



STRATHMORE INSTITUTE OF MATHEMATICAL SCIENCES  
BACHELOR OF BUSINESS SCIENCE ACTUARIAL SCIENCE, FINANCIAL  
ECONOMICS & FINANCIAL ENGINEERING  
END OF SEMESTER EXAMINATION  
BSF 2206 PORTFOLIO MANAGEMENT

DATE: 18<sup>th</sup> December 2024

Time: 2 Hours

**Instructions**

1. This examination consists of **FIVE** questions.
2. Answer **Question ONE (COMPULSORY)** and any other **TWO** questions.

**QUESTION ONE [30 marks]**

- a) Explain any two types of investors based on risk (4 marks)
- b) Explain any two ways an investor can diversify his portfolio of investments. (4 marks)
- c) Distinguish between passive and active investing (2 marks)
- d) Consider the following:
  - Kimaru has just celebrated his 30th birthday and works for Bamburi Cement Limited. He is considered a very valuable employee on high pay.
  - He plans to retire in 25 years' time. Upon retirement he expects to live for another 20 years spending Sh. 100,000 monthly.
  - He expects to donate Sh. 5 million to a local NGO at the end of the 20 years of spending.
  - He is a member of a local human rights organization.
  - Kimaru holds the view that investment outcomes are based on sheer luck.
  - He wants to invest a constant amount every month during his working years to realise his retirement and bequest plans.
  - The expected return from his investments is 10% annually
  - Ignore taxes and inflation.

**Required**

Prepare an Investment Policy Statement (IPS) for Kimaru outlining the following:

- i) Risk objectives (6 marks)

- ii) Return objective (including how much Kimaru should save monthly). (9 marks)
- iii) Constraints (5 marks)

**QUESTION TWO [20 marks]**

- a) Consider two assets namely **M** and **Z** with standard deviation of returns of 20% and 16% respectively. The correlation co-efficient of **M** and **Z** equals **0.6**

**Required**

Estimate the risk of the global minimum variance portfolio created out of a mix of **M** and **Z**. (15 marks)

- b) A portfolio consists of four bonds with the following characteristics:

<b>Bond</b>	<b>Value (Sh.)</b>	<b>Modified duration</b>
A	1,200,000	3.2
B	3,400,000	7.6
C	2,900,000	12.4
D	1,600,000	1.5

**Required**

Calculate the duration of the portfolio (5 marks)

**QUESTION THREE [20 marks]**

- a) An investor has Sh. 10 million cash. The investor borrows Sh. 4 million at 10% p.a. He invests the cash plus the borrowed funds in an asset with expected return of 18% p.a.

**Required**

Leveraged return (5 marks)

- b) With respect to capital market theory, explain any two assumptions that allow for the existence of the market portfolio? (5 marks)
- c) Suppose you want to construct a two-asset portfolio given expected returns, standard deviations, and covariance of the two assets. The returns of the two assets are perfectly negatively correlated. Derive the weight for the global minimum variance portfolio (10 marks)

#### **QUESTION FOUR [20 marks]**

You have been given the following data which refers to the performance of the JSE share index and the two companies over two financial years

JSE share index at the end of 2022	3116.21
JSE share index at the end of 2023	3711.94
Dividend yield on the market for 2023	4.55%
Current redemption yield for Treasury bills	3.78%

	<b>SCB Ltd (Sh.)</b>	<b>BAT Ltd (Sh.)</b>
Share price at 31 <sup>st</sup> December 2022	201	260
Share price at 31 <sup>st</sup> December 2023	224	307
Dividend for one year	8	9
Equity beta	1.30	0.87

Using the data above, determine whether a diversified investor with shareholdings in the two companies will be satisfied with the returns they are receiving. (20 marks)

#### **QUESTION FIVE [20 marks]**

- Explain any two portfolio performance measures suitable for diversified portfolios (5 marks)
- Identify two types of alternative investments citing examples (4 marks)
- Radar limited has Earnings Per Share of Sh. 2 and Book value per share of Sh. 5. The following relates to comparable companies to Radar.

<b>Company</b>	<b>P/E</b>	<b>P/BV</b>
Mali	8	2
Gala	10	4

#### **Required**

- Calculate the value of Radar's shares using two methods (7 marks)
- If Radar shares are trading at Sh. 20 per share, what would be your investment recommendation? (4 marks)