Print Last Name: ➔	**Print First Name:** ➔	**ID Number:** ➔	
COURSE FINANCE	**NUMBER** COMM 308	**SECTIONS: (➔ Circle your section)** AA, AB	
EXAMINATION Final Exam **VERSION BLUE**	**DATE** June 18, 2012	**TIME** 3 hours 19:00 to 22:00	**# OF PAGES 17** Including cover
INSTRUCTOR: **(➔ Underline your instructor's name)** Rahul Ravi Jay Mannadiar		**DIVISION** John Molson School of Business Concordia University	

READ THESE SPECIAL INSTRUCTIONS CAREFULLY

- You must submit a BLUE computer answer sheet.

- You are allowed to bring/use one or more calculators

- You are allowed to bring one language dictionary (no finance/ mathematics/economics etc. dictionary)

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

- For Problems:

All answers must be recorded IN INK within this exam.
Show your calculations to earn part marks. Write in the space provided.
If you are using the back of the exam for answering any question, you should label it clearly

- Please ensure you have 17 pages (including the cover page) in this exam.

- Fill in your name and other required information IN PENCIL on the Computer Answer sheet as well as IN INK on this cover sheet.

- Blank questions or those with multiple answers will not receive any credit.

SCORES (FOR INTERNAL USE ONLY)

Part I Multiple Choice Questions	**Part II Long Answer Questions**				
	Question 1	Question 2	Question 3	Question 4	
(Max: 70 Points)	(Max: 8 Points)	(Max: 6 Points)	(Max: 8 Points)	(Max: 8 Points)	**Total**

Part I: Multiple Choice Questions (28 Questions, 70 Points Total):

- This part consists of 28 Multiple Choice Questions.
- Each question counts 2.5 points for a total of 70 points.
  - **Only answers on the computer answer sheet will be graded.**
  - **Use a pencil to mark your answers on the Computer Sheet.**

1. Which one of the following is the best strategy to help reduce the agency problem?

   A) Fixed salaries for all corporate executives

   B) Executive bonuses based on increased sales

   C) Stock options used as management compensation

   D) Management promotions based on the number of employees managed

   E) Raises based on the value of the assets managed

2. If you place $50 in a savings account with an interest rate of 7% APR compounded weekly, what will the investment be worth at the end of five years (round to nearest dollar)? (Assume that there are 52 weeks in a year)

   A) $72

   B) $70

   C) $71

   D) $57

   E) $45,000

3. You are considering two investments: A & B. Both investments provide a cash flow of $100 per year for n years. However, investment A receives the cash flows at the beginning of each year, while investment B receives the cash flows at the end of each year. If the present value of cash flows from investment A is P, and the discount rate is r, what is the Future value at time n of the cash flows from investment B?

   A) $P \big/ (1+r)$

   B) $P \big/ (1+r)^n$

   C) $P \times (1+r)^n$

   D) $P \times (1+r)^{n+1}$

   E) $P \times (1+r)^{n-1}$

4. What is the value on 1/1/2005 of the following cash flows (Assume 10% EAR discount rate)

Date Cash received	Amount of Cash
01/01/2006	$100
01/01/2008	$100
01/01/2010	$100
01/01/2012	$100
01/01/2014	$100

A) $266.00

B) $292.60

C) $321.86

D) $379.08

E) $416.99

5. You are going to deposit $800 into an account at the beginning of each year for the next 20 years (First payment is today). Starting in year 20, you will begin receiving perpetuity from the account. First payment from the perpetuity will be at the end of year 20. If the account pays 14% (EAR), how much will you receive in each year from this perpetuity?

A) $10,194.79
B) $11,622.06
C) $13,249.15
D) $94,636.80
E) $592,962.39

6. Which of the following provides the greatest annual interest?

A) 21% Effective two-year rate
B) 10% APR compounded annually
C) 9.569% APR compounded monthly
D) 9.65% APR compounded daily (Assume 365 days in a year)
E) All of them have the same effective annual rate of 10%

7. The greater the uncertainty about an asset's future benefits,_____

A) the lower the discount rate investors will apply when discounting those benefits to the present.
B) the higher the discount rate investors will apply when discounting those benefits to the present.
C) the greater is the present value of those benefits.
D) Both B and C
E) None of the above

8. With respect to a company that has issued a callable bond,

   A) the value of the call increases as the stock price increases.
   B) the value of the call increases as interest rates increase.
   C) the value of the call increases as interest rates decrease.
   D) the value of the call increases as the term to maturity decreases.
   E) None of the above.

