

Name _____ Section _____ ID # _____

AP/ADMS 3530 3.00 Finance**Midterm Exam****Fall 2012****Friday, October 19th, 2012****Type A Exam**

Sam Alagurajah

Section B, Tue. 7 - 10 pm

Lois King

Section E, Wed. 11:30 am - 2:30 pm

Section G, Internet

Xiaofei Li

Section H, Mon. 4 - 7 pm

Muz Parkhani

Section F, Mon. 7 - 10 pm

Dayna Patterson

Section A, Fri. 11:30 am - 2:30 pm

Irvin Pestano

Section D, Thu. 4 - 7 pm

Chris Robinson

Section C, Wed. 7 - 10 pm

This exam consists of **40 multiple choice questions** and carries a total of **40 points**. Choose the response that best answers each question. **Circle your answers below, and fill in your answers on the bubble sheet. Only the bubble sheet is used to determine your exam score.** Please do **not** forget to write your name and ID # both at the top of this cover page and on the bubble sheet. Also please write the type of your exam (**A** or **B**) on the bubble sheet.

Please note the following points:

- 1) **Read the questions carefully and use your time efficiently.**
- 2) Choose the answers that are **closest** to yours, because of possible rounding.
- 3) Keep at least **4** decimal places in your calculations and at least **2** in your final answers and at least **6** for the interest rates.
- 4) Unless otherwise stated, interest rates are **annual**, and bonds pay **semiannual coupons** and have a face value (or par value) of **\$1,000**.
- 5) You may use the back of the exam paper as your scrap paper.

Numerical Questions (1 point each):

1. How much interest will be earned in the fourth year if \$7,000 is deposited today that earns 6% interest compounded semiannually?

- A) \$509.02
- B) \$534.48
- C) \$568.86
- D) \$609.36
- E) \$652.75

2. How much more is a perpetuity of \$2,500 (annual payments) worth than an annuity of the same amount for 25 years? Assume an annual 6% interest rate and cash flows at the end of each year.

- A) \$3,293
- B) \$4,768
- C) \$5,486
- D) \$9,708
- E) \$12,327

3. A cash flow stream has a present value of \$2,500 today and is based on a \$400 investment today, a \$500 investment at the end of Year 1, \$X investment at the end of Year 2, and a \$700 investment at the end of Year 3. Given that the prevailing return on similar investments was 6% compounded annually then what is \$X?

- A) \$650.31
- B) \$910.30
- C) \$954.37
- D) \$1,040.57
- E) \$1,169.18

4. A home mortgage of \$400,000 is to be repaid monthly at a 5.2% APR semiannually compounded over 25 years. How much interest is paid over the life of the mortgage loan?

- A) \$270,846
- B) \$273,800
- C) \$281,350

- D) \$311,642
- E) \$342,391

5. Approximately how long will it take to accumulate \$2 million with annual payments of \$12,000 with the first payment made today if the annual interest rate is 6%?

- A) 32 years
- B) 40 years
- C) 48 years
- D) 72 years
- E) 85 years

6. Robert wishes to have \$1,000,000 in his retirement fund in 30 years. If he contributes \$1,500 monthly at the end of each month for 30 years starting in one month from now, what must he also deposit today to achieve his retirement goal? The fund pays an APR of 6% compounded monthly.

- A) \$84,145
- B) \$85,396
- C) \$416,229
- D) \$417,480
- E) \$525,611

7. Rita had purchased a new \$30,000 eco-friendly car through a 60 month financing plan, with payments due at the end of each month. The interest rate was 9% APR compounded monthly. At the end of Year 4, Rita earned a large bonus from her job and wanted to pay off the outstanding balance. How much did Rita still owe at the end of Year 4?

- A) \$4,975
- B) \$6,000
- C) \$7,121
- D) \$8,525
- E) \$9,111

8. You want to buy a house that costs \$500,000. You make a 15% down payment and finance the rest with a 20-year mortgage. The mortgage has a five

year renewal term for which the annual mortgage rate is 6.25% compounded semiannually. What will be your monthly payment?

