Print Last Name: ➔	**Print First Name:** ➔	**ID Number:** ➔	
COURSE FINANCE	**NUMBER** COMM 308/4	**SECTIONS: (➔ Circle your section)** G, H, I, J, K, M, CC, DD	
EXAMINATION Final Exam **VERSION BLUE**	**DATE** APRIL 16, 2008	**TIME** 3 hours	**# OF PAGES 20** including cover/crib
INSTRUCTOR: **(➔ Underline your instructor's name)** A. Ahmad R. Jassim J. Kellett R. Ravi D. Thiengtham T. Walker		**DIVISION** John Molson School of Business Concordia University	

SPECIAL INSTRUCTIONS

- **You are writing Version BLUE of the test. Please ensure that you have a BLUE computer answer sheet. Your exam consists of two types of questions: Multiple Choice Questions and Problems.**
  - **Multiple Choice Questions:**
    - **All your answers must be recorded IN PENCIL on the BLUE computer answer sheet by darkening the appropriate letter corresponding to your choice. Only letters A, B, C and D should be used. DARKENING ANY OTHER LETTER WILL RESULT IN AN INCORRECT RESPONSE BEING RECORDED FOR THAT QUESTION.**
  - **Problems:**
    - **All your answers must be recorded on the exam sheets. Show your calculations. Part marks will be awarded. Write clearly and only in the space provided.**
- Cell phones must be turned off, programmable calculators and PDAs are not allowed during the final exam.
- This exam contains **20** pages including cover. Formula sheets (3) are separate. Please ensure that there are no pages missing.
- Fill in your name and other required information **IN PENCIL** on the Computer Answer sheet as well as on this cover sheet.
- There is no negative marking on the multiple choice questions. Mark only one answer on the computer answer sheet. Blank questions or those with multiple answers will not receive credit.
- Small differences may exist due to rounding. To minimize this problem, try to round only at the end of multiple-step calculations.
- **A minimum of 40% on this exam is required to pass this course.**
- Allocate your time efficiently.

SCORES (FOR INTERNAL USE ONLY)

Multiple Choice Questions (Max: 70 Points)	**Long Answer Questions**			**Total**
	Question 1 (Max: 7 Points)	Question 2 (Max: 13 Points)	Question 3 (Max: 10 Points)	

Part I: Multiple Choice Questions (28 Questions, 2.5 Points 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.

1. From the information below, select the optimal capital structure for this company.

A) Debt = 40%; Equity = 60%; EPS = $2.95; Stock price = $31.50
B) Debt = 60%; Equity = 40%; EPS = $3.42; Stock price = $31.90
C) Debt = 70%; Equity = 30%; EPS = $3.18; Stock price = $32.60
D) Debt = 50%; Equity = 50%; EPS = $3.05; Stock price = $32.40

2. The value of a call option:

A) Increases as the price fluctuation of the underlying security decreases.
B) Increases as the exercise price decreases.
C) Increases as the time to expiration decreases.
D) Increases as the risk-free rate of return decreases.

3. Which of the following is NOT accurate regarding financial leverage?

A) The level of financial leverage that produces the highest firm value is the one most beneficial to stockholders.
B) Whenever a firm's debt increases faster than its equity, financial leverage increases.
C) Leverage is most beneficial when EBIT is relatively high.
D) Increasing financial leverage will always increase the earnings per share (EPS) for stockholders.

4. If a stock's beta is 0.8 during a period when the market portfolio was down by 10%, then, we could expect the return on this individual stock to:

A) gain more than 10%.
B) lose, but less than 10%.
C) gain, but less than 10%.
D) lose more than 10%.

(Omit question 5)

5. A dividend declared on November 15, has an ex-dividend date of December 7, and a record date of December 9. Which of the following shareholders will NOT receive the dividend?

A) A shareholder who purchases on December 1.
B) A shareholder who purchases on December 6.
C) A shareholder who purchases on December 7.
D) Both B) and C) will not receive the dividend.

6. Investors who own bonds having lower credit ratings should expect:

A) higher default possibilities.
B) lower coupon payments.
C) higher present value of cash flows.
D) lower yields to maturity.

7. The dividend yield:

A) Is equal to the dividend amount divided by the required rate of return of the stock.
B) When added to the capital gain yield is equal to the required rate of return.
C) Is the rate at which the price of the stock grows.
D) Cannot be equal to zero.

