Print Last Name: ➔	**Print First Name:** ➔	**ID Number:** ➔	
COURSE FINANCE	**NUMBER** COMM 308/4	**SECTIONS: (➔ Circle your section)** A, AA, B, BB, C, D, E	
EXAMINATION Final Exam **VERSION 1**	**DATE** April 24, 2010	**TIME** 3 hours	**# OF PAGES 16** including cover
INSTRUCTOR: **(➔ Underline your instructor's name)** A. Ahmad P. Ellison D. Newton J. Kellett S. Ullah		**DIVISION** John Molson School of Business Concordia University	

READ THESE SPECIAL INSTRUCTIONS CAREFULLY

- You are allowed one 8.5x11 sheet of paper (double sided); You may write, type, draw or copy anything on this sheet.

- For Multiple Choice Questions,
All answers must be recorded IN PENCIL on the computer sheet.

- For Problems:
All answers must be recorded within this exam.
Show your calculations to earn part marks. Write in the space provided.

- **Cell phones must be turned off, programmable calculators and PDAs are not allowed.**

- **Please ensure you have 16 pages (including cover) in this exam.**

- **Fill in your name and other required information IN PENCIL on the Computer Answer sheet as well as on this cover sheet.**
- **Blank questions or those with multiple answers will not receive credit.**
- **Translation dictionaries are allowed if approved by professor at start of exam.**

REMINDER: Put your Name and ID on (1) this exam; (2) computer answer sheet and (3) Your Crib Sheet. Hand in this exam, computer sheet and your Crib Sheet.

FOR INSTRUCTOR USE ONLY:

Section	Maximum	Earned
Multiple choice	**70**	
Problems		
1	**8**	
2	**10**	
3	**4**	
4	**4**	
5	**4**	
Total	**100**	

Part I: Multiple Choice Questions (24 Questions, 70 Points Total):

- This part consists of 1 identifying question (worth 1 mark) and 23 questions worth 3 marks each.

  - **Only answers on the computer answer sheet will be graded.**
  - **Use a pencil to mark your answers.**
  - Select only one answer per question, blank or multiple answers will not receive credit.
  - You are encouraged to also circle your answer on the exam sheet as a back up.

A. Identification question (1 Question, 1.0 Point)

1. Please add the following numbers: 2 + 1. The total is closest to:
A) 3
B) 4
C) 5
D) 6
E) 7

B. Concept and calculation questions (23 Questions, 3 Points Each)

2. Which of the following statements about the correlation coefficient is correct?
A) Positive correlation coefficients imply that the returns on Security A tend to move in the opposite direction as those on security B.
B) Negative correlation coefficients imply that the returns on Security A tend to move in the same direction to those on security B.
C) The closer the absolute value of the correlation coefficient is to one, the stronger the relationship between the returns on the two securities.
D) All of the above statements are correct
E) None of the above statements are correct

3. Which of the following is NOT a true statement:
A) Common shareholders are the true owners of the corporation
B) Common shareholders are entitled to the assets before any other claims have been paid
C) Common shareholders have the right to vote on major issues such as takeovers.
D) Dividends to common shares are not a legal obligation of the firm until declared by the board of directors.
E) All of the above are true statements

4. On January 15, 2007 the XYZ Company issued a 25 year bond. The bond has a coupon rate of 7%, coupons are paid once a year and the face value of the bond is $1,000. Today (April 24, 2010) the bond trades at a price of $1,005.69. The yield on the bond today must be:

A) 7%
B) Greater than 7%
C) Less than 7%
D) Cannot be determined.

5. If you invested $500 in asset 1 and $750 in asset 2; then which of the following statements are true:

I. the return on the portfolio can never be less than the smallest return on the two assets
II. the return on the portfolio might be less than the smallest return on the two assets
III. the variance of the portfolio can never be less than the smallest variance on the two assets
IV. the variance of the portfolio might be less than the smallest variance on the two assets

A) I and III only
B) I and IV only
C) II and IV only
D) II and III only
E) None of the statements are true

6. Winifred, a junior analyst in your firm, is very excited. She tells you that she has been analyzing different firms and has found that firms with high levels of long term debt tend to generate higher returns for their stock holders. Should you follow Winifred's advice and buy companies with high levels of long term debt? Select the best answer.