- A) \$1,858
- B) \$2,783
- C) \$2,967
- D) \$3,087
- E) \$3,631

9. What is the present value of a six payment annuity of \$3,500 per year that begins four years from today if the annual discount rate is 6 percent?

- A) \$12,250.00
- B) \$13,632.44
- C) \$14,450.39
- D) \$16,388.97
- E) \$17,210.64

10. In order to assist your retired parents with additional income, you are now planning to establish a 15-year trust fund that will pay out \$12,000 at the end of the first year and then increase by 3% per year. You expect that the trust fund can earn a 7% annual rate of return. How much should you invest today in order to maintain this fund? (Please ignore any tax implications.)

- A) \$33,158
- B) \$84,504
- C) \$106,508
- D) \$130,596
- E) \$300,000

11. You've won a local lottery and the cash prize is \$3,000. Alternatively you've been offered \$125 a month over the next 3 years with payments beginning today. Based on the above what is the EAR of the monthly alternative, assuming that both options have the same present value today?

- A) 25.14%
- B) 32.61%
- C) 35.15%
- D) 42.24%
- E) 45.56%

12. You are deciding between two loans over the same time frame and want to apply the knowledge that you've learned in ADMS 3530 in choosing the cheapest loan option. Option 1 offers a 10.20% rate per annum compounded weekly. (There are 52 weeks in a year.) Option 2 offers a 10.25% rate per annum compounded quarterly. Which option would you choose?

- A) Option 1.
- B) Option 2.
- C) You would be indifferent as the rates are exactly the same.
- D) Option 1 because it is half the EAR of option 2.
- E) Option 2 because it is half the EAR of option 1.

13. You are advising your friend on two alternative forms of financing for the purchase of his used car. Option 1: Put down a \$1,000 deposit today and make 4 annual payments of \$2,000 each, with the first payment starting in 2 years from today. Option 2: Pay \$7,000 cash today. If the dealership is charging an EAR of 8%, which option should you choose?

- A) Option 1: as its present value is \$6,134.
- B) Option 1: as its present value is \$7,624.
- C) Option 2: as its present value is \$7,000.
- D) Option 1: as its present value is \$6,624.
- E) Option 1: as its present value is \$6,766.

14. The Government of Italy's 12% coupon bond has 5 years remaining to maturity. The bond pays annual coupons and the next coupon is due in one year. The face value of the bond is \$1,000. The bond is currently yielding at 50% of its coupon rate. If you buy the bond today and hold it to maturity, then how much interest do you earn on the reinvested coupons, assuming coupons are reinvested at the yield to maturity?

- A) \$600.00
- B) \$762.34
- C) \$76.45
- D) \$60.00
- E) \$87.19

15. The Government of Canada has a bond that matures in 22 years and has a face value of \$1,000. The bond has a coupon rate of 3.2%, paid semiannually. The yield to maturity on the bond is 7%. If coupons are reinvested at 3.7% per

annum semiannually compounded, then how much interest is earned on reinvested coupons over the life of the bond? In your answer please calculate the interest as a percentage of the total cash flows received by the bondholder.

- A) 16%
- B) 18%
- C) 21%
- D) 29%
- E) 11%

16. To raise funds for software development for the gun registry, the Federal Government of Canada has issued bonds on behalf of the Department of Justice. The bonds, called "Gun Bonds", have a face value of \$1,000, two years to maturity and a 6% coupon rate (semiannual coupons). The bonds are priced at \$1,018.86. What is the yield to maturity on the Gun Bonds?

- A) 2.99%
- B) 2.49%
- C) 3.99%
- D) 4.99%
- E) 5.99%

17. J&J Enterprises wants to issue a 20-year, \$1,000 zero-coupon bond. If each bond is to yield 9% annually, how much will J&J receive (ignoring issuance costs) when the bond is first sold?

- A) \$150.16
- B) \$167.55
- C) \$178.43
- D) \$199.11
- E) \$165.22

18. Jay Z became the first heavy-hip hop artist to sell bonds when he arranged a \$30 million deal with Linkin Park in February 2005. The collateral on the bonds (and a source of cash flows for interest and principal payments) consisted of future royalties from the artist's albums like "Encore". Each bond in the issue had a face value of \$1,000, a ten-year maturity and paid a coupon rate of 4% payable semiannually. The market rate of interest on equivalent securities was 7% per year. What price did each of the bonds sell for?