9. Which of the following statements are correct?

   I. The prices of short-term bonds display greater price sensitivity to interest rate changes than do the prices of long-term bonds.
   II. The price of low-yield bonds display greater price sensitivity to interest rate changes than do the prices of high-yield bonds.
   III. The price of low-coupon bonds display greater price sensitivity to interest rate changes than do the prices of high-coupon bonds.

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

10. Which of the following statements is most correct?

   A) If a stock's beta increased but its growth rate remained the same, then the new equilibrium price of the stock will be higher (assuming dividends continue to grow at the constant growth rate)
   B) Market efficiency says that the actual realized returns on all stocks will be equal to the expected rates of return
   C) An implication of the semistrong form of the efficient markets hypothesis is that you cannot consistently benefit from trading on information reported in The Wall Street Journal
   D) Statements a and b are correct
   E) All of the statements above are correct.

11. Which of the following statements is correct?

   A) The slope of the security market line is beta
   B) Market participants are able to eliminate virtually all market risk if they hold a large diversified portfolio of stocks.
   C) If a stock’s beta doubles, its required rate of return must double
   D) Both B and C
   E) None of the above statements is correct.

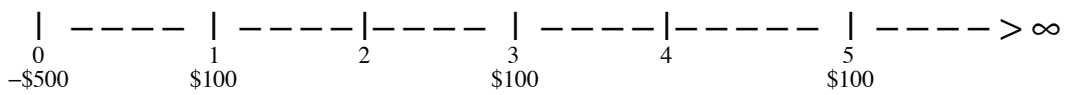
12. You are a recycler of spent plutonium rods from nuclear reactors, and a new government mandate requires you to purchase a filtration system for your wastewater. The new machine will cost 1.2 million to buy and $10,000 to have it delivered and installed. Buying an adjoining plot of land to install the filtration system will cost additional $100,000. The machine falls under asset class 22 and has a capital cost allowance (CCA) rate of 50%. What will be the un-depreciated capital cost of the new machine in the beginning of year 2?

    A) $302,500.00
    B) $327,500.00
    C) $453,750.00
    D) $605,000.00
    E) $907,500.00

13. 4N plans to launch a new type of ink pen. Advertising for the new product will cost the company $5 million, although the company expects revenues of $150 million from sources other than the new pen. If 4N has a corporate tax of 35% on its pretax income, what effect will the advertising for the new pen have on its taxes?

    A) Increase taxes by $1.75 million.
    B) Increase taxes by $5 million.
    C) It will have no effect on taxes.
    D) Reduce taxes by $1.75 million.
    E) Reduce taxes by $5 million.

14. Consider a project with the following cashflows: (It pays $100 every alternate year, forever)



    If the appropriate discount rate for this project is 5% (EAR), then the net present value of this project is equal to_____.

    A) $475.61
    B) $524.39
    C) $1500
    D) $2600
    E) None of the above

15. Which of the following statements is/are true?

I. When IRR, PI, Payback period, discounted payback period and NPV decision rules give conflicting answers, then decision should be based on the NPV.

II. IRR decision rule can be reliably used to choose between mutually exclusive projects.

III. Profitability index can be reliably used to choose between mutually exclusive projects.

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

16. When comparing two projects with different lives, why do you compute an annuity with an equivalent present value to the NPV of the project?

A) So that we can see which project has the greatest net present value.
B) So that the projects can be compared on their cost or value created per year.
C) Because it is easier to calculate equivalent annual NPV than to calculate the IRR.
D) Because it is the recommended way of comparing two projects with different lives.
E) None of the above.

17. When we use WACC to assess a project, we assume that the _____ ratio does not change.

A) Reward to total risk
B) Reward to systematic risk
C) Reward to idiosyncratic risk
D) Debt to equity
E) No such assumption is required

18. The Jingles Tamborine Company is a firm with a debt/equity ratio of 2. The firm has a tax rate of 40% and a WACC of 13%. The firm's cost of equity is estimated to be 10%. The firm earns an EBIT of $36,000 per year. The EBIT is expected to continue forever. What is the firm's after-tax cost of debt?

