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University of Massachusetts
School of Management
Department of Finance and Operations Management

FOMGT 301, Corporation Finance, Spring 2009
Exam #1: March 3, 2009, Mahar Auditorium

Directions: Select the best answer to the following 27 questions worth a total of 100 points. You have 75 minutes to finish the exam. You are not to use any outside materials during the exam, including books, notes, cell phones, or any electronic devices. You may not share a calculator.

Unless specified otherwise, the stated interest rate is an annual rate that compounds once per year. For best results, work all calculations using at least four decimal places of accuracy. Values in parentheses are negative values.

Work Space

Part 1: Problems Worth Two Points Each (total of 12 points in this part)

1. What amount comes closest to the present value of receiving \$1,000 in 7.5 years if the interest rate is 7.5%?
 - A. \$ 459
 - B. \$ 725
 - C. \$ 925
 - D. \$ 581
 - E. \$ 143

2. What amount comes closest to the present value of receiving \$500 in 4 months if the interest rate is 9%?
 - A. \$ 486
 - B. \$ 459
 - C. \$ 498
 - D. \$ 434
 - E. \$ 409

3. What amount comes closest to the future value in 14 years of investing \$100 today if the interest rate is 5.99% compounded daily?
 - A. \$ 160
 - B. \$ 231
 - C. \$ 206
 - D. \$ 222
 - E. \$ 165

4. What amount comes closest to the future value in 6 years of investing \$25,000 today if the interest rate is 16%?
 - A. \$ 70,730
 - B. \$150,160
 - C. \$ 42,990
 - D. \$ 46,160
 - E. \$ 60,910

5. What amount comes closest to the present value of receiving two lump sums: \$100 at the end of year 5 and an additional \$100 at the end of year 6 if the interest rate is 5%?
 - A. \$ 190
 - B. \$ 153
 - C. \$ 210
 - D. \$ 181
 - E. \$ 168

6. What amount comes closest to the future value at the end of year 5 of investing two lump sums: \$100 immediately and an additional \$100 at the end of year 1 if the interest rate is 5%?
 - A. \$ 255
 - B. \$ 235
 - C. \$ 249
 - D. \$ 295
 - E. \$ 225

Part 2: Problems Worth Three Points Each (total of 15 points in this part)

Use the following information to answer questions 7 through 9: CollegeLottery.com provides the following prizes.

Award 1: An annuity of \$2,500 for 15 consecutive years beginning at the end of year 1.

Award 2: An annuity of \$2,500 for 15 consecutive years beginning at the end of year 6.

7. Using an interest rate of 3%, what amount comes closest to the present value of Award 1?
 - A. \$ 29,845
 - B. \$ 27,796
 - C. \$ 25,949
 - D. \$ 24,281
 - E. \$ 28,220

8. Using an interest rate of 3%, what amount comes closest to the present value of Award 2?
 - A. \$ 31,402
 - B. \$ 20,332
 - C. \$ 25,744
 - D. \$ 22,846
 - E. \$ 18,144

9. Using an interest rate of 3%, what amount comes closest to the future value of Award 2 at the end of year twenty?
 - A. \$ 58,190
 - B. \$ 53,946
 - C. \$ 46,497
 - D. \$ 54,183
 - E. \$ 50,059

10. Using an interest rate of 6%, (approximately) how long does it take \$100 to turn into \$200?
 - A. 9 years
 - B. 8 years
 - C. 12 years
 - D. 10 years
 - E. 6 years

11. If \$100 invested over 7 years grows to \$120, (approximately) what interest rate is being earned?
 - A. 2.6%
 - B. 2.3%
 - C. 3.7%
 - D. 4.7%
 - E. 1.8%

Part 3: Course Concepts & Terms Worth Four Points Each (total of 28 points in this part)

12. Which represents an implication of Positive Marginal Utility of Wealth to financial managers?
- A. Managers can increase value by acting in a socially responsible manner.
 - B. Identical goods must have identical value.
 - C. Prices are accurate measures of value.
 - D. The best decisions are those that make the stock price as high as possible.
 - E. Arbitrage is very difficult to earn.
13. Which of the following was used to illustrate a violation of Conservation of Value?
- A. Winning a CD from a local radio station
 - B. The closing of New England Wire and Cable
 - C. Ben and Jerry's Homemade
 - D. Utility from drinking root beer and eating pizza
 - E. Selecting stocks in a random fashion
14. What do we call financial securities sold to investors for the first time?
- A. Secondary securities
 - B. Intangible securities
 - C. Dealer securities
 - D. Direct trading securities
 - E. Primary securities
15. What do we call markets where assets trade at prices that equal their values, based upon all available information?
- A. Direct trading markets
 - B. Auction markets
 - C. Dealer markets
 - D. Efficient markets
 - E. Inefficient markets
16. A bond that was issued at par a year ago is now selling at above par (at a premium). Based only upon this information which of the following is true?
- A. The bond's yield to maturity is greater than the bond's coupon yield.
 - B. The bond's yield to maturity is equal to the bond's coupon rate.
 - C. The bond's yield to maturity is less than the bond's coupon rate.
 - D. The bond's yield to maturity is negative.
 - E. The bond's yield to maturity is equal to zero.

17. Which of the following represents the formula for calculating the coupon rate of a bond?
- A. The par value divided by the number of years left to maturity.
 - B. The par value divided by the original number of years to maturity.
 - C. The coupon payment divided by the par value.
 - D. The coupon payment divided by the number of years to maturity.
 - E. The par value divided by the coupon payment.
18. How does the economic system, as presented in Chapter 2, views governments?
- A. As direct owners of real assets, whether they are tangible or intangible.
 - B. As vehicles that transfer a portion of direct ownership of real assets by people to indirect ownership by society.
 - C. As conduits or buffers between people and financial assets.
 - D. As providing contracts between principals and agents.
 - E. As providers of publicly available information such as financial statements.

