higher present value**

10. Mark each of the following as True (T) or False (F). (2 points each)

- T i. In the primary market, the company issues stocks and/or bonds to investors
- F ii. If a company does not pay a dividend, there is no way to estimate the stock price
- F iii. Market value of equity is always higher than book value of equity

11. Which of the following is false about a 10 year 8% bond with a face value of 1,000 that is selling for 950?

- (a) the bond will pay \$80 each year as interest
- (b) if the yield to maturity remains constant over the next year, the price will be higher next year
- (c) the yield to maturity is less than 8%**
- (d) none of the above

12. Today, WXZ issued a bond paying interest of X, with face value of \$1,000 and a 30 year maturity. The bond was issued with a price of \$1,010 and was rated A by Standard & Poors. Without doing any calculations, which of the following is false?

- (a) the yield to maturity for this bond is fixed when issued and will not change over the 30 year life**
- (b) the bond currently pays more interest than investors require given the risk
- (c) the bond's rating may change over the life of a bond
- (d) none of the above

13. For the bond in question 10, assume that two changes happen over the next 5 years: (a) overall interest rates in the economy fall by two percent and (b) WXZ struggles financially and its rating falls to B. What will be the effect of these two changes on the bond price? Explain your answer in the space on the answer sheet. (6 points)

**(a) a decrease in economy wide interest rates by 2 percent will lower the YTM on the WXZ bond because investors require a lower interest rate from the bond after economy wide interest rates fall. This will increase the bond price because YTM and price are inversely related.**

**(b) if WXZ struggles financially and its rating falls to B, this means the YTM has gone up because lower rated bonds have higher YTM. So the price of WXZ's bond will fall because of the higher YTM.**

**The combined effect of (a) and (b) is uncertain as they point in opposite directions. More information is required to determine if price will go up or down.**

14. You have won \$100,000 in a contest. You are given two choices: (A) receive 10,000 today (time 0) and 10,000 each year from time 1 through time 9; (B) receive 20,000 at the end of each year for time periods 1 through 5. Which of the following is true if  $r > 0$ ?

- (a) option A has a higher present value
- (b) option B has a higher present value**
- (c) option A and option B have the same present value because you receive \$100,000 in total in each option
- (d) none of the above is true

15. Julia is taking out a 6 year loan of \$20,000 to buy a car. If the annual interest rate is 6% and she will make equal monthly payments, which calculation correctly finds her payment?

- (a) =  $20,000/6$  year annuity factor
- (b) =  $20,000/72$
- (c) =  $20,000/72$  month annuity factor**
- (d) =  $20,000 \times (1.06)^6$