A) 14.5%
B) 24.12%
C) 29.4%
D) 36.25%
E) Can't say (Insufficient information)

19. For markets to be in equilibrium, that is, for there to be no strong pressure for prices to depart from their current levels,

    A) The expected rate of return must be equal to the required rate of return.
    B) Ex-ante return must equal ex-post return.
    C) The past realised return must equal the expected rate of return.
    D) All three A, B, C must hold.
    E) None of the above statements are correct.

20. Stock A has a beta of 0.8, while stock B has a beta of 1.6. Which of the following statements is most correct?

    A) Stock B's required return is double that of stock A's.
    B) An equally weighted portfolio of stock A and stock B will have a beta less than 1.2.
    C) If the market participants become more risk averse, the required return on stock B will increase more than the required return for stock A.
    D) Statements A and C are correct.
    E) All of the above statements are correct.

21. Jane holds a large diversified portfolio of 100 randomly selected stocks and the portfolio's beta is 1.2. Each of the individual stocks in her portfolio has a standard deviation of 20%. John has the same amount of money invested in a single stock with a beta equal to 1.6 and a standard deviation of 20%. Which of the following statements is most correct?

    A) Jane's portfolio has a larger amount of company specific risk since she is holding more stocks in her portfolio.
    B) Both portfolios will have the same total risk because all of Jane's and John's stocks have the same standard deviation of 20%.
    C) Jane's portfolio has less market risk since it has lower beta.
    D) Statements B and C are correct.
    E) Statements A, B and C are correct.

22. You purchased GamaX common shares for $50 per share one year ago. You have just received $8 dividend per share on these stocks. If your total return during the period is 12%, then what is the price of GamaX stocks today?

    A) $48.00
    B) $50.00
    C) $52.00
    D) $56.00
    E) None of the above

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

A) Increase over time at a rate of k.
B) Decrease over time at a rate of k.
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.

24. An out-of-the-money call option is one that:

A) has an exercise price below the current market price of the underlying security.
B) should not be exercised.
C) has an exercise price above the current market price of the underlying security.
D) Both A and B.
E) Both B and C.

25. GamaX stock is selling for $15 per share. The firm's stock prices have been growing at an annual 15% rate and are expected to continue to grow at this rate for three more years. No dividends have been paid out yet. However, the firm is expected to declare a dividend of D_3=$2.00. After that dividends are expected to grow at the firm's normal growth rate of 6%. The firm's required rate of return is 18%. The stock is:

A) Undervalued by $3.03.
B) Overvalued by $3.03.
C) Correctly valued.
D) Undervalued by less than $3.
E) Overvalued by less than $3.

26. Suppose David can borrow and lend at the risk-free rate of 5%. Which of the following three risky portfolios should he hold in combination with a position in the risk-free asset?

A) portfolio with a standard deviation of 16% and an expected return of 12%.
B) portfolio with a standard deviation of 20% and an expected return of 16%.
C) portfolio with a standard deviation of 30% and an expected return of 20%.
D) he should be indifferent in holding any of the three portfolios.
E) Insufficient information for answering the question.

27. The following information was reported last year:

	Beginning	Ending
Accounts receivable	$65,250	$75,338
Accounts payable	$42,362	$55,124
Inventory	$51,225	$63,037

What was the change in cashflow (due to changes in net working capital) for the year?

A) -$9,138

B) -34,662

C) $9,138

D) $34,662

E) None of the above.

28. Your subscription to Jogger's World Monthly is about to run out and you have the choice of renewing it by sending in the $10 a year regular rate or of getting a lifetime subscription to the magazine by paying $100. Your cost of capital is 7 percent. How many years would you have to live to make the lifetime subscription the better buy? Payments for the regular subscription are made at the beginning of each year. (Round up if necessary to obtain a whole number of years.):

A) 7 years.

B) 8 years.

C) 10 Years.

D) 15 years.

E) 18 years.

Part II: Problems (30 Points Total)

- Answer on this document, in the space provided. Use the back of the sheet if you need additional space. Label it clearly. Any work on the back of the sheet, which is not labeled clearly, will not be graded.

