Ryerson University

CFIN300
Midterm Exam
Fall 2007

There are 2.0 hours in this exam.

Version A

Student Name _____
(Please Print)

Student Number _____

Notes:

1. This is a closed book exam. You may only have pens, pencils and a calculator at your desk.
2. A formula sheet is attached to the end of the exam. You may detach the formula sheet from the exam.

Please fill out the scanner sheet as you go along in the exam. You will not be given extra time at the end of the exam to fill it out.

3. Select the best possible answer for each multiple-choice question
4. Each of the 30 MC questions is worth 1 mark

Marks:	Available	
Total	30	_____

There are 14 pages in this exam.

2. Poor Dog, Inc. borrowed $135,000 from the bank today. They must repay this money over the next six years by making monthly payments of $2,215.10. What is the interest rate on the loan? Express your answer with annual compounding.
   A) 5.98%
   B) 6.63%
   C) 4.71%
   D) 5.65%
   E) 5.80%

3. How much would you pay for a security that pays you $500 every 4 months for the next 10 years if you require a return of 8% per year compounded monthly?
   A) $11,228.48
   B) $15,000.00
   C) $10,260.00
   D) $13,724.90
   E) $10,200.23

4. You can earn 5% per year compounded annually for the next 4 years, followed by 8% per year compounded quarterly for 5 years. What is the average annual compounded rate of return over the 9 year period? Express your answer with monthly compounding.
   A)
   B) 6.82%
   C) 6.97%
   D) 6.43%
   E) 6.59%

5. You have just purchased a house for $540,000 with a $200,000 down payment. You are going to get a mortgage at the TF bank for the balance. TF is charging a rate of 5.8% per year compounded semi-annually on 5 year term mortgages. You want to make weekly payments amortized over 20 years. What is your weekly payment?
   A) $877.60
   B) $549.01
   C) $545.47
   D)
   E) $871.92

6. Master Meter is planning on constructing a new $20 million facility. The company plans to pay 20% of the cost in cash and finance the balance. How much will each monthly loan payment be if they can borrow the necessary funds for 30 years at 9% per year compounded semi-annually?
   A) $128,740

B) $158,567
C) $160,925
D) $141,982
E) $126,853

7. Gerry Industries has some 8% (per year compounded semi-annually) coupon bonds on the market that are selling at $989, pay interest semi-annually, and mature in fifteen years. The company would like to issue $1 million in new fifteen-year bonds. What coupon rate should be applied to the new bonds if Gerry Industries wants to sell them at par? Express your answer with semi-annual compounding.
   A) 8.00%
   B) 8.33%
   C) 7.87%
   D) 8.13%
   E) 8.26%

8. You have decided to save $30 a week for the next three years as an emergency fund. You can earn 3.5 % per year compounded weekly. How much would you have to deposit in one lump sum today to have the same amount in your savings at the end of three years?
   A) $4,441.26
   B) $4,382.74
   C) $4,288.87
   D) $4,305.19
   E) $4,414.14

9. A credit card company charges you an interest rate of 1.25% per month. The annual percentage rate is ____ and the effective annual rate is _____.
   A) 15.00%; 16.08%
   B) 16.08%; 15.00%
   C) 15.00%; 15.00%
   D) 15.00%; 14.55%
   E) 14.55%; 15.00%

10. The Friendly Bank wants to earn an effective annual rate of 9% on its auto loans. If interest is compounded monthly, what APR must they charge?
    A) 8.65%
    B) 9.17%
    C) 8.58%
    D) 9.38%
    E) 8.44%

Use the following to answer question 11:

Rondolo, Inc.
2006 Income Statement

Net Sales	$12,800
Less: Cost of Goods Sold	10,400
Less: Depreciation	680
Earnings Before Interest and Taxes	1,720
Less: Interest Paid	280
Taxable Income	$1,440
Less: Taxes	500
Net Income	$940
Dividends	$423
Additions to retained earnings	$517

Rondolo, Inc.
2006 Balance Sheet

Cash	$520	Accounts payable	$1,810
Accounts rec	1,080	Long-term debt	3,600
Inventory	3,120	Common stock	5,000
Total	$4,720	Retained earnings	1,790
Net fixed assets	7,480		
Total assets	$12,200	Total liabilities & equity	$12,200

11. Rondolo, Inc. is currently operating at maximum capacity. All costs, assets, and current liabilities vary directly with sales. The tax rate and the dividend payout ratio will remain constant. How much additional debt is required if no new equity is raised and sales are projected to increase by 4 percent?
    A) -$122.08
    B) $598.75
    C) $416.00
    D) -$562.50
    E) $318.01

