

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY
FACULTY OF COMMERCE
BACHELOR OF COMMERCE HONOURS DEGREE IN FINANCE
PART IV 1ST SEMESTER FINAL EXAMINATION – NOV/DEC 2005
INSTITUTIONAL INVESTMENT ANALYSIS [CFI 4103]
TIME ALLOWED: 3 HOURS

INSTRUCTIONS

1. **ATTEMPT ANY FIVE QUESTIONS.**
2. **EACH QUESTION CARRIES 20 MARKS**

QUESTION ONE (20 marks)

- (a) Mega Funds Investment Company has funds invested in a portfolio consisting of the following details:

<u>Asset Classes</u>	<u>Expected Return</u>	<u>Standard Deviation</u>	<u>Funds Invested</u>
Stocks (S)	.12	.20	\$60 million
Bonds (B)	.08	.10	30 million
Cash Equivalents (C)	.04	.03	10 million

The correlations are as follows:

$$r_{SB} = 0.25$$

$$r_{SC} = -0.08$$

$$r_{BC} = 0.15$$

REQUIRED

- (i) Calculate the expected portfolio return.
 - (ii) Calculate the portfolio variance and standard deviation. [12]
- (b) From the following portfolio consisting of five [5] securities, calculate:
- (i) the portfolio beta
 - (ii) the expected return from the portfolio, given a risk-free rate of return of 12% and average market return of 20%.

<u>Security</u>	<u>% of portfolio</u>	<u>Beta factor of Security</u>	
AA p/c	20%	0.90	
BB p/c	10%	1.25	
CC p/c	15%	1.10	
DD p/c	20%	1.15	
EE p/c	35%	0.70	[8]

QUESTION TWO**(20 marks)**

- (a) Distinguish between investment, speculation and arbitrage [6]
- (b) Explain the key difference which exist between closed-end and open-end investment companies. [5]
- (c) Outline six [6] advantages of mutual funds. [9]

QUESTION THREE**(20 marks)**

- (a) The fund that you are managing consists of investments in shares with the following single period details;

<u>Investment</u>	<u>No of Shares</u>	<u>Beginning Price</u>	<u>Ending Price</u>
Alpha Ltd	100 000	\$100	\$120
Gama Ltd	200 000	200	210
Zeta Ltd	500 000	300	330

REQUIRED

- Calculate the HPR and HPY for each investment.
 - Calculate the HPR and HPY of the portfolio consisting of investments in Alpa, Gama and Zeta shares. [10]
- (b) Consider the following data on a stock and a bond.

	<u>STOCK</u>	<u>BOND</u>
Last year`s closing price	\$40	\$987
This year`s cashflow	\$2 dividend	\$50 coupon
Today`s closing price	\$36	\$957
Next year`s expected cashflow	\$2 dividend	\$50 coupon
Next year`s expected closing price	\$44	\$1 010

REQUIRED

- Calculate last year`s actual rate of return on the stock and bond.
- Calculate the expected return for the coming year. [10]

QUESTION FOUR**(20 Marks)**

- (a) The following data relate to four [4] different portfolios of securities;

<u>Portfolio</u>	<u>Expected rate of Return %</u>	<u>Standard Deviation on the Portfolio %</u>
K	11	6.7
L	14	7.5
M	10	3.3
N	15	10.8

The expected rate of return on the market portfolio is 8.5% with a standard deviation of 3%. The risk-free rate is 5%

REQUIRED

Identify which of the portfolios could be regarded as “efficient”

- (i) using the Capital Market Line
 - (ii) using the Capital Market Equation [12]
- (b) What are the assumptions of the Capital Market Theory. [8]

QUESTION FIVE (20 marks).

The following is some financial and stock market information about Omega Corporation.

Omega Corporation

Financial Statements for the year ended December 2004

Assets	(\$ million)	Liabilities and Equity	(\$ millions)
Current Assets	1 300	Debt	1 200
Net Plant	<u>1 500</u>	Equity	<u>1 600</u>
Total Assets	<u>2 800</u>		<u>2 800</u>

	(\$ millions)
Sales	4 800
Cash Expenses	4 110
Depreciation	<u>150</u>
Net Operating Income	540
Interest	<u>100</u>
Net Income Pretax	440
Tax	<u>(200)</u>
Net Income	<u>\$ 240</u>
Dividends Paid	<u>\$ 144</u>

Market Information as of December 2004

Common shares outstanding	40 million
Price per share	\$47.70
Risk-free rate	9%
Expected Return on the market	14%
Estimated Beta	1.20

- (a) Calculate what the required return on Omega Corporate should be using the Security Market Line. [2]

- (b) Calculate the sustainable growth rate which would exist if the financial relationships shown in the balance sheet and income statement were to remain constant over time. [4]
- (c) What is the fair market price of Omega corporation? [Use the dividend valuation model]. [3]
- (d) Use the constant earnings model to determine the stock's fair value. [4]
- (e) Would you buy this stock? Why or why not? [2]
- (f) What would a firm believer in efficient market theory say about your decision in part (e)? [2]
- (g) Assume Omega Corporation's beta is really 1.0 now what should the stock sell for? [3]

QUESTION SIX (20 marks).

Use the three-step, top-down valuation process to explain the significance of conducting a macro-micro analysis in security analysis.

QUESTION SEVEN (20 marks).

You are evaluating an investment in two mutual funds whose past ten years of returns are shown below.

Percent Return During Year

Fund	1	2	3	4	5	6	7	8	9	10
PSM	37	24	-7	6	18	32	-5	21	18	6
TSR	32	29	-12	1	15	30	0	18	27	10

REQUIRED

- (a) Calculate the average returns of each fund. [2]
- (b) Calculate the standard deviation of each initial fund's returns. [4]
- (c) Calculate the coefficient of variation of each fund's returns. [2]
- (d) Calculate the correlation coefficient of the fund's returns. [5]
- (e) If you had placed 50% of your money in each, what would have been the standard deviation of your portfolio and the average yearly return? [4]
- (f) What percentage investment in each would have resulted in the lowest risk? [3]