Q1. **(8 Points):** Misery Inc. specializes in purchasing the assets of distressed and bankrupt firms and then selling them at a huge profit. Due to its business model, Misery does brisk business during bear markets but it has few opportunities in a booming economy. The correlation between the returns on the market portfolio and Misery stock is $\rho_{i,m} = -0.1$. Misery stock returns have a standard deviation of $\sigma_i = 0.3$ (i.e. 30%) while the variance of the return on the market portfolio is $\sigma_m^2 = 0.04$. The risk free rate equals $R_f = 5\%$ and the expected return on the market is 10%.

a) (1 Point) Analysts predict that the price of Misery stock will increase to $21 by the end of the year from its current level of $20 per share. If Misery pays no dividends, what return can Misery investors expect based on this forecast?

b) (2 Points) What is the beta of Misery's stock?

c) (3 Points) What is the required return on Misery stock based on its systematic risk? Comment on the desirability of including Misery stock in a portfolio.

d) (2 Points) Does the expected return calculated in part a) provide adequate compensation for the risk? Is Misery under- or overvalued (or is it correctly priced)?

Q2. **(6 Points)** Five years ago, Rock Steady Corp issued a semiannual coupon bond with seven years until maturity. This bond was originally issued at par with a $1,000 face value. The coupon rate on the bond is 8% while its yield-to-maturity (YTM) is 10%.

a) (1 points) What was effective annual rate (EAR) paid by this bond when it was issued?

b) (3 Points) Calculate the percentage five-year capital gain or loss for an investor who bought the bond when it was issued and sells it today.

c) (2 Points) How would the price sensitivity to changes in interest rate of a $1,000 face value, 8% coupon bond with 2 years left to maturity and annual coupons compare with that of the above bond? Assume that the EAR is the same for both bonds. There is no calculation required, just briefly state your argument. (You will NOT get full credit if you calculate the answer but cannot provide us with an intuitive argument.)

Q3. (7 Points)

Note: when drawing payoff or profit diagrams, you need to show the location of each important point on the diagram by writing down the relevant numbers next to each point (i.e. indicate intersections with the horizontal and vertical axes and any points where the payoff/profit function changes abruptly).

An investor constructs the following portfolio:

- Long a European Call option with a strike price of $40.00.
- Long a European Put option with a strike price of $40.00

This trading strategy is known as a straddle.
Assume that the premium on the call is $0.75 and the premium on the put is $3.00.

a) (6 Points) Draw the profit diagram for the above straddle.

b) (1 Point) What is the above straddle investor betting on?

Q4. (9 Points) Short Answers:

a) (3 Points) Can the nominal interest rate ever be negative? Can the real interest rate ever be negative? Explain.

b) (6 Points) Give an example of (Real or hypothetical):

i. Weak form inefficiency

ii. Semi-strong form inefficiency

iii. Strong form inefficiency

Equation List - Comm 308 - Booth-Cleary Text

5.3	Present Value of FV_n : $PV_0 = \frac{FV_n}{(1+k)^n}$
5.4	Future value of an annuity: $FV_n = \frac{PMT}{k}\left[(1+k)^n - 1\right]$
5.5	Present Value of an annuity: $PV_n = \frac{PMT}{k}\left[1 - \frac{1}{(1+k)^n}\right]$
5.8	Present value of perpetuity: $PV_0 = \frac{PMT}{k}$
5.10	Effective rate with continuous compounding: $k = e^{QR} - 1$
5.11	Effective rate: $k = \left(1 + \frac{QR}{m}\right)^{\frac{m}{f}} - 1$
5A-2	Present value of growing perpetuity: $PV_0 = \frac{PMT_0(1+g)}{k-g} = \frac{PMT_1}{k-g}$
5A-4	Present value of growing annuity: $PV_0 = \frac{PMT_1}{k-g}\left[1 - \left(\frac{1+g}{1+k}\right)^n\right]$
6.3	Current Yield: $CY = \frac{Annual\ Interest}{B}$
6.6	Price of T-Bill given BEY: $P = \frac{F}{\left(1 + k_{BEY} \times \frac{n}{365}\right)}$
7.10	Share price with growth opportunities: $P_0 = \frac{EPS_1}{k_c} + PVGO$
7.11	Growth rate: $g = b * ROE$
8.3	Total return = Income yield + Capital gain (loss) yield = $\frac{CF_1}{P_0} + \frac{P_1 - P_0}{P_0}$
8.5	Geometric average (GM) $= \left[(1+r_1)(1+r_2)(1+r_3)\times(1+r_n)\right]^{1/n} - 1 = \left(\prod_{i=1}^{n}(1+r_i)\right)^{\frac{1}{n}} - 1$
8.6	Expected return: $ER = \sum_{i=1}^{n}(r_i * \text{Prob}_i)$
8.7	Ex-post $\sigma = \sqrt{\frac{\sum_{i=1}^{n}(r_i - \bar{r})^2}{n-1}}$
8.8	Ex-ante $\sigma = \sqrt{\sum_{i=1}^{n}(\text{Prob}_i)(r_i - ER)^2}$
8.9	Expected portfolio return: $ER_p = \sum_{i=1}^{n}(w_i * ER_i)$
8.11	Portfolio standard deviation: $\sigma_P = \sqrt{(w_A)^2(\sigma_A)^2 + (w_B)^2(\sigma_B)^2 + 2(w_A)(w_B)(COV_{A,B})}$
8.12	$COV_{A,B} = \sum_{i=1}^{n}\text{Prob}_i(r_{A,i} - \bar{r_a})(r_{B,i} - \bar{r_b})$