8. Your uncle would like to limit his interest rate risk and his default risk, but he would still like to invest in corporate bonds. Which of the possible bonds listed below best satisfies your uncle's criteria?

A) An AAA-rated bond with 10 years to maturity.
B) An AAA-rated bond with 5 years to maturity.
C) A BBB-rated bond with 10 years to maturity.
D) A BBB-rated perpetual bond.

9. Which of the following statements is most correct?

A) The NPV method assumes that cash flows will be reinvested at the cost of capital, while the IRR method assumes reinvestment at the IRR.
B) The NPV method assumes that cash flows will be reinvested at the cost of capital, while the IRR method assumes reinvestment at the risk-free rate.
C) The IRR method does not consider all relevant cash flows, particularly, cash flows beyond the payback period.
D) The NPV method assumes that cash flows will be reinvested at the risk-free rate, while the IRR method assumes reinvestment at the IRR.

10. Assume that the current yield curve is upward sloping, or normal. This implies that:

A) The economy is at the peak of a business cycle.
B) Short-term interest rates are more volatile than long-term rates.
C) Inflation is expected to subside in the future.
D) None of the statements above is necessarily implied by the yield curve given.

11. McCarver Inc. is considering the following mutually exclusive projects:

Year	Project A Cash Flow	Project B Cash Flow
0	-$5,000	-$5,000
1	200	3,000
2	800	3,000
3	3,000	800
4	5,000	200

At what cost of capital will the net present value (NPV) of the two projects be the same?

A) 15.68 percent.
B) 16.85 percent.
C) 17.72 percent.
D) 16.15 percent.

12. You buy a 10-year corporate bond that sells for 94.5% of its $1,000 face value right after the bond paid a coupon. The bond pays $30 coupons every six months. You hold the bond for one year, collect two coupons, pocket the cash and then sell the bond to earn a 5.6% holding period return for the year. What was the bond's price at the time you sold it?

A) $987.92
B) $967.92
C) $937.92
D) $1,000.00

Use the following to answer questions 13-14:

A firm recently reported earnings per share of $1.70 at its annual shareholders meeting. The firm has a price/earnings multiple of 10 and a dividend payout ratio of 40%. Dividends and earnings are expected to grow at a rate of 10% for each of the next two years and at 3% indefinitely thereafter. The yield on three-month Treasury Bills is 3%. The stock has a beta of 0.8 and the market risk premium is forecasted to be 5%.

13. Is the stock properly valued in the market today?

A) Yes, the stock's actual price and its intrinsic value both equal $17.26.
B) No, with an intrinsic value of $17.26 the stock is undervalued in the market.
C) No, with an intrinsic value of $16.26, the stock is overvalued in the market.
D) No, with an intrinsic value of $19.92, the stock is undervalued in the market.

14. Assume that the stock is worth $20 today. If the earnings per share drops to $1.50 next year and the dividend payout ratio increases to 60%, what is the stock's expected dividend yield?

A) 3.9%
B) 4.1%
C) 4.3%
D) 4.5%

15. Jeff Booth is the CFO of Aurora Jag, a manufacturer of parts for classic automobiles. Jeff is considering the purchase of a two-ton press which will allow the firm to stamp out auto fenders. The equipment costs $350,000. The project is expected to produce after-tax cash flows of $60,000 the first year, and increase by $10,000 annually; the after-tax cash flow in year 6 will reach $110,000. Liquidation of the equipment will net the firm $20,000 in cash at the end of six years, making the total cash flow in year six equal to $130,000. Assuming a required return of 15%, what is the project's profitability index?

A) 0.98
B) 1.10
C) 0.90
D) 1.06

(Omit Questions 16 and 17)

Use the following to answer questions 16-17:

Unlevered Corporation (Firm U) has a total market value of $1,000,000, a tax rate of 40%, and earnings before interest and taxes (EBIT) of $150,000. Levered Corporation (Firm L) is identical in all respects, but has debt outstanding on which it pays 5% interest annually. The market value of the firm's debt is equal to its par value. Firm L pays total annual interest of $20,000 on this debt. The Modigliani and Miller (MM) assumptions hold (**no financial distress costs**).