12. Your brother-in-law borrowed $2,000 from you four years ago and then disappeared. Yesterday he returned and expressed a desire to pay back the loan, including the interest accrued. Assuming that you had agreed to charge him 10% per year compounded annually, and assuming that he wishes to make five equal annual payments beginning in one year, how much would your brother-in-law have to pay you annually in order to pay off the debt? (Assume that the loan continues to accrue interest at 10% per year.)
    A) $738.63
    B) $798.24

C) $772.45
D) $697.43
E) $751.46

13. What information to you need to find the 3 year forward rate starting 2 years from now?
A) 2 and 5 year zero coupon spot rates
B) 3-year zero coupon spot rate
C) 2 and 3 year zero coupon spot rates
D) 5 year zero coupon spot rate
E) 3 and 5 year zero coupon spot rates

14. You have been making payments for the last 25 years and have finally paid off your mortgage. Your original mortgage was for $345,000 and the interest rate was 5% per year compounded semi-annually for the entire 25 year period. How much interest have you paid over the last 5 years of the mortgage?
A)
B) $120,392.23
C) $13,931.87
D) $80,743.13
E) $106,460.37

15. Which of the following is (are) sources of cash?

I. an increase in accounts receivable
II. a decrease in common stock
III. an increase in long-term debt
IV. a decrease in accounts payable

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

16. Financial planning allows firms to:

I. avoid future losses.
II. develop contingency plans.
III. ascertain expected financing needs.
IV. explore and evaluate various options.

A) I, II, III, and IV
B) I and IV only
C) III and IV only

D) II and III only
E) II, III, and IV only

Use the following to answer question 17:

Current Assets	$100	Accts. Pay.	$50	Sales	$1,000
Net Fixed A.	$200	Long term debt	$100	Costs	$800
		Equity	$150	Taxable income	$200
Total Assets	$300	Total L&E	$300	Taxes	$68
		Net Income	$132		

17. Assume costs, assets, and accounts payable all increase at the same rate as sales. Also assume 80% of net income is paid out in dividends. If sales grow at 25%, compute external financing needed.
    A) $52.00
    B) $22.50
    C) $0.00
    D) $4.50
    E) $29.50

18. A new security will pay an initial cash flow of $100 in 1 year. Thereafter it will pay cash flows every month for the rest of time. The cash flows will grow at 3% per year compounded monthly forever. If you require a return of 6% per year compounded monthly, how much would you be willing to pay for this security?
    A) $18,932.30
    B) $40,000.00
    C) $37,864.59
    D) $33,333.33
    E) $20,000.00

19. Which one of the following actions is the best example of an agency problem?
    A) Basing management bonuses on the attainment of specific financial goals
    B) Requiring stockholders approval of all management compensation decisions
    C) Paying management bonuses based on the current market value of the firm's stock
    D) Paying management bonuses based on the number of store locations opened during the year
    E) Accepting a project that enhances both management salaries and the market value of the firm's stock

20. The bonds of Frank's Welding, Inc. pay an 8% annual coupon, have a 7.98% (per year compounded annually) yield to maturity and have a face value of $1,000. The current rate of inflation is 2.5% per year compounded annually. What is the real rate of return on these bonds?
    A) 5.42 percent
    B) 5.48 percent
    C) 5.35 percent
    D) 5.37 percent
    E) 5.32 percent

21. What is the future value of the following cash flows at the end of year 3 if the interest rate is 6% per year compounded annually? The cash flows occur at the end of each year.

Year 1	Year 2	Year 3
$5,180	$9,600	$2,250

    A) $19,341.02
    B) $15,916.78
    C) $19,608.07
    D) $18,246.25
    E) $18,109.08

22. The I.C. James Co. invested $10,000 six years ago at 5% per year simple interest. The I.M. Smart Co. invested $10,000 six years ago at 5% per year compounded annually. Which one of the following statements is true concerning these two investments?