A) Yes, Winifred's analysis is likely an indication of short-term market inefficiency and if you act quickly on the information, you can make an abnormal profit.
B) Yes, by modifying Winifred's strategy to hold a diversified portfolio of firms with high long term debts, a high rate of return can be earned while reducing the financial leverage risk.
C) No, Winifred has just rediscovered the effects of financial leverage. The extra return is to compensate shareholders for the increased risk of financial distress. There is no abnormal return.
D) No, firms with high levels of long term debt are likely to become bankrupt. One should never invest in firms with high levels of long term debt.

7. Consider the following two statements:

I. A firm's sustainable growth rate decreases with higher profit margins, higher asset turnover, and higher debt.

II. A firm's sustainable growth rate can be estimated by multiplying the earnings retention ratio by the return on equity.

A) I. is correct, II is incorrect
B) I is correct, II is correct
C) I is incorrect, II is incorrect
D) I is incorrect, II is correct

8. Which of the following statements are true:

I. If the cost of equity is 10% and the return on equity (ROE) is 10%, then changing the retention ratio would not affect the share price.

II. If the cost of equity is 10% and the ROE is 14%, then a higher retention ratio would result in a higher share price.

III. If the cost of equity is 10% and the ROE is 8%, then a higher retention ratio would result in a higher share price

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

9. Which of the following statements are true:

I. The value of a call option increases with an increase in the strike price but the value of a put option will decrease.

II. As the interest rate goes up, the value of a call option goes up but the value of a put option goes down.

III. The values of both call and put options increase with an increase in the volatility of the underlying stock price.

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

10. Suppose the Canadian Space Agency has two mutually exclusive projects: landing a woman on Mars and landing a man on Venus. Project Mars has an IRR of 15 percent and project Venus has an IRR of 12 percent. The crossover rate is 9 percent. The project's appropriate discount rate is 8 percent. The Canadian Space Agency should:

A) Accept project Mars.
B) Accept project Venus.
C) Accept both projects.
D) Accept neither project.
E) Can't answer without the cash flows

11. You observe the following:

I. You use a simple trading rule: buy every stock that has gone up three days in a row, hold the stock for 2 days and then sell. On average, you make an unusual profit using this strategy.

II. On average, the CEO of XYZ Corporation does not make unusual profits trading the stock of XYZ Corporation.

Which of the following statements is most correct?

A) I is not consistent with weak-form market efficiency while II is consistent with strong form efficiency
B) I is not consistent with weak-form market efficiency while II is not consistent with strong form efficiency
C) I is consistent with weak- form market efficiency while II is consistent with strong form efficiency
D) I is consistent with weak-form market efficiency while II is not consistent with strong form efficiency

12. The Willy Wonker Toy Company has two divisions – stuffed toys and fireworks. The stuffed toy division's cash flows are very low risk while the fireworks division is very risky. The required rate of return for the stuffed toy projects is 3% while the rate for the fireworks projects is 15%. The overall weighted average cost of capital (WACC) for Willy Wonker is 10%. If Willy Wonker uses the firm WACC to evaluate stuffed toy and fireworks projects then:

A) Value of the firm will decrease because the firm will reject low risk stuffed toy projects and accept high risk fireworks projects
B) Value of the firm will increase because the firm will reject low risk stuffed toy projects and accept high risk fireworks projects
C) Value of the firm will decrease because the firm will accept low risk stuffed toy projects and reject high risk fireworks projects
D) Value of the firm will increase because the firm will accept low risk stuffed toy projects and reject high risk fireworks projects
E) Value of the firm will increase because projects will only be accepted if they promise a return that is higher than the firm's WACC

13. The price of a 10 year semi-annual pay bond with a face value of $1,000 and a 6.8% annual coupon and yield to maturity of 5.8% is closest to:
A) $928.29
B) $929.11
C) $1,074.30
D) $1,075.08
E) $1,672.05

14. Hui Tan has borrowed $25,000 from his local bank. The loan will cost him 12% per year for the first 7 years and 4% per year for the next 15 years. The interest is compounded annually. At the end of the 22 years, the amount he will have to repay is closest to:
A) $50,145.31
B) $99,532.81
C) $100,290.62
D) $135,913.51
E) $302,507.75