8.14	$COV_{AB} = \rho_{AB}\sigma_A\sigma_B$
8.16	If $\rho_{AB} = -1$, then: $\sigma_P = w\sigma_A - (1-w)\sigma_B$
9.3	$E(R_P) = RF + \left(\frac{E(R_A) - RF}{\sigma_A}\right)\sigma_P$
9.4	Slope of CML $= \frac{ER_M - RF}{\sigma_M}$
9.6	Sharpe Ratio $= \frac{ER_P - RF}{\sigma_P}$
9.7	$\beta_i = \frac{Cov_{i,M}}{\sigma_M^2} = \frac{\rho_{i,M}\sigma_i}{\sigma_M}$
9.8	$\beta_P = w_A\beta_A + w_B\beta_B + \ldots + w_n\beta_n$
9.9	$k_i = RF + (ER_M - RF)\beta_i$
12.2	*Option* Premium $= IV + TV$
12.5	Put Call Parity: $P + S = C + PV(X)$
13.1	$NPV = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + \mathsf{K} + \frac{CF_n}{(1+k)^n} - CF_0 = \sum_{t=1}^{n}\frac{CF_t}{(1+k)^t} - CF_0$
13.3	$PI = \frac{PV(Cash \text{ inflows})}{PV(Cash \text{ outflows})}$
14.1	$CF_0 = C_0 + \Delta NWC_0 + OC$
14.2	$CF_t = CFBT_t(1-T) + CCA_t(T)$
14.4	$ECF_n = SV_n + \Delta NWC_n$
14.5	$NPV = PV(CF_t) + PV(ECF_n) - CF_0$
14.6	$PV(Operating\ Cash\ Flows) = \frac{CFBT(1-T)}{k}\left[1 - \frac{1}{(1+k)^n}\right]$
14.7	$PV(CCA\ Tax\ Shield) = \frac{(C_0)(d)(T)}{d+k} * \frac{(1+0.5k)}{(1+k)} - \frac{(SV_n)(d)(T)}{d+k} * \frac{1}{(1+k)^n}$
20.8	Cost of Capital: $K_a = \frac{ROI \times IC}{V} = \frac{K_e S + K_d(1-T)D}{V} = K_e\frac{S}{V} + K_d(1-T)\frac{D}{V}$
20.9	$WACC = K_e\frac{S}{V} + K_p\frac{P}{V} + K_i\frac{D}{V}$, Where: $K_i = K_d(1-T)$
20.10	Market value: $S = P_0 \times n$
20.13	Net proceeds: $NP = \frac{I(1-T)}{K_i}\left[1 - \frac{1}{(1+K_i)^n}\right] + F\left(\frac{1}{(1+K_i)^n}\right)$
20.14	Cost of preferred shares: $K_p = D_p \Big/ NP$
20.17	$K_{ne} = \frac{D_1}{NP} + g$
20.21	$K_e = \frac{D_1}{P_0} + g = \frac{X_1(1-b)}{P_0} + b * ROE$
20.27	Cost of new equity: $K_{ne} = K_e * \frac{P_0}{NP}$