16. What is Firm U's cost of equity?

A) 9%
B) 7%
C) 8%
D) 6%

17. What is the value of Firm L?

A) $1,100,000
B) $1,180,000
C) $1,000,000
D) $1,160,000

18. You manage the account of a large investor. The following stocks are in the portfolio:

Stock	Amount Invested	Estimated Beta
A	$2,000,000	0.80
B	$5,000,000	1.10
C	$3,000,000	1.40
D	$5,000,000	?

The portfolio's required rate of return is 17 percent. The risk-free rate is 7 percent and the expected return on the market is 14 percent. What is stock D's estimated beta?

A) 1.429
B) 1.389
C) 1.256
D) 2.026

19. Braun Industries is considering an investment project that has the following cash flows:

Year	Cash Flow
0	-$1,000
1	400
2	300
3	500
4	400

The company's WACC is 10 percent. What is the project's discounted payback, internal rate of return (IRR), and net present value (NPV)?

A) Discounted Payback = 2.60, IRR = 10.00%, NPV = $600
B) Discounted Payback = 3.05, IRR = 21.22%, NPV = $300
C) Discounted Payback = 2.60, IRR = 21.22%, NPV = $260
D) Discounted Payback = 3.05, IRR = 21.22%, NPV = $260

20. Katherine wants to open a savings account, and she has obtained account information from two banks. Bank A has a nominal annual rate of 9 percent, with interest compounded quarterly. Bank B offers the same effective annual rate, but it compounds interest monthly. What is the nominal annual rate of return for a savings account from Bank B?

A) 8.951%
B) 8.920%
C) 8.933%
D) 8.906%

21. Consider the following return distribution.

State	Probability	Return
Boom	.15	.40
Good	.50	.20
Recession	.25	-.10
Depression	.10	-.30

Calculate the standard deviation.

A) 0.06428
B) 0.04448
C) 0.15687
D) 0.21089

(Omit Question 22)

22. Blaine Pharmaceuticals, Inc. recently completed a 3-for-1 stock split. Prior to the split, the company had 10 million shares outstanding. After the split, the total market value of the company's stock equalled $1.5 billion. What was the price of the company's stock following the stock split?

A) $30
B) $15
C) $45
D) $50

Use the following to answer questions 23-25:

A Canadian firm needs a computerized machine which costs $80,000 plus another $10,000 to install. The company's VP of Sales believes that the machine will boost annual revenues by $250,000. The machine costs $20,000 to maintain for each year of its three year life. After three years, the salvage value will be $15,000. The machine falls into the Class 10 equipment category (CCA rate 30%). Assume a tax rate of 34% and a discount rate of 10%, the half-year rule applies. Further assume that the asset pool remains open after the end of the third year.

23. What is the present value of the CCA tax shield? Round to the nearest $1.

A) $19,033
B) $25,732
C) $25,824
D) $24,781

24. Compute the operating cash flow for year 2.

A) $ 159,603
B) $ 137,259
C) $ 172,803
D) $ 158,736

25. If the machine turns out to be worthless at the end of the third year (i.e. if it has a zero dollar salvage value), what would be the net effect on the NPV for the project assuming that the pool has other assets in it at the time the machine is disposed of? Round to the nearest $1.

A) The NPV would decrease by $3,825
B) The NPV would decrease by $8,396
C) The NPV would increase by $11,270
D) The NPV would increase by $3,825

(Omit Question 26)

26. The Wrangler Co. has expected EBIT of $9,250, debt with a face and market value of $14,000 paying a 9% annual coupon, and an unlevered cost of capital of 12%. If the tax rate is 39%, what is the value of Wrangler's equity?

A) $58,525
B) $38,481
C) $52,481
D) $55,635

(Omit Question 27)

27. An unlevered firm has 800,000 shares outstanding and a market value of $40,000,000. The firm decides to change its capital structure by issuing 11,250 new par value bonds each with a face value $1,000 and a 5% coupon. Using the proceeds from the newly issued debt, the firm repurchases shares of its outstanding stock. What is the breakeven EBIT between the initial capital structure and the modified capital structure assuming a tax rate of 40%?

A) $4,000,000
B) $2,000,000
C) $3,000,000
D) $1,000,000

28. Consider the following information for three stocks, Stock A, Stock B, and Stock C. The returns on each of the three stocks are positively correlated, but they are not perfectly correlated. (That is, all of the correlation coefficients are between 0 and 1.)

