

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF COMMERCE**  
**DEPARTMENT OF FINANCE**  
**BACHELOR OF COMMERCE HONOURS DEGREE IN**  
**FINANCE; BANKING; ACTUARIAL SCIENCE; RISK MANAGEMENT; MARKETING;**  
**MANAGEMENT; ACCOUNTING; FISCAL STUDIES**  
**PART II 1<sup>ST</sup> SEMESTER FINAL EXAMINATION – APRIL 2009**  
**CORPORATE FINANCE I [CFI 2101]**  
**TIME ALLOWED: 3 HOURS**

**REQUIREMENTS**

1. Graph paper will be provided on request.

**INSTRUCTIONS TO CANDIDATES**

1. Attempt all questions in Section A, which is compulsory, plus any three questions in Section B.
2. Show all your workings.
3. Write legibly.

**SECTION A (COMPULSORY) – ATTEMPT ALL QUESTIONS [40 Marks]**

1. An investment proposition costing \$60 000 is expected to result in the following after-tax cash flows over seven years:

<u>Year</u>	
1	\$10 000
2	15 000
3	15 000
4	20 000
5	15 000
6	10 000
7	5 000

- (a) Calculate the net present value at 10 percent and at 16 percent. [6 marks]
- (b) Determine the internal rate of return (yield) of the proposition. [4 marks]
- (c) If the annual cash flows were an even \$13 000 per year for seven years, what would be the net present value at 10 percent? [3 marks]
- (d) What level of annual cash flows would be required to yield a 16 percent return? [3 marks]
- (e) How would the results of (a) and (b) change if there were a capital recovery of \$10 000 at the end of year 7? [6 marks]
- (f) How would the result of (d) change if there were a capital recovery of \$10 000 at the end of year 7? [3 marks]

2. The separation of ownership and control gives rise to costs in that managers may act in ways that are inefficient or antisocial. Scholars have explored a number of mechanisms that might give managers an incentive to better conform their behaviour to the ideal and many of these rely on actors other than the shareholders. Provide a brief account of how each of the following categories of mechanisms might weed out managerial incompetence:

- (a) Business failure
- (b) The market for Corporate Control
- (c) Corporate governance oversight.

[9 marks]

3. **MULTIPLE CHOICE QUESTIONS** – Write down the letter which corresponds to the correct answer. [1 mark each]

3.1 The semi-strong form of the Efficient Market Hypothesis asserts that stock prices

- A Fully reflect all historical price information.
- B Fully reflect all publicly available information.
- C Fully reflect all relevant information including insider information.
- D May be predictable.

3.2 The measure of risk for a security in a diversified portfolio is

- A Specific risk.
- B Standard deviation of returns.
- C Reinvestment risk.
- D Covariance.

3.3 Stocks A, B, and C have the same expected returns and standard deviation. The following table shows the correlations between the returns on these stocks:

	<u>Stock A</u>	<u>Stock B</u>	<u>Stock C</u>
<u>Stock A</u>	+1.0		
<u>Stock B</u>	+0.9	+1.0	
<u>Stock C</u>	+0.1	-0.4	+1.0

Given these correlations, the portfolio constructed from these stocks having the lowest risk is a portfolio

- A Equally invested in Stock A and B.
- B Equally invested in Stocks A and C.
- C Equally invested in Stocks B and C.
- D Totally invested in stock C.

3.4 Capital Asset Pricing Theory asserts that portfolio returns are best explained by:

- A Economic factors.
- B Specific factors.
- C Systematic factors.
- D Diversification.

3.5 According to CAPM, the expected rate of return of a portfolio with a Beta of 1.0 and an alpha of 0 is

- A Between  $R_m$  and  $R_f$ .
- B The risk-free rate,  $R_f$ .
- C  $\beta(R_m - R_f)$
- D The expected return on the market,  $R_m$ .

3.6 Manchester United plc, the quoted football and leisure group, wins the cup and therefore can anticipate greater revenues and profits. Before the win in the final the share price was 640p. Which of the following suggests the market is efficient? (Assume that the market as a whole does not move and that the only news is the football match win)

- A The share price rises slowly over a period of two weeks to reach 700p.
- B The share price jumps to 750p on the day of the win and then falls back to 700p one week later.
- C The share price moves immediately to 700p and does not move further relative to the market.
- D The share price remains at 640p.

**SECTION B – ATTEMPT ANY THREE QUESTIONS [20 marks each]**

4. The following data relates to 2 stocks NUST and MSU.

<u>Stock</u>	<u>Expected Return</u>	<u>Standard Deviation</u>
NUST	10%	15%
MSU	18%	30%

- (a) If the correlation between NUST and MSU is 1, determine the minimum standard deviation portfolio for NUST and MSU. What is the expected return and standard deviation of that portfolio? [5 marks]
- (b) What would an investor's risk and return be given the following investment alternatives.
  - (i) Investing only in the riskfree asset with a return of 8%. [2 marks]
  - (ii) investing one-half of the portfolio's funds in the risk-free asset and one-half in NUST stock? [3 marks]
  - (iii) investing one-half of the portfolio's funds in the risk-free asset and one-half in the minimum variance portfolio in (a). [3 marks]

(c) If the market portfolio has an expected rate of 15% and a standard deviation of 20%, and the riskfree rate of interest is 8%, determine whether NUST and MSU stocks are efficient,

- (i) using the Capital Market Line (CML) diagram. [3 marks]
- (ii) using the CML equation. [4 marks]

5. You are given the following information

The average stock market return	15%
The risk-free rate of return	8%
Company TXP: dividend yield	4%
Company TXP: share price rise (capital gain)	12%
Standard deviation of total stock market return	9%
Standard deviation of total return on equity of company TXP	10.8%
Correlation coefficient between company TXP return and average stock market return	0.75

- (a) Determine the beta factor for Company TXP shares. What does it signify? [3 marks]
- (b) What is the actual return on Company TXP's equity. [2 marks]
- (c) Compute the equilibrium expected return on Company TXP's shares using the CAPM. [2 marks]
- (d) Use the alpha value to determine whether Company TXP shares are overvalued, undervalued or correctly valued. [2 marks]
- (e) Draw the Security Market Line (SML) and plot TXP on the graph using actual and expected returns. [3 marks]
- (f) How does the equation for the SML differ from the CML equation? [2 marks]
- (g) What are the assumptions of the CAPM? [6 marks]

6. (a) "The worlds' well developed stock markets are efficient at pricing shares for most of the people most of the time." Discuss this statement in terms of the efficient market hypothesis. [9 marks]
- (b) What are the major characteristics of an efficient market? [5 marks]
  - (c) List three major benefits of an efficient market. [3 marks]
  - (d) What is the significance of the Random Walk Theory in explaining the behavior of stocks? [3 marks]

7. Compare and contrast the following terms:

- (a) Systematic and unsystematic risk. [4 marks]
- (b) Covariance and correlation coefficient. [4 marks]
- (c) Net present value and internal rate of return. [4 marks]
- (d) Beta and standard deviation. [4 marks]
- (e) Security market line and capital market line. [4 marks]