ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF LAW, BUSINESS INTELLIGENCE AND ECONOMICS

DEPARTMENT OF ECONOMICS, MARKETING AND ENTREPRENEURSHIP

EXAMINATION PAPER

COURSE CODE	:	MSTM5218
COURSE TITLE	:	INVESTMENT & PORTFOLIO MANAGEMENT
DURATION	:	3 Hours
LEVEL	:	1.2
DATE		

12 5 SEP 2025

INSTRUCTIONS TO CANDIDATES:

1. No cell phones are allowed in the examination venue.
2. Use of silent, non-programmable calculators is allowed
3. Answer question number **one (1)** in Section A (Compulsory) and any other **three** (3) questions in Section B.
4. Begin each question on a new page.
5. The number of marks for each question or part question is shown in brackets [ ]
6. Show all workings, where applicable.

Section A (Compulsory)

Question 1:

Consider the following scenario involving LM, a producer of ice cream, and HH, a producer of sugar :

Probability Distribution Table

	NORMAL YEAR FOR SUGAR		ABNORMAL YEAR
	BULLISH STOCK MARKET	*BEARISH STOCK MARKET*	*SUGAR CRISIS*
PROBABILITY	*50%*	*30%*	*20%*
	RATE OF RETURN		
HH	*30%*	*15%*	*-20%*
LM	*10%*	*5%*	*25%*
T-BILLS	*20%*	*20%*	*20%*

Calculate:

a) The expected return and standard deviation of HH. **[5 marks]**

b) The expected return and standard deviation for LM. **[5 marks]**

c) The covariance between the returns of HH and LM. **[4 marks]**

d) The correlation coefficient. **[2 marks]**

e) The standard deviation of a portfolio in which you have invested 50% in T-bills, 25% in HH and 25% in LM. **[4 marks]**

f) The standard deviation and expected return of a portfolio in which you have invested 50% in HH and 50% in LM. **[5 marks]**

[Total: 25 marks]

Question 2

Discuss the five-step procedure of the investment management process **[25 marks]**

Question 3

a) Discuss the roles of five players in the investment environment **[25 marks]**

Question 4

Given the following information about the 6 month performance of Airplays Corporation and the ZSE Index in Table 4.1 ;

Table 4.1 Individual-Market returns

Month	Airplays Corporation-HPR (%)	ZSE Index- HPR (%)
JANUARY	10	4
FEBRUARY	9	6
MARCH	12	9
APRIL	15	13.4
MAY	16	11
JUNE	8.9	11.5

a) Estimate the index model using Capital Asset Pricing Model **[17 marks]**

b) Comment on the significance of your results and illustrate your answer with a Security Characteristic Line (SCL). **[8 marks]**

Question 5

An investor has gathered the following information about the Zimbabwean market

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

Covariance between bonds and equities is - 125

Expected return on Treasury bills is 15%

Investor's risk aversion coefficient is 3

Required

a) Calculate the weight invested in
   i.the bond fund **[4 marks]**
   ii.the equity fund , and **[2 marks]**
   iii. the money market. **[4 marks]**

b) Calculate the expected return and standard deviation of the risky portfolio and the complete portfolio. **[5 marks]**

c) Calculate the Reward to Variability ratio supported by the risk free asset and the risky portfolio and comment on your results. **[5 marks]**

Question 6

You are given the following information about the economy in Zimbabwe

State of the economy	Probability of state of the economy	Expected return, given state of the economy
Recession	0.40	25%
Normal	0.20	35%
Boom	0.10	15%
Super boom	0.30	20%

Required:

a) Compute the expected return of the economy **[6 marks]**

b) Calculate the standard deviation of the economy **[6 marks]**

c) Interpret the results of the economy **[6 marks]**

d) Explain the significance of covariance and correlation coefficient in relation to portfolio diversification **[7 marks]**

The End

Formulas: Investment Analysis and Portfolio Management

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

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

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

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

10. $R_i = \alpha + \beta_i Rm + e_i$

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

12. $COV \ (R_i Rm) = \beta i \sigma^2 m$

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

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

15. $\sigma^2(ep) = \sum_{t=1}^{n} \left(\dfrac{1}{n} \right)^2 \sigma^2 e_i$

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

17. $\alpha = \bar{Y} - \beta \bar{X}$

18. COV (ab)= $\sum$Pi $[Ra - E(Ra)][Rb - E(Rb)]$

19 $\sigma^2 = \sum\sum W_i W_j \sigma_{ji}$,

AM

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