Stock	Expected Return	Standard Deviation	Beta
Stock A	10%	20%	1.0
Stock B	10	20	1.0
Stock C	12	20	1.4

Portfolio P has half of its funds invested in Stock A and half invested in Stock B. Portfolio Q has one third of its funds invested in each of the three stocks. The risk-free rate is 5 percent, and the market is in equilibrium. (That is, required returns equal expected returns.) Which of the following statements is most correct?

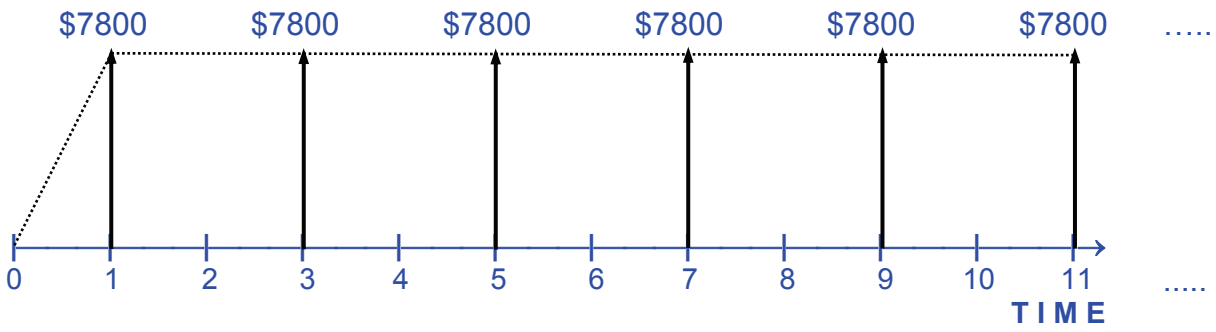
A) Portfolio Q's expected return is 10.67 percent.
B) Portfolio P has a standard deviation of 20 percent.
C) Portfolio P's required return is greater than the required return on Stock A.
D) Portfolio Q has a standard deviation of 20 percent.

Part II: Problems (Total: 30 Points)

- **Answer on this document, in the space provided.**
- Show all of your calculations.
- Write clearly! Part marks will be awarded (when deserved).
- Write your final numerical answer in the box provided.

1. Given a stream of positive payments of $7800 *every other year* forever, with the first payment occurring one year from today (t=0), and an interest rate of 16 percent compounded daily (365 days per year), (7 points total)

a) Draw the monetary flow diagram associated with the stream of payments. (2 point)



b) Determine the present value today of the stream of payments: (5 points)

Effective interest rate for a 1-year period: $(1 + 0.16/365)^{365} - 1 = 0.17347$ or 17.347%
Effective interest rate for a 2-year period: $(1 + 0.16/365)^{730} - 1 = 0.37703$ or 37.703%

PV of perpetuity at t= -1: $7,800 / 0.37703 = $20,688.01
PV at t=0: $20,688.01 (1 + 0.17347) = $24,276.76

Answer:
Present Value = $24,276.76

2. Molson Inc. has 8,000,000 shares of common stock, 2,000,000 shares of preferred stock, and 300,000 bonds outstanding. The common stock has a book value of $10, currently sells for $15, and has a beta of 1.4. The preferred stock currently sells for $20 per share and pays a $3 dividend. The bonds have a par value of $1,000, an 11% coupon rate and make semiannual coupon payments. The bonds have 15 years to maturity and currently sell at $1,367.84. The risk free rate is 4% and the expected return on the market is 11%. Molson's tax rate is 40%. (13 points total)

a) Estimate Molson's cost of equity. (2 points)

$R_E = R_f + [E(R_M) - R_f]\beta$

$R_E = 0.04 + [0.11 - 0.04] * 1.4 = 0.1380 = 13.80\%$

Answer:

Cost of Equity = 13.80%

b) Estimate Molson's cost of preferred stock. (2 points)

$R_P = D/P = \$3/\$20 = 0.1667 = 15.00\%$

Answer:

Cost of Preferred Stock = 15.00%

c) Estimate Molson's after-tax cost of debt. (3 points)

$P = C [1 - 1/(1 + r)^t]/r + \$1000/(1 + r)^t$

$\$1{,}367.84 = \$55 [1 - 1/(1 + r)^{30}]/r + \$1000/(1 + r)^{30}$

Using the financial calculator:
r = 3.5%
Since the bond makes semiannual payments:
YTM = 2 * r
YTM = 2 (3.5%) = 7%
After-tax cost of debt = $[\{(1+r)^2\}-1] * (1 - T_C)$
$= [\{(1+0.035)^2\}-1]* (1 - 0.40) = 0.042 = 4.2735\%$

