Print Last Name: ➔	**Print First Name:** ➔	**ID Number:** ➔	
COURSE FINANCE	**NUMBER** COMM 308/4	**SECTIONS: (➔ Circle your section)** CC, DD, H, I, J, K, L, M	
EXAMINATION Final Exam **VERSION BLUE**	**DATE** April 20, 2009	**TIME** 3 hours	**# OF PAGES 18** including cover
INSTRUCTOR: **(➔ Underline your instructor's name)** A. Ahmad R. Jassim J. Kellett R. Mateti K. Souleiman 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.

- This is Version BLUE of the test. You must submit a BLUE computer answer 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 18 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.**

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.

Part I: Multiple Choice Questions (25 Questions, 70 Points Total):

- This part consists of 10 concept questions and 15 calculation problems.
- Each concept question counts 2.5 points for a total of 25 points and each calculation problem counts 3 points for a total of 45 points.
  - **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. Concept Questions (10 Questions, 2.5 Points Each)

1. Ten years ago, the Sheila Kangaroo Company issued debt with a face value of $50,000. The debt has a yield to maturity of 4%. The coupons are paid once per year. If the market price of the debt is $35,000, then the coupon rate is:
A) Less than 4%
B) Equal to 4%
C) Greater than 4%
D) Cannot be determined, we need the time to maturity of the debt.

2. Assume that the CAPM holds. If a security has a beta of 1, its expected return is:
A) 0 percent
B) the risk-free rate
C) the return on the market portfolio
D) Can't be determined with the above information

3. The concept of an efficient market implies:
A) All shares of stock have the same expected returns.
B) Throwing darts at a page of stocks will yield the same return as a carefully selected portfolio.
C) Prices reflect all available information.
D) Stock prices do not fluctuate.

4. You have observed that every time the Andrews Sisters Music Corp's stock falls by 2% in a week, it rises by 8% the next week. This observation is consistent with:
A) Strong form market efficiency
B) Semi-strong form market efficiency
C) Weak form market efficiency
D) The observation is not consistent with any form of market efficiency.

5. Which of the following is a FALSE statement of the correlation coefficient?
A) It measures how security returns move in relation to one another.
B) Positive correlation coefficients imply that the returns on Security A tend to move in the same direction as those on security B.
C) The closer the absolute value of the correlation coefficient is to one, the weaker the relationship between the returns on the two securities.
D) Negative correlation coefficients imply that the returns on Security A tend to move in the opposite direction to those on security B.

(Omit Question 6)

6. In the absence of taxes and bankruptcy costs, which of the following is true?
A) The total value of the firm is dependent on the firm's capital structure.
B) Investors can undo the leverage that the corporation has undertaken.
C) Adding debt to the capital structure creates value.
D) Shareholders will pay a premium for shares merely because a firm chooses to introduce financial leverage.
E) All of the above statements are true.

(Omit Question 7)

7. The SylliPutty Company and FoolishFudge Inc. operate in a world with zero taxes and no financial distress. SylliPutty has a debt/equity ratio of 1 and its cost of equity is 15%. FoolishFudge has a debt/equity ratio of 2. The cost of risk free debt is 8%. According to M&M, the cost of equity for FoolishFudge will be:
A) Greater than the cost of equity for SylliPutty
B) The same as the cost of equity for SylliPutty
C) Less than the cost of equity for SylliPutty
D) None of the above is always true

(Omit Question 8)

8. The KatPat Co operates in a world with zero taxes and there is no risk of financial distress. Currently the firm has a D/E ratio of 0.5, a cost of debt of 8% and a cost of equity of 15%. Jago, a junior analyst, states that if the firm increases their use of debt their WACC should remain constant. Jago is:

