COMMERCE 370 PRACTICE FINAL EXAMINATION

Student Name:_____ Student # _____

Student Signature: _____

Section (circle your own section):

Directions:

- This examination consists of pages (including this cover page). Please make sure your exam is complete. The exam is marked out of a total of 100 marks.
- This is a closed book, closed notes exam.
- A formula sheet is provided together with the exam.
- A calculator is allowed in the exam, provided that it does NOT have graphing, text display or wireless communication capabilities. Non-graphing financial calculators are allowed. All calculators must have their memory cleared before the exam begins.
- Show all your work and use very clear handwriting. What we cannot immediately read or follow, we will not grade. If you write your exam in pencil, you are not eligible to have your exam regraded.
- Enter your answer for each problem in the appropriate space provided in the exam booklet.
- You have **150** minutes to complete all questions on this exam. Allocate your time. A suggested time for each question is provided.
- You may not communicate with others during the exam. Students observed breaking this rule or engaging in other dishonest practices will be dismissed from the exam and will be liable to disciplinary action.
- Cell phones may NOT be displayed during the exam.

Multiple Choice Questions (Parts A & B)	**/50**
Part A	/20
Part B	/30
Problems (Part C)	**/50**
Question 1	/15
Question 2	/20
Question 3	/15
TOTAL	**/100**

PART A 20 POINTS/ 20 MINUTES

MULTIPLE CHOICE QUESTIONS: CIRCE THE RIGHT ANSWER

NO JUSTIFICATION IS REQUIRED in this part (Multiple Choice Questions 1-8).

You will receive no credit for justifying your answer.

1. The decisions made by financial managers should all be ones which increase the:

A. Size of the firm.
B. Growth rate of the firm.
C. Marketability of the managers.
D. Market value of the existing owners' equity.
E. Financial distress of the firm.

Answer: D

2. Working capital management includes decisions concerning which of the following?

I. accounts payable
II. long-term debt
III. accounts receivable
IV. inventory

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

Answer: E

3. Which one of the following statements concerning net working capital is correct?

A. The greater the net working capital, the greater the ability of a firm to meet its short-term obligations.
B. The change in net working capital is equal to current assets minus current liabilities.
C. Depreciation must be added back to current assets when computing the change in net working capital.
D. Net working capital is equal to long-term assets minus long-term liabilities.
E. Net working capital is a part of the operating cash flow.

Answer: A

4. Which of the following are agency costs?

I. forgoing an investment opportunity which would add to the market value of the owner's equity
II. paying a dividend to each of the existing shareholders
III. purchasing new equipment which increases the value of each share of stock
IV. hiring outside auditors to verify the accuracy of the company financial statements

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

Answer: C

5. What is a valid motive for an acquisition?

A. The CEO can enjoy a bigger salary since he is now managing a bigger firm.
B. The CEO is protecting his job by diversifying, i.e. acquiring a firm in a different industry.
C. The acquiring firm is overvalued and can benefit its shareholders by acquiring another firm paying cash.
D. The acquiring firm is overvalued and can benefit its shareholders by acquiring another firm paying with shares.
E. None of the above

Answer: D

6. Which one of the following statements is correct?

A. In the absence of bankruptcy costs, the cost of debt decreases as leverage increases.
B. In the presence of taxes and bankruptcy costs, the cost of equity first decreases and then increases with leverage.
C. In the absence of taxes and bankruptcy costs, the firm WACC decreases with leverage.
D. In the absence of taxes and bankruptcy costs, the cost of equity increases with leverage.
E. In the absence of bankruptcy costs, the firm WACC is constant and equal to the unlevered cost of capital.

Answer: D

7. Which one of the following tends to increase the optimal level of leverage of a firm?

A high costs of financial distress
B. very low marginal tax rate
C. high agency costs of debt
D. low probability of financial distress
E. minimal taxable income

Answer: D

8. The M&M model with taxes is based on the concept that:

A. the optimal capital structure is the one that is totally financed with equity.
B. the capital structure of a firm does not matter because there are no bankruptcy costs.
C. a firm's WACC is unaffected by a change in the firm's capital structure.
D. the value of a firm increases as the firm's debt increases because of the interest tax shield.
E. the cost of equity increases as the debt-equity ratio of a firm increases.

Answer: D

PART B: 30 Points/ 45 Minutes

MULTIPLE CHOICE QUESTIONS: CIRCE THE RIGHT ANSWER

You need to justify your answer with a solution to get the full credit in this part (Multiple Choice Questions 9-20).

You will get zero credits for providing the right answer without showing your calculations.