    I. The I.C. James Co. has an account value of $13,400.96 today.
    II. The I.C. James Co. will have an account value of $13,400.96 six years from now.
    III. The I.M Smart Co. will earn $525 interest in the second year.
    IV. Both the I.C. James Co. and the I.M. Smart Co. will earn $500 interest in the first year.
    A) II, III and IV only
    B) II and IV only
    C) I and III only
    D) III and IV only
    E) I, III and IV only

23. The bonds of Microhard, Inc. carry a 10% annual coupon, have a $1,000 face value, and mature in four years. Bonds of equivalent risk yield 15% (per year compounded annually). Microhard is having cash flow problems and has asked its bondholders to accept the following deal: The firm would like to make the next three coupon payments at half the scheduled amount, and make the final coupon payment be $251. If this plan is implemented, the market price of the bond will (rise/fall) to _____. (Continue to assume a 15% required return.)
    A) $892.51

B) $865.45
C) $829.42
D) $808.89
E) $851.25

24. Your older sister deposited $5,000 today at 8% per year compounded annually for five years. You would like to have just as much money at the end of the next five years as your sister. However, you can only earn 6% per year compounded annually. How much more money must you deposit today than your sister if you are to have the same amount at the end of five years?
    A) $367.32
    B) $399.05
    C) $489.84
    D) $201.80
    E) $423.81

25. Net income differs from operating cash flow due to the handling of:
    A) Interest expense and depreciation.
    B) Depreciation and dividends.
    C) Dividends and non-interest expense.
    D) Dividends and interest expense.
    E) Dividends, interest expense, and depreciation.

26. Shirley adds $1,000 to her savings on the last day of each month. Shawn adds $1,000 to his savings on the first day of each month. They both earn an 8% per year compounded quarterly rate of return. What is the difference in their savings account balances at the end of 35 years?
    A) $13,923.34
    B) $15,794.64
    C) $16,776.34
    D) $14,996.47
    E) $12,846.88

Use the following to answer questions 27-30:

KLM, Inc.
2006 Income Statement

Net sales	$3,685
Cost of goods sold	$3,180
Depreciation	$104
Earnings before interest and taxes	$401
Interest paid	$25
Taxable income	$376
Taxes	$128
Net income	$248
Dividends paid	$60
Addition to retained earnings	$188

KLM Corporation
Balance Sheets as of December 31, 2005 and 2006

	2005	**2006**		**2005**	**2006**
Cash	$520	$601	Accounts payable	$621	$704
Accounts rec.	$235	$219	Notes payable	$333	$272
Inventory	$964	$799	Current liabilities	$954	$976
Current assets	$1,719	$1,619	Long-term debt	$350	$60
Net fixed assets	$890	$930	Common stock	$800	$820
			Retained earnings	$505	$693
Total assets	$2,609	$2,549	Total liabilities and Owner's equity	$2,609	$2,549

27. What is the net capital spending for 2006?
    A) $208
    B) $144
    C) -$144
    D) $64
    E) -$64

28. What is the cash flow from assets for 2006?
    A) $1,307
    B) $2,259
    C) $355
    D) $2,503
    E) $111

29. What is the operating cash flow for 2006?
    A) $480
    B) $169
    C) $425
    D) $272
    E) $377

30. What is the change in net working capital for 2006?
    A) $122
    B) $643
    C) $765
    D) -$643
    E) -$122

31. A number of years ago you bought some land for $100,000. Today it is worth $225,000. If the land has been rising is price by 5% per year compounded annually, how long have you owned the land?
    A) 14.1 years
    B) 16.6 years
    C) Can't be determined with the given information
    D) 13.8 years
    E) 12.4 years

$FV = PV\,(1+tr)$	$FV = C \times \left[\frac{(1+r)^t - 1}{r}\right]$
$FV = PV\,(1+r)^t$	$PV = C \times \left[\frac{1 - \frac{1}{(1+r)^t}}{r}\right]$
$PV = \frac{FV}{(1+r)^t}$	$PV_D = C \times \left[\frac{1 - \frac{1}{(1+r)^t}}{r}\right](1+r)$
$PV = \frac{A}{r}$	$FV_D = FV_{\mathrm{Re}\,gAnn}(1+r)^1$
$r = \left[1 + \frac{i}{m}\right]^{m/f} - 1$	$FV_D = C \times \left[\frac{(1+r)^t - 1}{r}\right](1+r)$
$EAR = \left[1 + \frac{i}{m}\right]^m - 1$	$PV = \frac{C}{r-g}\left[1 - \left(\frac{1+g}{1+r}\right)^T\right]$
$EAR = e^q - 1$	$P_0 = \frac{D}{r}$
$P_0 = \frac{D_1}{r-g}$	$P_0 = \frac{EPS}{r} + NPVGO$
$\text{Current Yield} = \frac{\text{Annual Interest}}{\text{Bond Price}}$	$B = C \times \left[\frac{1 - \frac{1}{(1+r)^t}}{r}\right] + \frac{F}{(1+r)^t}$