- A) \$789.81
- B) \$768.81
- C) \$803.47
- D) \$798.29
- E) \$786.81

19. Jumanji Inc. issues semiannual coupon bonds that have a 5.25% coupon rate. The bonds are currently selling at a premium of 1.25% of the par value of \$1,000 and are scheduled to mature in 7 years. What is the yield to maturity on these bonds?

- A) 5.25%
- B) 5.04%
- C) 5.33%
- D) 5.49%
- E) 5.19%

20. Sirriwalia bought an 8.5% coupon payable annually bond at a face value of \$1,000. A year later he sold it at a 2% discount on face value. During the year, the consumer price index that represents the inflation rate rose by 3%. What was the real rate of return that Sirriwalia has earned on his investment?

- A) 4.4%
- B) 3.4%
- C) 6.7%
- D) 3.6%
- E) 6.5%

21. What is the expected annual constant growth rate of dividends for a stock currently selling at \$50, that has just paid a dividend per share of \$2, and has an expected rate of return of 11% per year?

- A) 6.21%
- B) 6.43%
- C) 6.73%
- D) 7.00%
- E) 7.25%

22. A firm expects to have earnings per share of \$3 in next year. Until now the firm has paid out all the earnings as dividends. With the expectation of no growth, the current share price is \$20. The firm is considering a proposal to cut the dividend payout ratio to 45% and to reinvest the rest of the earnings on a new investment project. The ROE on the new investment would be 22% annually. Assuming the firm's required rate of return is unchanged, what would happen to the firm's share price if the proposal is approved?

- A) The stock price should be the same.
- B) The stock price should drop from \$20 to \$15.65.
- C) The stock price should drop from \$20 to \$17.45.
- D) The stock price should rise from \$20 to \$43.85.
- E) The stock price should rise from \$20 to \$46.55.

23. The earnings of a firm in this past year were \$4 per share and are expected to grow at 16% annually over the next three years. In Year 4 the growth rate will slow to a constant rate of 4% and continues at this level forever. No dividends are expected to be paid until the end of Year 4 when the firm will begin paying out 70% of its earnings as dividends. If the firm's required rate of return is 12% per year, what is its share price today?

- A) \$31.78
- B) \$34.80
- C) \$37.62
- D) \$40.44
- E) \$43.26

24. A company expects its earnings and dividends to grow at 14% annually during the next 2 years and at 12% in the third year and then at a constant rate of 6% annually infinitely. The last dividend paid was \$1.5 and the required rate of return is 9% every year. What should be the company's share price now?

- A) \$59.62
- B) \$61.78
- C) \$62.94
- D) \$64.46
- E) \$66.20

25. A stock currently sells for \$48 per share. The market requires a 13% rate of return on the firm's stock. If the company maintains a 7% growth rate in dividends, what was the most recent annual dividend per share?

- A) \$2.43
- B) \$2.52
- C) \$2.69
- D) \$2.88
- E) \$2.97

26. A stock paying \$2.5 in annual dividends sells now for \$105 and has an expected rate of return of 15% annually. What might investors expect to pay for this stock one year from now?

- A) \$120.15
- B) \$114.55
- C) \$115.75
- D) \$116.85
- E) \$118.25

27. What is the annual expected rate of return on a stock that has a 3.4% constant growth rate, a current price of \$32, and an expected dividend of \$1.36 per share for next year, and a P/E ratio of 18?

- A) 7.43%
- B) 7.65%
- C) 7.81%
- D) 8.07%
- E) 8.25%

Conceptual Questions (1 point each):

28. The agency problem is:

- A) the conflict between regulators and an incorporated company.
- B) the conflict between the company and the elected legislators in the province of the company's head office.
- C) the conflict of interest between the shareholders and the managers.
- D) the problem insurance companies have in keeping their agents from leaving to join another company.

E) None of the above.