9. ZXE Inc. has a debt-equity ratio of 1.5. Its WACC is 10 percent, and its cost of debt is 5 percent. The corporate tax rate is 30 percent. What is the firm's unlevered cost of capital?
A. 12.2 percent
B. 12.7 percent
C. 19.8 percent
D. 20.3 percent
E. 22.6 percent

Answer: A

10. Consider the valuation of a project that only requires an initial investment of $6000 and will generate $590 of perpetual (after-tax) unlevered cash flows. The corporate tax rate is 40%. The project would have a 10% all-equity cost of capital, and the initial investment can be financed totally or in part by issuing a perpetual bond at 5% per year. In the absence of flotation costs, financing subsidies, and financial distress costs, the project's net present value is positive only if it is financed with a bond issue for an amount greater than _____.

A. $250
B. $2000
C. $5000
D. $5250
E. none of the above

Answer: A.

11. Consider a firm that faces a 20% tax rate and has $500 in perpetual debt with an interest rate of 10% per year. In the current year the firm has $50 in EBIT, $0 in net income, $15 in depreciation, no additions to net working capital (excl. cash), and gross investment of $25. Thus, in the current year its unlevered cash flows are _____ and its levered cash flows to its equity holders are _____.

A. 18 ; -22
B. 40 ; 0
C. 30 ; -10
D. 18 ; -32
E. 30 ; -20

Answer: C

12. Miller Brothers Hardware paid an annual dividend of $1.15 per share last month. Today, the company announced that future dividends will be increasing by 2.6 percent annually. If you require a 12 percent rate of return, how much are you willing to pay to purchase one share of this stock today?

A. $12.23
B. $12.55
C. $12.67
D. $12.72
E. $12.88

Answer: B

13. Simintzi Corp. has $10M excess cash and no debt. Simintzi Inc. plans' to disburse all the FCF it will generate to shareholders through dividends. The annual dividend the firm is paying in perpetuity is $4. Simintzi Inc. has 5M shares outstanding and its cost of capital is 10%. What is the price of its stock today? Assume perfect capital markets.

A. $36
B. $ 40
C. $ 42
D. $44
E. $38

Answer: C

14. Firm A has a Debt/Equity ratio of 2 and a 15% ROA. Firm B has a Debt/Equity ratio of 3 and a 10% ROA. Which firm has the higher ROE?

A. Firm A.
B. Firm B.
C. They have the same ROE.
D. We need each firm's profit margin to calculate its ROE.
E. We need each firm's total equity to calculate its ROE.

Answer: A

Questions #15 to #18 refer to UBC Corp.

UBC Corp.

2013 Income Statement

($ in millions)

Net sales	$5,000
Less: Cost of goods sold	3,000
Less: Depreciation	1,000
Earnings before interest and taxes	1,000
Less: Interest paid	400
Taxable Income	$ 600
Less: Taxes	250
Net income	$ 350

UBC Corp.

2012 and 2013 Balance Sheets

($ in millions)

	2012	2013		2012	2013
Cash	$100	$150	Accounts payable	$400	$700
Accounts rec.	250	200	Long-term debt	800	740
Inventory	1,400	1,500	Common stock	2,200	2,400
Total	$1,750	$1,850	Retained earnings	1,350	1,510
Net fixed assets	3,000	3,500			
Total assets	$4,750	$5,350	Total liabilities & equity	$4,750	$5,350

15. Comparing the firm's results in 2012 and 2013, which of the following are true?
I. The firm improved its ability to pay its short-term obligations using all liquid assets.
II. The firm's long-term obligations to its creditors decreased in 2013.
III. If in 2010 net income was $300M then firm improved its profitability.
A. I only
B. II only
C. III only
D. I and III only
E. II and III only

Answer:E

16. In 2013, what was UBC Corp.'s operating cash flow?
A. 750
B. 1000
C. 1750
D. 2000
E. 2500

Answer: C

17. In 2013, what was UBC Corp.'s net capital spending?
A. -500
B. 500
C. 1,000
D. 1,500
E. 2,000

Answer: D

18. In 2013, what was the dividend payout ratio of UBC Corp.? (rounded to the closest percentage point)?
A. 23 percent
B. 34 percent
C. 46 percent
D. 54 percent
E. 66 percent

Answer: D

Questions #19 to #20 refer to the merger between ZZZ Corp.

AB which has 2M shares outstanding, wishes to merge with CD, which has 3M shares outstanding. The market prices of AB and CD are $30 and $10 per share, respectively. The merger could create savings of $800,000 annually forever (starting a year from the merger date). CD's board demands that AB pays $12 per share of CD, and the appropriate cost of capital is10%.

19. What is the net present value for AB?

A. $ 4M
B. $ - 2M
C. $ 2M
D. $ 14M
E. $ -14M

Answer: C

20. What is the highest % premium CD can ask and AB accepts?

A. 8%
B. 26.67%
C. 16.67%
D. 13.33%
E. none of the above

Answer: B

PART C: 50 Points/ 60 Minutes

There are three questions in this part: Answer ALL Questions justifying your answers.

