BINDURA UNIVERSITY OF SCIENCE EDUCATION

INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT (BS419)

DEPARTMENT OF STATISTICS AND FINANCIAL MATHEMATICS

3 HOURS (100 Marks)

5 - JUN 2023

INSTRUCTIONS TO CANDIDATES

1. **Answer any four questions.**
2. **All questions carry equal marks.**
3. **Credit will be given for grammatically well-constructed answers.**
4. **Non-programmable calculators are allowed into the exam room**

QUESTION ONE

a) From an analyst point of view, are crypto currencies a financial asset or just a currency? (4)

b) You have securities X and Y as in Table 1 below:

Table 1

	Security X	Security Y
Expected Return	22%	25%
Standard Deviation	11%	15%

Giving explanations, which of these securities should the investor select? (3)

c) Analyze the role of a portfolio manager in investment management (10)

d) Discuss three strategies passive managers can use to add value to their portfolios. (6)

[25 Marks]

QUESTION TWO

a) Robroy's equity section of the Statement of Financial Position shows the following information:

Table 2

Common Shares (par $1)	$1 000 000
Capital Reserve	$800 000
Retained earnings	$4 200 000
Shareholders Equity	$6 000 000

The current share price of Robroy is $10 per share. What will be the impact to a shareholder of each of the following on the Statement of Financial Position and Earnings Per Share (EPS)?

i) 2 for 1 stock split; (2)

ii) 1 for 2 consolidation; and (2)

iii) Share buyback of 10%. (2)

b) What are the key factors financial analysts should consider when evaluating prospective investments in the mining industry? (4)

c) State and explain any 3 key questions that a potential investor should ask themselves before investing (9)

d) Explain how over diversification can create problems for a firm (6)

[25 Marks]

QUESTION THREE

Suppose you want to invest in the securities of **Dairiboard Ltd,** which depend very much on the supply of milk. You have gathered the following information.

- The stock market can be bullish (this means that investors are optimistic about the future and expect stock prices to go up), and this would positively influence stock prices in general, including Dairiboard Ltd. The probability of a bullish stock market is 60%. Under these circumstances, the return on Dairiboard Ltd would be 40%.
- On the other hand, the stock market can be bearish (this means that investors expect stock prices to go down) and this would negatively affect stock markets in general. The probability of this occurring is 30%. Under these circumstances, the return on Dairiboard Ltd would be 25%.
- There may also be a severe shortage of beef and dairy cows, resulting in a milk crisis. The probability of this is 10%. Under these circumstances, the return on Dairiboard Ltd would be 5%.

This information is summarized in Table 2 below:

Table 3: Probability distribution

	NORMAL YEAR FOR BEEF AND MILK		ABNORMAL YEAR
	Bullish Stock Market	Bearish Stock Market	Beef / Milk Crisis
Probability	0.60	0.30	0.10
Rate of return	40%	25%	- 5%

Required

a) Quantify the risk associated with these different scenarios by calculating the expected return, the variance of the expected return, and the standard deviation of the expected return (10)

b) Consider introducing a risk-free asset such as a treasury bill, suppose your portfolio consists of 50% of your funds in T-bills and 50% in Dairiboard, and the T-bill rate is 15%. What would be the expected return and the standard deviation on this hedged portfolio? (9)

c) Why would a company's shares be "under-subscribed?" What would a company do under such circumstances? (6)

[25 Marks]

QUESTION FOUR

a) With the aid of a diagram, explain the components and functions of a financial system (10)

b) Explain the challenges faced in establishing a derivatives market in Zimbabwe (15)

[25 Marks]

QUESTION FIVE

a) 'The bottom line is that there is no one way to pick stocks. Better to think of every stock strategy as nothing more than an application of a theory - a "best guess" of how to invest.' Explain any six stock picking strategies that may be used by an investor to pick stocks. (12)

b) A discount security with a tenure of 91 days and a nominal value of $1 000 000 is issued at a discount of 18%pa. What is the purchase consideration (issue price) of the security? (4)

c) A potential investor is considering investing in a discount security with a nominal value of $1 000 000 and a tenor of 90 days, issued at $ 946 845.00. Calculate the discount rate, d. (4)

d) Assume that a discount security with 40 days to maturity and a face value of $2 000 000 is traded at $1 962 450 in the money market. At what discount rate per year is it issued? (5)

[25 Marks]

QUESTION SIX

a) Suppose you have $100 000 that you intend to invest in two alternative securities, A and B. If you invest in security A, you may increase your wealth (W1) to $120 000. The probability (P1) of this occurring is 60%. If you, however, invest in B, your wealth (W2) could increase to $200 000, with a probability (P2) of 40%.

   i) Calculate the expected wealth and expected profit (6)

   ii) Calculate the risk attached to the expected outcome (using variance, standard deviation, coefficient of variation) (9)

b) You are an investor with a moderate aversion to risk, with a risk aversion parameter of A = 3. Suppose you have a risky portfolio with a standard deviation of 25% and an expected return of 16%. Alternatively, you could invest in treasury bills with a rate of 9%. Which of the two would you select? (5)

c) Differentiate between Fundamental and Technical analysis in investments (5)

[25 Marks]

END OF PAPER