15. Your sister has given you $25,000 which you have invested. If you earn 6% compounded annually, then the value of the gift in 10 years will be closest to:
A) $13,960
B) $26,500
C) $40,000
D) $44,771

16. Abdul has invested $12,000 in a security that pays 3% annual simple interest. How much interest does he earn in the 4th year of the investment? Choose the closest answer.
A) $360.00
B) $381.92
C) $393.38
D) $405.18

17. An interest rate of 15% compounded monthly is equivalent to a rate of _____ compounded quarterly.
A) 15.19%
B) 15.87%
C) 16.08%
D) 20.38%

18. Ten years ago you purchased a house for $150,000. You have just sold the house for $115,000. The annual rate of return you have earned on this property is closest to:
A) -2.62%
B) -2.33%
C) 2.33%
D) 2.69%
E) 6.87%

19. The HiTop Company is expected to pay a dividend of $1.50 next year. The current stock price is $25 per share. You believe that the dividends of HiTop will grow at a rate of 5% per year forever. If the required rate of return for HiTop is 11.25%, then:
A) You should buy the stock because you believe that the value of the stock will rise to: $25.20
B) You should not buy the stock because you believe that the value of the stock will rise to: $25.20
C) You should buy the stock because you believe that the value of the stock will fall to: $24.00
D) You should not buy the stock because you believe that the value of the stock will fall to: $24.00

20. Ten years ago, The HighTop Co issued $15 million in preferred shares with a par value of $50 each and an annual dividend rate of 5.5%. If the market value of these preferred shares today is $25 million, then the required rate of return is closest to:
A) 2.75%
B) 3.30%
C) 5.24%
D) 5.50%
E) 9.17%

21. The UJK Company has just paid a dividend of $5. The dividends are expected to grow at a rate of 20% for the next three years. After the third year, dividends are expected to decline at a rate of 3% per year forever. The required rate of return for UJK is 12%. The current price of UJK is closest to:
A) $73.12
B) $66.45
C) $61.17
D) $59.33
E) $57.02

22. Franklin wishes to have $10 million in his retirement savings plan in 25 years. His bank is offering him an investment that promises a return of 8% compounded monthly. Franklin wishes to deposit money every six months and plans to make his first deposit immediately. Franklin's semi-annual deposit is closest to:

A) $61,643
B) $62,983
C) $64,151
D) $65,502

23. The stock of XYZ Corporation has a beta of 0.8 and the current stock price is $15. The firm pays no dividends. If the one year risk free rate is 3% and the expected return on the market for the next year is 15%, then the expected stock price in one year is closest to:

A) $15.45
B) $16.80
C) $16.89
D) $17.25
E) $17.79

24. You have observed the following information about the two stocks you hold in your portfolio:

	Xxs	Yyk
Expected return	15%	9%
Standard deviation of returns	8%	5%
Value	$30,000	$70,000

The correlation between Xxs and Yyk is -0.40 (negative .40). The standard deviation of your portfolio is closest to:

A) 3.36%
B) 3.83%
C) 4.24%
D) 4.97%
E) 5.18%

Problem 1. (8 marks) The BrandyWine Falls Beverage Company is considering two mutually exclusive projects code named Lily and Frog. The projects have the following characteristics: Lily requires an initial investment of $75,000 and will generate cash flows of $15,000 per year for 8 years. At the end of the 8 years, the machinery will have a value of zero. Project Frog requires an initial investment of $166,000 and will earn cash flows of $25,000 per year for the next 17 years. At the end of year 17, the machinery will have a value of zero. All projects can be replicated indefinitely. The BrandyWine Falls Beverage Company pays no taxes.

The beta of Project Lily is .80 and the beta of Project Frog is 1.3. The risk free rate is 3% and the expected return on the market is 10% - both rates are expected to be constant forever.

A) Determine the required rate of return for each project:

Lily = 3% + 0.8*(10%-3%) = 8.6%
Frog = 3+1.3*7 = 12.1%

B) Which project should the company undertake? Why? Show your work.