Question 1: 15 Points/ 20 Minutes

Chitex Corp. is considering building a small factory that will operate for one year and will then be abandoned with no salvage value. The factory requires an initial investment of $100M (at year 0) and is expected to produce a free cash flow of $224M in the first and only year of production (year 1). Chitex continuously rebalances its capital structure to maintain a target D/E = 1/2. Chitex's corporate tax rate is 40%. Its cost of debt is 6% and its cost of equity is 15%. The unlevered cost of capital is 12%.

a) (10 points) Calculate the project's total value, equity value, debt value, and NPV using the APV method. *Carefully explain your answer and show your work.*

b) (5 points) Calculate the project's value and NPV using the WACC method. Carefully explain how Chitex will rebalance its capital structure in each of the relevant years, calculate the project's annual debt capacity, and explain exactly how Chitex should finance its investment. *Carefully explain your answer and show your work.*

Solution

a) APV Method:

Calculate the unlevered project value:

V_U = $224M / 1.12 = $200M

Now we need to calculate the value of the interest tax shields, but we need to know the amount of debt. We have to solve for the amount of debt and project value simultaneously. The project generates value and debt capacity only in year 0; debt capacity and value are zero in year 1 (the project dies). So we need to calculate the amounts of debt and equity issued in year 0 and then we know that in year 1 we need to retire debt and equity by the amounts increased in year 0.

V = 200M + .06 x .4 x D / 1.12 (recall ITS are discounted at r_U)

D/V = 1/3 or D = V/3

Solving we get V = $201.439M, and D = $67.146M, and E = $134.293M.

NPV = $201.439M - $100 = $101.439M

b) WACC Method

r_{WACC} = (1/3) x 6% x (1-.40) + (2/3) x 15% = 11.2%

Project value = $224M /1.112 = $201.439M

NPV = $201.439M - $100M = $101.43

$ Million	Year 0	Year 1
FCF	-100.000	224.000
VL @ WACC = 11.2%	201.439	
Debt capacity w/ D/V=1/3	67.146	
Net debt issuance	67.146	-67.146
Equity w/ D/V=2/3	134.293	
Increase in E due to NPV	101.439	
Net equity issuance	32.854	-32.854

Note that the project generates debt capacity in year zero only, so you need to issue debt and equity in year zero but you have to retire debt and equity in year 1. The project's costs of $100 will be financed with $32.854M in new equity and $67.146M in new debt.

Question 2: 20 Points/ 20 Minutes

Underperforming Corporation is expected to generate EBIT of $100 million per year in perpetuity. You have the following additional information:

Debt = 0
Tax rate = 30%
Capital Expenditures = Depreciation = 25% of EBIT
Net Working Capital will stay constant forever
Risk free rate = 4%
Risk premium = 6%
Asset beta = 1
Number of shares = 70million

a) (10 points) Calculate the share price of Underperforming Corp.

b) (10 points) You become CEO of Underperforming Corp. and realize that you can create value by increasing leverage. You plan to borrow $200 million dollars and use the proceeds to pay a cash dividend to shareholders. The interest rate on the debt is 5%. Which is the share price after the increase in leverage? Are shareholders better or worse off as a result of this change in capital structure? Please explain.

Solution

a)

FCF = EBIT × (1-T) - CAPEX – Changes in NWC + Depreciation
FCF = 100 × (1-0.3) – 25% × EBIT – 0 + 25% × EBIT
FCF = 100 × (1-0.3) = 70 million

Cost of capital = 4% + 1 × 6% = 10%
V = 70/0.1 = $700 million
Share price = $ 700/70 = $10

b)

The value of the firm increases by the present value of the tax shield:
V Levered = V Unlevered + PV(Tax Shield)
V Levered = 700 million + 0.3*200 million = 760 million
Equity = 760 million – 200 million = 560 million

Share price after the refinancing = $ 560/70 = $8
Shareholders wealth = $560 million + $200 million of cash dividend

Question 3: 15 Points/ 20 Minutes

Clearly state whether each of the statements below are **True** or **False**, and *carefully explain why*:

a) (5 points) Empirical studies in corporate finance find that more profitable firms (e.g., firms with higher operating income relative to total assets) have lower leverage. This finding is consistent with the "static trade-off theory" of optimal capital structure, but inconsistent with the "pecking order theory".

b) (5 points) A given stock has an expected rate of return of 10%, and a beta of 0.8. The risk-free rate is 4% and the market risk premium is 6%. According to the CAPM the stock is overpriced.

c) (5 points) One way managers can make their shareholders better off through the acquisitions is by realizing tax gains. Tax gains may come, for example, from the use of unused debt capacity.

Solution

a) False. The static trade-off theory predicts a positive association between profits and leverage, as more profitable firms would benefit from the tax shields arising from higher leverage. The negative relation between profitability and leverage is consistent with the pecking order theory. According to pecking order, profitable firms use less debt, since they have a lot of retained earnings.

b) False. The stock is underpriced. According to the CAPM the expected rate of return on the stock should be 4%+0.8*6% = 8.8%, which is lower than 10%. Thus the stock price shou*ld be higher*.

c) True. We can think of an example where the acquirer uses acquired firm to increase debt and generate higher interest tax shields.