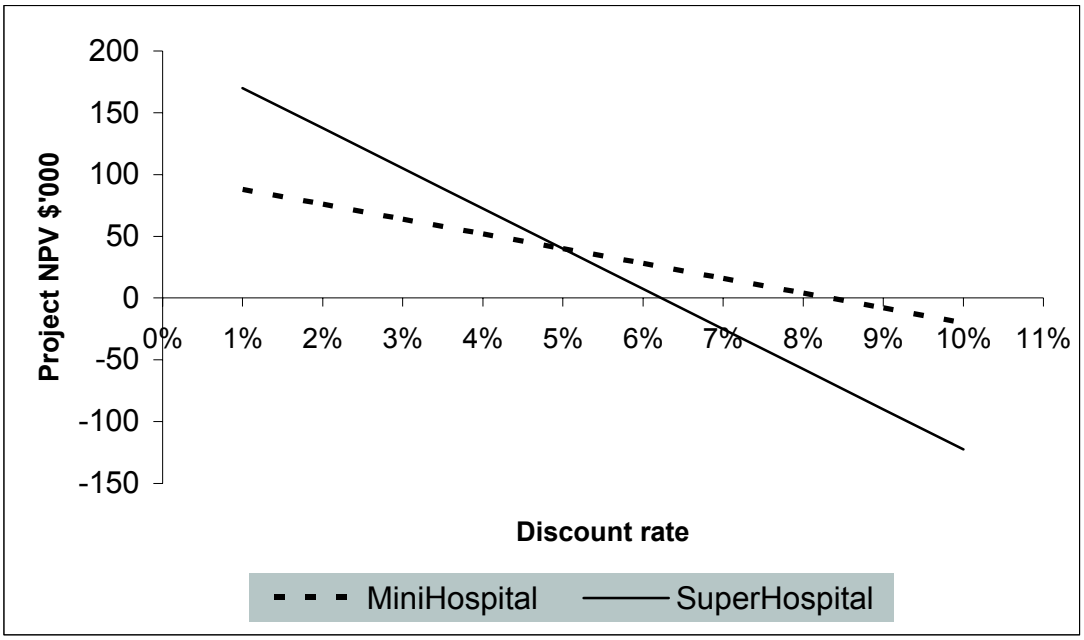
A) Incorrect because as we increase the use of debt the WACC should decrease as we are increasing our use of a cheaper source of capital (cost of debt < cost of equity).
B) Incorrect because according to M&M the value of the firm is unchanged as we increase the level of debt but the net income of the firm will decline (due to increased interest payments). The only way the value of the firm can remain the same is if the WACC decreases.
C) Correct because the WACC is a function of the risk of the physical assets of the firm and as long as the EBIT of the firm doesn't change, the WACC will not change as we change the capital structure.
D) Correct because as we increase the use of debt we increase the riskiness of the equity and therefore the cost of equity will increase. The net effect is that the WACC remains constant.

9. Fussy, Inc. is composed of two different divisions: food catering and shoe making. The company's overall weighted average cost of capital (WACC) is 10 percent, while the WACC for the food catering division is 7 percent and for the shoe making division is 12 percent. Assume zero taxes and all projects have the same life. Fussy has sufficient funds to invest in all the projects. Which of the following projects should the company accept?

Project	Industry	IRR (of project)
I	Food catering	8%
II	Shoe making	11%
III	Shoe making	13%
IV	Food catering	6%

A) II and III
B) I and III
C) II and IV
D) Only III

10. Nicola has just finished plotting the relationship between the NPV of two mutually exclusive projects (MiniHospital and SuperHospital) for different discount rates.



Based on the above plot, Nicola should:

A) Choose the SuperHospital project as its IRR is greater than the MiniHospital project
B) Choose the MiniHospital project as its IRR is greater than the SuperHospital project
C) If the opportunity cost is greater than 5%, choose the MiniHospital project. If the discount rate is less than 5%, choose the SuperHospital Project
D) If the opportunity cost is greater than 5%, choose the SuperHospital project. If the discount rate is less than 5%, choose the MiniHospital Project
E) Cannot make a recommendation because the NPV profiles cross

B. Calculation Multiple Choice Problems (15 Questions, 3 Points Each)

11. Sir George Williams has just retired and is considering buying an annuity which will pay $5,000 at the end of each month for the next 40 years. The first payment will be received in one month. Sir George's opportunity cost is 6% compounded monthly. The present value of this annuity is closest to:

A) $180,861
B) $902,778
C) $908,738
D) $913,281

12. Ignatius Loyola planning on investing $500 per year, starting immediately, for the next 10 years. He expects to earn a rate of return of 8% compounded annually on the investment. The value of his investment at the end of the 10^{th} year will be closest to:

A) $3,355.04
B) $3,623.44
C) $7,243.28
D) $7,822.74

13. Ingmar has been offered a Guaranteed Investment Certificate that promises him 5% compounded semiannually for the first 2 years and 8% compounded annually for the next 5 years. If he invested $10,000 today, the value of the investment at the end of the 7 years will be closest to:

A) $16,199.34
B) $16,218.63
C) $16,339.13
D) $17,138.24

14. Charlie purchased 3 shares of AIG one year ago for $50 per share. Today, he received a dividend of $2.50 per share and sold the shares at $5 per share. His annual rate of return is closest to:
A) 15%
B) 10%
C) -85%
D) -90%

15. Amr has $50,000 to invest and has decided to invest $10,000 in the stock of ABC and the rest in YUL. The standard deviation of the returns of ABC is 8% while the standard deviation for YUL is 14%. He is happy to see that the correlation between the two stocks is negative and is -.15. The standard deviation of the portfolio is closest to:
A) 11.07%
B) 11.19%
C) 11.31%
D) 11.55%
E) Cannot be determined, we need the covariance between the two stocks.

