

**Instructions**

- This assignment has 20 questions. It is due on **October 15<sup>th</sup>, at 23:59**. No late submissions will be accepted or graded.
- You only need to submit the excel file attached to this email. Submissions are via Dropbox on FirstClass.
- **Please send your submission file in MICROSOFT EXCEL format. Do not submit a file in other formats.**
- **You only need to indicate the correct answer choice A, B, C, D, or E. DO NOT INCLUDE ANYTHING ELSE IN THE CELL.**

Acceptable	
Question Number	Response
1	A
2	B

Unacceptable		
Question Number	Response	Response
1	A.	A (2.31\$)
2	B.	B (No)

- Make sure your **student ID number** is indicated properly.
- Make sure you solve and understand the questions. Your midterm **will** include some of the assignment questions.
- Try to rely on the equation list that you will have on your exam day. You can access it through FirstClass.

Best of luck

## Part 1: Introduction

1) Of the following, which statement regarding agency problems and costs is true?

A) An agency problem exists when there is a conflict of interest between the stockholders and management of a firm.

B) An agency problem does not exist when there are conflicts of interest between principals and agents.

C) An indirect agency cost occurs when firm management takes on risky projects that favorably affect the stock price, even though the managers are worried about keeping their jobs.

D) A corporate expenditure that benefits stockholders but harms management is an agency cost.

E) Agency costs are directly observable in the stock market.

2) Until this year, Cheers Inc. was organized as a partnership. This year, the partners have decided to transfer the business to a corporation. As a result of this change in organizational form, which of the following statements is/are correct?

I. Cheers' shareholders (the ex-partners) will now have limited liability.

II. Cheers will now be subject to fewer regulations.

III. Cheers will now have relatively greater agency problems

A) I only

B) II only

C) III only

D) I and II

E) I and III

## Part 2: Time Value of Money

3) Tom has borrowed \$20,000 from his local bank. The interest on the loan will be 12% per year for the first 7 years and 4% per year for the next 8 years. The interest is compounded annually and Tom will repay the principal and all the accrued interests at the end of year 15. The amount that Tom should pay back is closest to:

- A) \$58,232.31
- B) \$99,532.81
- C) \$60,509.40
- D) \$73,224.51
- E) \$32,567.75

4) An interest rate of 20% compounded monthly is equivalent to a rate of \_\_\_\_\_ compounded quarterly.

- A) 22.22%
- B) 20.00%
- C) 22.08%
- D) 21.38%
- E) 20.34%

5) Tom and Antonio both want to open savings accounts today. Tom wants to have \$1,000 in his savings account six years from now. Antonio wants to have \$1,000 in his savings account three years from now. Which of the following statements is (are) correct assuming that both Antonio and Tom earn the same rate of interest? Assume that the interest rate is greater than zero and less than 20%.

- I. Tom needs to deposit more money into his account today than does Antonio.
- II. Tom will need to deposit twice the amount of money today as Antonio.
- III. Antonio needs to deposit more money into his account today than does Tom.
- IV. Antonio needs to deposit twice the amount of money today as Tom.

- A) I only
- B) III only
- C) I and II only
- D) III and IV only

6) The James Co. plans on saving money to buy some new equipment. The company is opening an account today with a deposit of \$25,000 and expects to earn 4% interest. After 3 years, the firm wants to add an additional \$50,000 to the account. If the account continues to earn 6%, the amount that James Co. will have in their account five years from now will be closest to?

- A) \$86,872.96
- B) \$88,249.79
- C) \$87,777.43
- D) \$80,329.79
- E) \$79,082.44

7) Today, Bruce and Brenda each have \$200,000 in an investment account. No other contributions will be made to their investment accounts. Both have the same goal: They each want their account to reach \$1 million, at which time each will retire. Bruce has his money invested in risk-free securities with an expected annual return of 5 percent. Brenda has her money invested in a stock fund with an expected annual return of 10 percent. How many years after Brenda retires will Bruce retire?

- A) 11.6
- B) 16.1
- C) 19.9
- D) 24.4
- E) 32.9

8) You own a furniture store. You normally sell a living room set for \$3,500 and finance the full purchase price for 30 monthly payments at 12% APR (compounded monthly). You are planning to run a zero-interest financing sale during which you will finance the set over 30 months at 0% interest. What should be your selling price during the zero-interest financing sale such that you are able to earn your usual combined return on the sale and the financing? Assume all payments are made at the end of the month.

