

Name _____

Student Number _____

TEST 1

MGF 301 Corporation Finance
Spring 2016

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 compounds interest daily (i.e., 365 times per year)
- (b) a bank account that uses simple interest without compounding
- (c) a bank account that compounds interest quarterly (i.e., 4 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 decrease in the stock price decreased the amount of cash that ABC has
- (b) the market value of the equity stayed the same
- (c) the book value of equity decreased by 10%
- (d) none of the above is true.

3. If you compounded interest daily but you pay interest monthly, set up a calculation to show how you would solve for the equivalent monthly rate (EMR) if the annual rate is 8%. Assume there are 30 days in one month and you do not need to solve the calculation (6 points)

$$\text{EMR} = (1 + .08/365)^{30} - 1$$

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)

This is a 4 year bond that is semi-annual, so coupon = 80/2, r=.06/2 and t=4*2
 $P = 40/(1.03) + 40/(1.03^2) + \dots + 1040/(1.03^8)$

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) $FV_{40} = 500,000 \times (1+r)^{40}$
- (d) None of the above

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 if the annual rate is 4%. Note: you do not need to solve your formula. (6 points)

$$1000/((.04/12)/(1+.04/12)^{360})$$

7. The lottery is currently paying a prize that pays \$20,000 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)

$$20,000 \times (1.07^2) = 22,898$$

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 by applying the annuity formula to find forty eight equal monthly payments and then multiplying this payment times 12
- (b) The annual payment can be calculated using a four year annuity and the EAR with monthly compounding**
- (c) The annual payment equals \$15,000 divided by 4
- (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 7%, which choice has a higher present value? Write your solution method along with your answer on the answer sheet. (6 points)

$$PV \text{ choice 1} = 15000/1.07 = 14,018.69$$

$$PV \text{ choice 2} = 17000/1.07^2 = 14,848.46 \text{ (this choice has higher PV)}$$

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

- F i. Book value of equity includes fair market value of the stock that is outstanding
- T ii. If a company does not pay a dividend, stock price can be estimated using cash flows
- F iii In the secondary market, the company issues stocks and/or bonds to investors

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

- (a) the yield to maturity is less than 8%
- (b) the bond will pay $\$80 \times 950/1000$ each year as interest
- (c) if the yield to maturity remains constant over the next year, the price will be the same next year
- (d) none of the above**

12. Today, WXZ issued a bond paying interest of 5.25%, 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 & Pooors. Without doing any calculations, which of the following is true?

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

13. For the bond in question 12, assume that two changes happen over the next 5 years: (a) overall interest rates in the economy fall by two percent and (b) WXZ's rating is changed to 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) The decrease in interest rates in the economy will decrease the yield to maturity on the bond. This increases the bond price**
- (b) The change in rating to B means the company is riskier, which will increase the yield to maturity and lower the bond price**

The overall effect on the bond price depends on which of (a) or (b) has a larger impact on bond price

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 and option B have the same present value because you receive \$100,000 in total in each option
- (b) option A has a higher present value
- (c) option B has a higher present value**
- (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 72 equal monthly payments, which calculation correctly finds her payment?

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