16. The BMC Company has just paid a dividend of $5.00. Over the last 5 years, their dividends grew at a rate of 8%. However due to current market conditions, BMC's dividends are now expected to grow at only 3% forever. The required rate of return on BMC stock is 10%. The current market price of BMC stock is closest to:
A) $71.43
B) $73.57
C) $250.00
D) $270.00

17. What is the payback period of a project which requires an initial cash outlay of $16,000 and provides cash flows of $4,500 in year 1, $5,500 in year 2, $6,500 in year 3, and $7,500 in year 4? Assume the appropriate discount rate is 10 percent.

A) 2.08 years
B) 2.36 years
C) 2.68 years
D) 2.92 years
E) 3.48 years

18. The stock of XYZ Company has a beta of 0.8 and a required rate of return of 10 percent. What is the expected return on the market if the risk free rate is 5 percent?

A) 5.00%
B) 6.25%
C) 8.00%
D) 10.00%
E) 11.25%

19. The expected return on the market is 10% and the risk free rate is 3%. If the CAPM (Capital asset pricing model) is correct, which of the following stocks would be a good investment (ie. stock is underpriced)?

Stock	Beta	Expected return
1	1	15%
2	1.35	11%
3	.85	7%

A) Stock 1 only
B) Stock 2 only
C) Stock 3 only
D) Stocks 2 and 3
E) Stocks 1 and 2

20. Suppose you have an opportunity to invest in a project, which requires a cash outlay of $15,000 today. The project is expected to generate $6,000 in year 1, $6,500 in year 2, and $7,000 in year 3. The appropriate risk-adjusted discount rate for the project is 12 percent. Assume the tax rate is zero. The project's NPV is closest to:

A) -$1,120.29
B) $521.36
C) $732.47
D) $2,410.71
E) $4,452.10

21. Green Compost Inc.'s current operations will generate cash flows of $100,000 in year one, $115,000 in year two, and $125,000 in year three. The company is considering a new investment, which requires an immediate cash outlay of $300,000. With the new investment, the company can instead expect to have cash flows of $250,000 per year for the next three years. The appropriate discount rate is 15 percent. Assume no taxes. The NPV of the new investment is closest to:

A) $14,703.71
B) $65,439.36
C) $256,107.57
D) $270,806.28

22. Smart Concepts Inc. is considering a five-year project that requires an initial capital investment of $1 million. The project is expected to generate operating revenue of $500,000 per year, and the associated operating expenses are estimated at $250,000 per year. The capital asset belongs to asset class 9, which has a CCA rate of 30 percent. The firm's marginal tax rate is 35 percent. What is the after-tax cash flow for year 1?

A) $162,500
B) $215,000
C) $267,500
D) $302,500
E) $312,500

23. The SunShine Bathing Suit Company is considering investing in a project to develop a self-cooling bathing suit. This bathing suit will keep people cool without them having to go for a swim – great for parties. The marketing department feels this will be a great addition to their thermal bathing suit product ("keeps you warm for winter swims"). The managers have developed the following cash flow estimates (assume the firm pays no taxes):

- Annual sales of self cooling bathing suits = $25,000
- Annual production costs of self cooling bathing suits = $19,000
- Annual loss of sales of thermal bathing suits = $15,000
- Annual reduction in production costs of thermal bathing suits due to loss of sales = $10,000
- Research and development costs incurred over the last 4 years to develop the self-cooling bathing suit = $400

The relevant annual cash flow to be used in evaluating the investment in self-cooling bathing suits is:

A) -$9,000
B) $6,000
C) $5,600
D) $1,000
E) $400

24. The Jingles Tamborine Company is levered firm with a debt/equity ratio of 2. The firm has a tax rate of 40% and a WACC of 13%. The firm can borrow risk free debt at a rate of 8%. The firm earns an EBIT of $36,000 per year. The EBIT is expected to continue forever. What is the firm's cost of equity?