Lily:
NPV: -75,000 + PV of annuity of 15,000 per year for 8 years. Discount rate 8.6%
NPV = -75,000 + 84,270.9970
= $9,270.9970

EANPV = $1,650.2113

Frog:
NPV = -166,000 + PV of annuity of $25,000 per year for 17 years. Discount rate = 12.1%
NPV = -166,000 + 176,972.8652
= $10,972.8652

EANPV = $1,550.0774

Recommend: Lily. Highest EANPV

Recommendation:

Problem 2. (10 marks) The Silicone Bathing Suit Company is considering investing in a project to develop a self cooling bathing suit. The marketing department feels that there is a demand from people who wish to sit by the pool and keep cool without having to get wet. The management of Silicone have developed the following estimates:

- Annual sales of self cooling bathing suits: $85,000
- Annual production costs: $25,000
- Annual loss of sales of PAC (personal air conditioning units): $15,000
- Reduction in production costs of PACs: $10,000
- Research and development costs incurred over the last four years: $50,000
- Chief Executive Officer's salary: $150,000 per year
- Cost of machinery required to produce self cooling bathing suits: $250,000
- CCA class 23 - rate: 15%, tax rate: 45%
- Assume life of project is 10 years, at which point the machinery has zero salvage value. Assume that the company has many assets in the class and that the class will remain open (no recapture etc).
- Silicone believes that the appropriate discount rate for projects of this risk is 9%.

Do you recommend that Silicone enter the Self-Cooling bathing suit business? Why or why not. Show your work.

Annual after tax operating cash flows:

- sales less production costs: 85,000 – 25,000 = $60,000
- Lost sales of PAC -15,000
- PAC production savings +10,000

Annual after tax operating cash flows: $55,000*(1-.45) = $30,250 per year

PV of annual after tax operating cash flows: $194,134.1455

CCA benefits:

$$PVCCA = \frac{C_0 * d * T}{d+k}\left(\frac{1+.5k}{1+k}\right)$$
$$= \frac{250,000 * .15 * .45}{.15+.09}\left(\frac{1.045}{1.09}\right)$$
$$= \frac{16,875}{0.24}\left(\frac{1.045}{1.09}\right)$$
$$= 70,312.50 * 0.9587$$
$$= \$67,409.6904$$

NPV of project = -250,000 + 194,134.1455 + 67,409.6904 = $11,543.8359

Undertake the project

Recommendation:

Problem 3. (4 marks) Jiang Min has obtained the following information on the Velocity Bicycle Company:

- book values: assets = $350,000; common equity = $125,000; preferred stock = $150,000 and debt = $75,000. Coupons on debt are paid once a year.
- number of shares outstanding: 10,000 common and 20,000 preferred
- market prices per share: common stock $25, preferred $15
- preferred dividend $1.20 per share; coupon rate on debt is 4%; Velocity does not pay dividends on its common stock
- beta of the stock is 1.15
- market value of the debt equals the book value of the debt
- tax rate is 35%, risk free rate is 2%, expected return on the market is 15%.

Calculate the weighted average cost of capital (WACC) or the Velocity Bicycle Company. Show your work clearly. If the answer cannot be determined using the available information, explain what information is missing and how you would use it.

Total capital: common + preferred + debt = 10,000*25 + 20,000*15+75,000 = $625,000

Cost of Common equity: 2% + 1.15*(13) = 16.95%

Pref: 1.2/15 = 8%

Cost of debt = 4% (mkt value = book)

WACC = (250 * 16.95% + 300*8% + 75 * 4%*(1-.35))/625
= 10.9320%

WACC=

Problem 4 and Problem 5 are based on the following situation:

Your Grandfather is very confused – he has invested $100,000 in a long term Government of Canada bond and $100,000 in a short-term Government of Canada bond. Neither bond pays any coupons. He expected that the value of his investment would never decline. After all, the Government will always pay its debts! However, when he went to the broker to sell his bonds, he found that the long term bond was only worth $65,000 while the short term bond was worth $95,000. He is very confused.

Problem 4. (4 marks) Explain to your Grandfather how it is possible for the value of the bonds to fall despite the fact that the Government will always pay its debts.

time value of money – discounting a guaranteed amount of money in the future, if interest rates rise, value today falls

Problem 5. (4 marks) Explain to your Grandfather why the long term bond fell so much more (in % terms) than the short term bond.

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long term bond, more sensitive to changes in interest rates (long time for compounding to affect prices)

HAVE YOU:

- **Put your Name and ID on the exam, computer answer sheet and "crib" sheet?**
- **Make sure you hand in the exam, the computer answer sheet and "crib" sheet.**

--- Enjoy your summer and see you next year ---