- A) \$ 3,500.00
- B) \$ 3,435.00
- C) \$ 4348.74
- D) \$4068.55
- E) \$135.62

Assume the following scenario:

Bob plans to retire in 15 years from now and wants to have the following stream of CFs after retirement. Monthly payments of \$6,000 for 10 years starting right after retirement (the first payment will be at the end of the first month of year 16). He then needs an extra 10000\$ with the final payment (that is at the end of the final month of year 25). Starting from year 26 he wants the monthly payments to grow at 0.5% per month for another 15 years. (That is the first payment in year 26 will be  $6000 \cdot (1+0.005)$ ). The APR is 8% with quarterly compounding.

9) The present value (at  $t = 0$ ) of this plan is closest to?

- A) 251,732.37\$
- B) 281,907.74\$**
- C) 197,574.22\$
- D) 323,246.29\$

10) Now suppose Bob want to save for this retirement plan. He will be making monthly payments to a saving account that pays the same interest rate. (That is APR=8%, compounded quarterly) His monthly payments will be closest to which of the followings?

- A) 1472.55
- B) 2764.37
- C) 4872.23
- D) 2684.95**

11) Suppose instead of monthly payments, he will be making quarterly payments to a saving account that pays the same interest rate. (That is APR=8%, compounded quarterly) His quarterly payments will be closest to which of the followings?

- A) 8109.91**
- B) 7874.12
- C) 9424.98
- D) 2684.95

12) Now suppose he has a business that he will sell right at the time of retirement for 250000\$ and contribute all of it to the retirement account. Again, he will be saving for retirement by making monthly payments to a saving account that pays the same interest rate. (That is APR=8%, compounded quarterly) His monthly payments will be closest to which of the followings?

- A) 1958.92
- B) 2437.25
- C) 2898.37
- D) 1234.56

### Part 3: Bond

13) When computing the yield to maturity, the implicit reinvestment assumption is that the reinvested coupons are reinvested at the \_\_\_\_\_.

- A) Coupon rate.
- B) Prevailing yield to maturity at the time the coupons are received.
- C) Average yield to maturity over the life of the bond.
- D) Yield to maturity at the time of the investment.

14) Which of the following features of a bond are determined by the issuer following the advice of the underwriter?

- I. price
- II. Coupon
- III. Time to maturity
- IV. Yield to maturity

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

15) What is the holding period return of a 9% annual coupon bond with a face value of \$1000 and with five years to maturity if it is purchased at the beginning of year 1 at a Yield-to-Maturity (market rate) of 6.0% and sold at the beginning of year 2? Assume that rates do not change.

- A) 7.4%
- B) 7.1%**
- C) 6.8%
- D) 6.0%
- E) None of the above

16) The price of a 10 year semi-annual pay bond with a face value of \$1,000 and a 7.8% annual coupon and yield to maturity of 5.8% is closest to:

- A) \$1079.05
- B) \$1150.16**
- C) \$1,074.30
- D) \$1,075.08
- E) \$1,148.61

#### **Part 4: Equity**

17) Given no change in required returns, the price of a stock whose dividend is constant will:

- A) Increase over time at a rate of  $r\%$ .
- B) Decrease over time at a rate of  $r\%$ .
- C) Increase over time at a rate equal to the dividend growth rate.
- D) Decrease over time at a rate equal to the dividend growth rate.
- E) Remain unchanged.

18) A Transportation company has issued \$2.5 million in preferred shares with a par value of \$20 each and an annual dividend rate of 8.25 percent. The market value of the preferred shares is closest to \_\_\_\_\_ if the required rate of return is 12 percent.

- A) \$3.64 million
- B) \$1.72 million**
- C) \$17.19 million
- D) \$34.38 million

19) Which of the following is NOT true about the P/E ratio?

- A) A comparison of one company with its peers also involves a great deal of subjectivity regarding company-specific characteristics.
- B) P/E ratios only work well on companies in the high growth stage of their lifecycle.
- C) P/E ratios are uninformative when companies have negative or very small earnings.
- D) The volatile nature of earnings implies a great deal of volatility in P/E multiples.

20) Perpetual Inc stock currently sells for \$40 per share (immediately after mailing out its most recent dividend). The required rate of return for Perpetual's equity is 10%. If the company maintains a constant 4% growth rate in dividends, what was the most recent dividend per share paid on the stock?

- A) \$4.00
- B) \$1.60
- C) \$2.40
- D) \$2.31
- E) \$3.85