A) 4.8%
B) 8.0%
C) 13.0%
D) 29.4%

(Omit Question 25)

25. The Excello Company currently has no debt in its capital structure. Their current cost of capital is 8%. The firm expects to earn a perpetual EBIT of $15,000 per year. The managers have decided to change the capital structure of the firm by issuing $30,000 of risk free debt to repurchase stock. The cost of debt to the firm is 5%. The firm operates in a world with no taxes. Assume all the M&M assumptions are satisfied. The value of the firm after this change will be closest to:

A) $187,500
B) $198,750
C) $217,500
D) $250,000
E) Cannot be determined, we need the levered cost of equity

Problem 1. (8 marks) A company must choose between two new computer systems: Alpha and Bravo, to replace the existing system to support its ongoing operations. System Alpha costs $50,000 and will result in savings of $19,000 per year during its four-year life. System Bravo costs $75,000 and will result in savings of $15,000 per year during its nine-year life. The appropriate discount rate is 8 percent. Which system should the firm choose and why? Show your work!! Assume both systems can be replicated indefinitely and there are no taxes.

NPV Alpha = $12,930.41
Need EANPV (different lives) --- EANPV alpha = $3,903.96

NPV Bravo = $18,703.32
EANPV Bravo = $2,994.02

Choose Alpha Higher EANPV

Recommendation:

Problem 2. (4 marks) Jiang Min has obtained the following information on the Velocity Bicycle Company:

- book values: assets = $250,000; common equity = $25,000; preferred stock = $150,000 and debt = $75,000. Coupons on debt are paid once a year.
- number of shares outstanding: 10,000 common and 25,000 preferred
- market prices per share: common stock $25, preferred $10
- preferred dividend $1.00 per share; coupon rate on debt is 8%; Velocity does not pay dividends on its common stock
- beta of the stock is 1.25
- yield to maturity of debt is equal to the coupon rate
- 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.

Common stock: value = 10,000 * $25 = $250,000
Cost of equity = 2% + 1.25 * (15 – 2) = 18.25%

Preferred stock: value = 25,000 * $10 = $250,000
Cost of preferred = $1/$10 = 10%

Debt: value = $75,000 (coupon = yield → price = face)
Yield (before tax) = 8%

WACC = (1/575) * (250*18.25% + 250*10% + 75 * 8% * (1-.35)) = (1/575) * 7452.5 = 12.96%

WACC =

(Omit Problem 3)

Problem 3. (10 marks) The Expedia Company earns a perpetual EBIT of $15,000 and pays taxes at a rate of 35%. The company currently has no debt and has a market value of $97,500. Expedia has decided to issue $35,000 of perpetual risk free debt. Expedia will use this debt to repurchase stock. The yield on the Expedia debt is 3%. Assuming that the M&M with taxes assumptions hold, then:

A) (2 marks) What is the weighted average cost of capital (WACC) of the Expedia Company **BEFORE** they issue the new debt? Show your work.

WACC = EBIT(1-t)/MV = 15000(1-.35)/97500 = 10%

WACC before issuing the debt:

B) (3 marks) What is the market value of Expedia after they issue the debt? Show your work.

Vl = Vu + t* D = 97500 + .35 * 35000 = $109,750

Value of firm after issuing the debt:

C) (3 marks) What is the market value of the Expedia equity after they issue the debt? Show your work.

Vl = E + D
109750 = E + 35000
E = $74,750

Value of equity after issuing the debt:

D) (2 marks) What is the weighted average cost of capital (WACC) of the Expedia Company **AFTER** they issue the debt? Show your work.

WACC = EBIT(1-t)/MV = 15000(1-.35)/109750 = 8.88%

WACC after issuing the debt:

Problem 4. (4 marks) Your grandfather is very confused – he understands that a higher expected return is associated with higher risk. However, he has observed that two firms (Alpha and Omega) have the same expected return; however, the standard deviation of Alpha is much higher than the standard deviation of Omega. In a world that satisfies the CAPM assumptions, is this possible? Briefly explain your reasoning.

Total risk = systematic + unsystematic. CAPM → only reward for holding systematic (can't be diversified away). Grandfather is mixing total (standard deviation) with systematic.

Problem 5. (4 marks) Your boss, a McGill MBA graduate, is very confused about capital budgeting and the CCA. He understands that the analysis should focus on cash flows and non-cash expenses should not be considered. Your boss believes that the CCA should not be incorporated in a capital budgeting analysis as it is not a cash expense. Do you agree or disagree? Briefly explain your reasoning.

Disagree – CCA is important because it gives us a tax deduction which is a cash savings

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.**

--- Have a great summer ---