29. The treasurer of a company:

- A) prepares the financial statements.
- B) manages the cash balances.
- C) prepares the tax returns.
- D) None of the above.
- E) Each of A, B and C.

30. Maximizing company profits is not a well-defined company objective because:

- A) cost-cutting decisions that raise profit this year may reduce future profits by much more.
- B) a company may raise profit by retaining dividends and investing them but it is earning such low returns that it should pay the dividends to the shareholders who can reinvest the money for higher returns.
- C) the company may increase profits with actions that hurt society as a whole.
- D) A and C only
- E) A, B and C

31. Which of the following is NOT an effective method of monitoring and controlling corporations and their Boards of Directors?

- A) Regulations of the Ontario Securities Commission.
- B) Takeovers.
- C) Shareholders voting for the Board of Directors.
- D) Stock options granted to the senior executives that can be sold at any time.
- E) Large institutional investors who become active in monitoring the companies in which they invest.

32. The real rate of interest is:

- A) the rate we observe in the financial markets.
- B) the same as the risk-free rate of return.
- C) the rate of interest if there were no inflation.
- D) the yield to maturity on a short-term Government of Canada bond.
- E) the yield to maturity on a long-term Government of Canada bond.

33. The amount owing on a mortgage loan on the date of renewal at a new, higher rate of interest is:

- A) the present value of the old payment amount discounted for the number of periods remaining in the mortgage at the old rate of interest.
 - B) the future value of the payments already made, discounted at the old rate of interest to the renewal date.
 - C) the present value of all the future payments discounted at the new rate, minus the interest expense already paid.
 - D) the present value of the future payment amount discounted for the number of periods remaining in the mortgage at the old interest rate.
 - E) the original value of the mortgage minus the sum of all the payments made so far.
34. Bonds, which give the issuing company the option to buy them back early, are known as:
- A) zero-coupon bonds.
 - B) floating-rate bonds.
 - C) warrants.
 - D) strip bonds.
 - E) callable bonds.
35. When pricing bonds, if a bond's coupon rate is less than the required rate of return, then:
- A) the holder of the bond is assured of a profit regardless of when the bond is eventually sold.
 - B) The holder of the bond will realize a capital gain if the bond is held to maturity.
 - C) The bond sells at par because the required rate of return is adjusted to reflect the difference.
 - D) The bond sells at a premium if it has a long maturity, a discount if it has a short maturity.
 - E) The bond sells at a discount if it has a long maturity, a premium if it has a short maturity.
36. It is more difficult to value a stock than it is to value a bond because:
- A) the future cash flows of a stock are known.
 - B) the life of an equity security is limited.
 - C) the required market rate of return on a stock is known in advance.
 - D) equity securities have no maturity date.
 - E) the maturity value of a stock is known.
37. Dividends on the common stock of Andean Inc. are expected to grow at a constant rate forever. If you are told Andean's most recent dividend paid, its dividend growth rate, and a discount rate, you can calculate _____.

- I. the price today
- II. the price five years from now
- III. the dividend that is expected to be paid 10 years from now

- A) I only
- B) I and II only
- C) I and III only
- D) II and III only
- E) I, II, and III

38. The dividend discount model:

- A) values a stock based solely on the rate of dividend growth.
- B) can be used to value all common stocks.
- C) considers both the dividend yield and the capital gains yield.
- D) can not be used to value zero growth dividend stocks.
- E) is independent of an investor's required rate of return.

39. A dividend payment on preferred stock:

- A) can never be omitted if the company is earning a profit.
- B) can not be omitted even at the discretion of the board of directors.
- C) is automatically omitted if the company realizes a loss.
- D) can be omitted at the discretion of the board of directors.
- E) increases when the company has a profit and decreases when the company has a loss.

40. Suppose two analysts, Amanda and Bob, are evaluating a stock. Amanda assumes a higher required return on the stock than the return assumed by Bob. All other estimates are the same. The price of the stock calculated by Amanda will be _____ than the price calculated by Bob.

- A) higher
- B) lower
- C) the same
- D) lower only if the stock does not pay a dividend
- E) higher only if the stock does not pay a dividend