$1 + R = (1 + r) \times (1 + \text{inflation rate})$	Total Dollar Return (TDR) = Dividend Income + Capital Gain (Loss) $TDR = \frac{CF_t + (P_E - P_B)}{P_B} = \frac{CF_t + PC}{P_B}$
$E(R) = \sum_j O_j \times P_j$	$E(R_P) = x_1 \times E(R_1) + x_2 \times E(R_2) + \ldots + x_n \times E(R_n)$
$\sigma_P = \sqrt{x_L^2\sigma_L^2 + x_U^2\sigma_U^2 + 2x_L x_U \sigma_{LU}}$	Variance of returns $= \sigma^2 = \sum_j \left[O_j - E(R)\right]^2 \times P_j$
$\sigma_{ij} = CORR_{i,j}\sigma_i\sigma_j$	$\sigma_P = \sqrt{x_L^2\sigma_L^2 + x_U^2\sigma_U^2 + 2x_L x_U CORR_{L,U}\sigma_L\sigma_U}$
$\beta_A = \frac{COV(R_A, R_M)}{\sigma^2(R_M)}$	$\sigma^2 = \frac{\left[(R_1 - \bar{R})^2 + \ldots + (R_T - \bar{R})^2\right]}{T - 1}$
$E(R_i) = r_f + [E(R_M) - r_f]\beta_i$	Profitability Index $= \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$
Arbitrage Pricing Theory $E(R) = R_f + \beta_1\left[E(R_1) - R_f\right] +$ $\beta_2\left[E(R_2) - R_f\right] +$ $\ldots + \beta_n\left[E(R_n) - R_f\right]$	PV of CCA tax shield $= \frac{CdT}{(d+k)}\left[\frac{1 + 0.5 \times k}{1 + k}\right] - \left[\frac{S_n dT}{(d+k)}\right]\left(\frac{1}{(1+k)^n}\right)$

Current Ratio	$= \frac{\text{Current Assets}}{\text{Current Liabilities}}$	Total Asset Turnover	$= \frac{\text{Sales}}{\text{Total Assets}}$
Quick Ratio	$= \frac{\text{Current Assets} - \text{Inventory}}{\text{Current Liabilities}}$	ROA	$= \frac{\text{Net Income}}{\text{Total Assets}}$
Inventory Turnover	$= \frac{\text{COGS}}{\text{Inventory}}$	ROE	$= \frac{\text{Net Income}}{\text{Total Equity}}$
Cash Ratio	$= \frac{\text{Cash}}{\text{Current Liabilities}}$	P/E Ratio	$= \frac{\text{Price/common share}}{\text{EPS}}$
Receivables Turnover	$= \frac{\text{Sales}}{\text{Accounts Receivable}}$	Dividend Payout Ratio	$= \frac{\text{DPS}}{\text{EPS}}$
D/E Ratio	$= \frac{\text{Total Debt}}{\quad}$	Dividend Payout	$= \frac{\text{Cash Dividends}}{\quad}$

	Total Equity		Ratio		Net Income
Total Debt Ratio	= Total Debt / Total Assets		Market to Book Ratio	= Price / Common share / Book value of equity	
Equity multiplier	= Total Assets / Total Equity		Profit Margin	= Net Income / Sales	
Net Working Capital-Total Asset	= Net Working Capital / Total Assets		Interval Measure	= Current Assets / Average Daily Operating Costs	
Long Term Debt Ratio	= Long Term Debt / Total Equity + LT Debt		Cash Coverage Ratio	= EBIT + Depreciation / Interest	
Days' Sales in Receivables	= 365 Days / Receivables Turnover		Days' Sales in Inventory	= 365 Days / Inventory Turnover	
Internal Growth Rate	= ROA x R / 1 – ROA x R		Sustainable Growth Rate	= ROE x R / 1 – ROE x R	
			Sustainable Growth Rate	= p(S/A)(1+D/E) x R / 1 – p(S/A)(1+D/E) x R	
NWC Turnover	= Sales / NWC		Fixed Asset Turnover	= Sales / Net Fixed Assets	

Times Interest	= EBIT	CF from Assets =	

Earned	Interest Charges	Operating CF – Cap Ex – Additions to NWC Operating CF = EBIT + Deprec – Tax =Sales – Costs – Taxes = (Sales – Costs) x (1 – Tc) + Deprec x Tc Cap Ex = End Gross FA – Beg Gross FA Cap Ex = End Net FA – Beg Net FA + Deprec Add to NWC = End NWC – Beg NWC CF to Debtholders = Interest – Net New Debt CF to Shareholders = Divs – Net New Equity CF from Assets = CF to Debtholders + CF to Shareholders

Answer Key

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