WOMEN'S UNIVERSITY IN AFRICA

Addressing gender disparity and fostering equity in University Education

FACULTY OF MANAGEMENT AND ENTREPRENEURIAL SCIENCES

BSc HONOURS DEGREE IN MANAGEMENT AND ENTREPRENEURIAL SCIENCE SPECIALISING IN BANKING AND FINANCE

MAIN PAPER

BMF311:   **INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT**

INTAKE 24   **: THIRD YEAR FIRST SEMESTER**

DATE :   **TIME : 2HOURS**

INSTRUCTIONS TO CANDIDATES

Answer **Question 1** and any other **two**.

Question 1

Consider the following scenario involving 3 bus operators, GREENS, KINGSGATE and KANJIVA:

Table 1.1 Probability Distribution Table

	NORMAL YEAR FOR SUGAR		ABNORMAL YEAR
	BULLISH MARKET	*BEARISH MARKET*	*ECONOMIC CRISIS*
PROBABILITY	50%	30%	20%
RATE OF RETURN			
GREENS	30%	15%	-20%
KINGSGATE	10%	5%	25%
KANJIVA	20%	20%	20%

Calculate:

a) The expected return and standard deviation of GREENS. [4]

b) The expected return and standard deviation for KINGSGATE. [4]

c) The covariance between the returns of GREENS and KINGSGATE [4]

d) The correlation coefficient between GREENS and KINGSGATE [2]

e) The standard deviation of a portfolio in which you have invested 50% in KANJIVA, 25% in GREENS and 25% in KINGSGATE [5]

f) The standard deviation and expected return of a portfolio in which you have invested 50% in GREENS and 50% in KINGSGATE [6]

Question 2

An investor has gathered the following information about the Zimbabwean market

	Bond Fund	Equity Fund
E(R)	25%	45%
Standard deviation	30%	60%

Covariance between bonds and equities is - 125

Expected return on Treasury bills   is 15%

Investor's risk aversion coefficient is 4

Required:

a) Calculate the weight invested in
(i)the bond fund   [5]
(ii)the equity fund , and   [3]
(iii) the money market.   [5]

b) Calculate the expected return and standard deviation of the risky portfolio and the complete portfolio.   [6]
c) Calculate the Reward to Variability ratio supported by the risk free asset and the risky portfolio.   [6]

Question 3

You are given the following information about the 6 month performance of Tough Corporation and the ZSE Index in Table 1;

Table 1: Individual-Market returns

Month	Tough Corporation-HPR (%)	ZSE Index- HPR (%)	Treasury bill rate (%)
JANUARY	10	4	5
FEBRUARY	9	6	5.5
MARCH	12	9	7.4
APRIL	15	13.4	11
MAY	16	11	12
JUNE	8.9	11.5	11.9

a) Estimate the index model and the total variance   [20]
b) Comment on the significance of your results illustrating your answer with a Security Characteristic Line (SCL).   [5]

Question 4

a) Determine the discount, the discounted value, and the equivalent simple interest rate (yield) on a note of $100 000 which is due in 65 days and can be discounted at a discount rate of 26%. [15]

b) Outline the roles of an investment bank [10]

Question 5

a) An investment manager identifies two pervasive macroeconomic factors. The risk premium on factor 1 is 8% whilst on factor 2 is 12%. The risk free rate is given as 4%. You are also given the following securities and their betas;

Security	B_1	B_2
A	1.50	0.30
B	-1.20	2.20
C	-0.20	1.80

Calculate the Required Rate of Return according to the Arbitrage Pricing Model [10]

b) Outline the interests of various financial market participants [15]

Question 6

Outline the differences and similarities between the Single Index model and the Capital Asset Pricing model [25]

THE END

Formulas: Investment Analysis and Portfolio Management

1. $E(R_A) = \sum \text{Pr} * R_A$

2. $\sigma_A{}^2 = \sum \left[R_A - E(R_A)^2 \right] \text{Pr}$

3. $r_{A,B} = \dfrac{COV_{A,B}}{\sigma_A \sigma_B}$

4. $E(Rp) = E(Ri)Wi$

5. $\sigma^2 p = W^2{}_A \sigma^2{}_A + W^2{}_B \sigma^2{}_B \, 2COV_{A,B} W_A W_B$

6. $Y^* = \dfrac{E(Rp) - Rf}{0.01 * A * \sigma^2 p}$

7. $Y = \dfrac{E(Rm) - Rf}{0.01 * A * \sigma^2 p}$

8. $WD = \dfrac{\left[E(R_D) - Rf\right]\sigma^2{}_E - \left[E(R_E) - Rf\right]COV_{D,E}}{\left[E(R_D) - Rf\right]\sigma^2{}_E + \left[E(R_E) - Rf\right]\sigma^2{}_D - \left[E(R_D) - Rf + E(R_E) - Rf\right]COV_{D,E}}$

10. $\alpha = ER - \left[Rf + \beta E(Rm)\right]$

11. $\sigma^2 i = \beta^2 i \sigma^2 m + \sigma^2{}_{(ei)}$ Variance of the rate of return on a security

12. $\sigma^2(e_i) = \left(\dfrac{1}{n-2}\right) \sum\limits_{t=1}^{n} e^2{}_t$ Variance attributable to firm specific factors

13. $\sigma^2{}_m = \dfrac{1}{n-1} \sum \left(RM - \bar{RM}\right)^2$ $\beta^2 \sigma^2 m = $ Variance attributable to market forces

14. $\sigma^2(ep) = \sum\limits_{t=1}^{n} \left(\dfrac{1}{n}\right)^2 \sigma^2 e_i$ 15. $COV\ (ab) = \sum Pi\ [Ra - E(Ra)][Rb - E(Rb)]$

16. $\beta = \dfrac{\sum XY - \dfrac{\left(\sum X \sum Y\right)}{n}}{\sum X^2 - \dfrac{\left(\sum X^2\right)}{n}}$. $\alpha = \bar{Y} - \beta \bar{X}$

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18. $\sigma^2 = \sum\sum W_i W_j\ \sigma_{ji}$