Part 4: Problems Worth Five Points Each (total of 45 points in this part)

19. Elizabeth, a Country Singer, was recently offered a record deal that pays her \$1,500,000 immediately and is then followed by an annuity of some amount paid at the end of each year, starting in one year, for 5 consecutive years. Her colleague was just offered a similar contract that has a present value of \$3,200,000. What value of the annuity will make the present value of Elizabeth's contract equal to that of her colleague? Use an interest rate of 5%.
- A. \$ 337,505
 - B. \$ 392,657
 - C. \$ 939,755
 - D. \$ 808,412
 - E. \$ 997,886
20. Suppose your retirement goal is to accumulate \$250,000 in 17 years. How much do you need to deposit in the bank today to meet your goal if the bank offers an interest rate 7% compounded monthly?
- A. \$ 14,705
 - B. \$ 80,675
 - C. \$ 1,225
 - D. \$ 76,319
 - E. \$103,643
21. What amount comes closest to the monthly payment on a 360 month (30 year) mortgage if the amount borrowed today is \$225,000 and if the interest rate is 3%?
- A. \$ 507
 - B. \$ 625
 - C. \$ 949
 - D. \$ 858
 - E. \$ 786

22. A local bank has two saving options on \$1,000 deposited over one year. The first offers 5% interest compounded on a continuous basis while the second offers 5.1% compounded quarterly. Assuming positive marginal utility of wealth, which saving option should you choose and why?
- A. Choose continuous compounding, as you will earn about \$0.39 more in interest.
 - B. Choose continuous compounding, as you will earn about \$0.17 more in interest.
 - C. Choose continuous compounding, as you will earn about \$1.50 more in interest.
 - D. Choose quarterly compounding, as you will earn about \$0.71 more in interest.
 - E. Choose quarterly compounding, as you will earn about \$0.07 more in interest.

23. Karen is a trusted employee whose productivity declines as she works more and more hours each day. After careful observation of her work performance, her manager prepared the following estimate of Karen's work. The first number represents the daily number of hours worked by Karen and the second number (after the slash) represents the total number of work units completed:

1/100 2/190 3/270 4/340 5/400 6/450 7/480 8/500

Karen's total cost to the firm is \$11 per hour. Each work unit completed is worth \$0.21 to the firm. Ignoring all other possibilities and considerations, for how many hours should the firm hire Karen per day?

- A. 5 hours
 - B. 4 hours
 - C. 3 hours
 - D. 6 hours
 - E. 7 hours
24. Which of the following comes closest to today's price of a U.S. Treasury Bill offering \$10,000 in 39 weeks if the required rate of return is 2.25%?
- A. \$ 9,835
 - B. \$ 9,770
 - C. \$ 5,000
 - D. \$ 9,225
 - E. \$10,225
25. A bond maturing in 7 years pays an annual coupon of \$80 and returns the face value of \$1,000 at maturity. Which of the following comes closest to the present value of the bond if the yield to maturity on the bond is 8.25%?
- A. \$ 1,000
 - B. \$ 993
 - C. \$ 868
 - D. \$ 1,170
 - E. \$ 987

26. A zero coupon bond offers an amount of \$1,000 in 17 years. Suppose you buy this bond for \$370 and hold it till it matures. Which of the following comes closest to the bond's yield to maturity?
- A. 33%
 - B. 38%
 - C. 6%
 - D. 15%
 - E. 23%
27. Which of the following comes closest to the present value of receiving 25 consecutive annual payments of \$100 that begin at the end of year 1 and end at the end of year 25 with two exceptions: the payment at the end of year 16 is not \$100 but \$0, and the payment at the end of year 25 is not \$100 but \$1,000. Use an interest rate of 8%.
- A. \$1,090
 - B. \$1,028
 - C. \$1,367
 - D. \$ 365
 - E. \$1,170

Course Formulae For Exam #1

(1.1) $\text{Assets} = \text{Debt} + \text{Equity}$

(1.2) $\text{Market Value of Equity} = \text{Market Value of Assets} - \text{Market Value of Debt}$

(1.3) $\text{Profits} = \text{Revenues} - \text{Expenses}$

(4.1) $FV_1 = PV(1+r)$

(4.2) $FV_n = PV(1+r)^n$

(4.3) $FV_n = PV[1+\{r/m\}]^{mn}$

(4.4) $FV_n = PV[e^{rn}]$

(4.5) $\text{Effective Annual Rate} = [1+\{r/m\}]^m - 1$

(4.6) $PV = FV_n / (1+r)^n$

(4.7) $PV = FV_n / e^{rn}$

(4.8) $PVA = A \left\{ \frac{1}{r} - \frac{1}{r(1+r)^n} \right\}$

(4.9) $FVA = A \left\{ \frac{(1+r)^n - 1}{r} \right\}$

(4.10) $r = \{FV_n/PV\}^{1/n} - 1$

(4.11) $(1+r)^n = \{FV_n/PV\}$

Answer Key

1. D
2. A
3. B
4. E
5. B
6. C
7. A
8. C
9. C
10. C
11. A
12. D
13. B
14. E
15. D
16. C
17. C
18. B
19. B
20. D
21. C
22. D
23. A
24. A
25. E
26. C
27. E