Answer:
After-Tax Cost of Debt = 4.27%

d) Estimate the weighted average cost of capital for Molson Inc. (3 points)

E = 8,000,000 * \$15 = \$120,000,000
P = 2,000,000 * \$20 = \$40,000,000
D = 300,000 * \$1,367.84 = \$410,352,000
V = E + P + D = \$570,352,000

$WACC = (E/V) R_E + (P/V) R_P + (D/V)R_D(1 - T_C)$

WACC = (\$120,000,000/\$570,352,000) 0.138 + (\$40,000,000/\$570,352,000) 0.15 + (\$410,352,000/\$570,352,000) 0.042735=0.0703

Answer:
WACC = 7.03%

e) Molson Inc. needs $5,000,000 to start a new project. The flotation cost for issuing new common stock is 16 percent, for new preferred stock it is 10 percent, and for new debt it is 5 percent. Assuming that Molson Inc. maintains the same capital structure, how much does it need to raise? (3 points)

$F_A = (E/V) F_E + (P/V) F_P + (D/V)F_D$

F_A = ($120,000,000/$570,352,000)*0.16 + ($40,000,000/$570,352,000)*0.1 + ($410,352,000/$570,352,000)*0.05 = 0.0767 = 7.67%

Molson Inc. needs to raise:

$(1 - F_A)$(Amount to be raised) = $5,000,000

(1 - 0.0767)(Amount to be raised) = $5,000,000

Amount to be raised = $5,415,357.96

Answer:

Amount to be Raised = $5,415,357.96

3. Essay questions: Below are five questions that are intended to test your understanding of some of the key concepts taught in the course. You should **answer each question in 3 lines or less**. (10 points total)

a) Explain why in a highly competitive market all stocks should plot on the same security market line. (2 points)

Ans: The security market line for all stocks will have the same intercept point, which is the risk-free rate of return as represented by the Treasury bill rate. In a highly competitive market, all stocks should be priced correctly so that the risk-reward ratio is constant. A constant risk-reward ratio would cause all stocks to plot on the same security market line due to the fact that the risk-reward ratio is the slope of that line.

b) Suppose you look in the newspaper and see IBM trading at $250 per share. Calls on IBM with one month to expiration and an exercise price of $245 are trading at $6.50 each. Puts on IBM with one month to expiration and an exercise price of $255 are trading at $3.50 each. Are these prices reasonable? Explain. (Ignore transactions costs.) (2 points)

Ans: The calls are okay since the intrinsic value of each is $5 and the calls are trading at a price greater than this. However, the intrinsic value of the puts is $5 but the put is trading at $3.50. Thus, you could engage in arbitrage by buying puts for $3.50 each, exercising and selling the shares at the exercise price of $255, and purchase shares to cover the sale in the market at $250 each, netting a profit of $150 per contract.

c) We routinely assume that investors are risk-averse return-seekers; i.e., they like returns and dislike risk. If so, why do we contend that only systematic risk is important? (Alternatively, why is total risk not important to investors, in and of itself?) (2 points)

Ans: This question, of course, gets to the point of the chapter: That rational investors will diversify away as much risk as possible. From the discussion in the text, most students will also have picked up that it is quite easy to eliminate diversifiable risk in practice, either by holding portfolios with 15 to 25 assets, or by holding shares in a diversified mutual fund. And, as noted in the text, there will be no return for bearing diversifiable risk, thus, total risk is not particularly important to a diversified investor.

d) Suppose your firm is going to finance a new project 100% with retained earnings. Your boss claims that since the earnings are already being retained and that since no outside financing is required, the project should be evaluated at the risk-free rate of return. Is this appropriate? Are retained earnings risk-free? Why or why not? (2 points)

Ans: Students should recognize that retained earnings essentially belong to equityholders and that the appropriate cost is the cost of equity. Moreover, the boss is basing the cost of capital on the source of funds, not the use.

e) A project has multiple IRRs. Which should you use in determining whether or not to accept the project, the highest, the lowest, or the intermediate IRR? (2 points)

Ans: This is basically a trick question, the IRR rule should not be used in this case.

Answer Key - BLUE

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