



**NAMIBIA UNIVERSITY  
OF SCIENCE AND TECHNOLOGY**

**FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION**

**DEPARTMENT OF MARKETING, LOGISTICS AND SPORT MANAGEMENT**

<b>QUALIFICATION: BACHELOR OF LOGISTICS &amp; SUPPLY CHAIN MANAGEMENT HONOURS</b>	
<b>QUALIFICATION CODE: 08BSLH</b>	<b>LEVEL: 8</b>
<b>COURSE CODE: FSL811S</b>	<b>COURSE NAME: FINANCIAL STRATEGIES FOR LOGISTICS AND &amp; SUPPLY CHAIN OPTIMISATION</b>
<b>SESSION: MAY 2024</b>	<b>PAPER: THEORY AND CALCULATIONS</b>
<b>DURATION: 3 HOURS</b>	<b>MARKS: 100</b>

<b>SECOND OPPORTUNITY FINAL ASSESSMENT QUESTION PAPER</b>	
<b>EXAMINER</b>	MR. LAMECK ODADA
<b>MODERATOR</b>	MR. JOHANNES NDJULUWA

<p style="text-align: center;"><b>INSTRUCTIONS</b></p> <ol style="list-style-type: none"><li>1. This question paper consists of <b>FOUR (4)</b> questions.</li><li>2. Answer <b>ALL FOUR (4)</b> questions in blue or black ink only. <b>NO PENCIL.</b></li><li>3. Start each question on a new page, number the answers correctly and clearly.</li><li>4. Write clearly, neatly and show all your workings/calculations/assumptions.</li><li>5. Unless otherwise stated, work with four (4) decimal places in all your calculations and only round off final answers to two (2) decimal places.</li><li>6. Questions relating to this assessment may be raised in the initial 30 minutes after the start of the examination. Thereafter, candidates must use their initiative to deal with any perceived error or ambiguities and any assumptions made by the candidate should be clearly stated.</li></ol>
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**PERMISSIBLE MATERIALS**

- Silent, non-programmable calculators

**THIS ASSESSMENT CONSISTS OF \_9\_ PAGES (including this cover page, but not tables)**

- A. Looking at the most likely result that is going to occur
  - B. Looking at the average result likely to occur
  - C. Looking at the best result that can be expected
  - D. Looking at the worst result that can be expected
- 1.7 If we have a portfolio of two products whose results are perfectly negatively correlated, risk will be minimised by investing :-
- A. In the product that yields the highest expected value
  - B. In the product that has the lowest standard deviation
  - C. In both products equally
  - D. Risk can be minimised by
- 1.8 Which of the following statements concerning the NPV is not true?
- A. The NPV technique takes account of the time value of money.
  - B. The NPV of a project is the sum of all the discounted cash flows associated with a project.
  - C. The NPV technique takes account of all the cash flows associated with a project.
  - D. If two competing projects are being considered, the one expected to yield the lowest NPV should be selected.
- 1.9 Which of the following statements concerning the payback period, is not true?
- A. The payback period is simple to calculate and understand.
  - B. The payback period measures the time that a project will take to generate enough cash flows to cover the initial investment.
  - C. The payback period ignores cash flows after the payback point has been reached.
  - D. It takes account of the time value of money.
- 1.10 The \_\_\_\_\_ describes the linear relationship between expected rates of return for individual securities (or portfolios) and \_\_\_\_\_.
- A. characteristic line; standard deviation
  - B. characteristic line; beta
  - C. security market line; standard deviation
  - D. security market line; beta
- 1.11 Which of the following items describes an index measure of systematic risk?
- A. Beta.
  - B. Standard deviation.
  - C. Coefficient of variation.
  - D. Variance.

**QUESTION 2****[25 MARKS]**

The Roads Authority (hereafter RA), whose core business is to construct and maintain Namibia's road sector, plays a pivotal role in road safety in Namibia. Namibia's road network has been ranked among the safest, most efficient, and sustainable, and is the envy of many countries. The growth of the road infrastructure and the expansion of the road network have contributed immensely to the economic development of Namibia and the SADC sub-region. Assume that RA is looking to expand its interests by purchasing an interest in either company A or company B. The management of RA believes that the expected returns from the acquisition of any of the companies are dependent on the state of the economy. The following information is made available: The company uses five percent cost of capital.

State of economy	Probability of occurrence	Estimated Returns		
		Company A	Company B	MARKET
Boom	0.3	16%	20%	14%
Recession	0.4	10%	12%	8%
Depression	0.3	2%	0%	6%
Market value in million		N\$8m	N\$12m	-

REQUIRED:		MARKS
a)	Calculate the expected return together with the standard deviation for both companies and the market	12
b)	If RA is to select only one company to invest in, which one would you advise RA to select? Motivate your answer with appropriate calculations.	3
c)	Determine expected return together with the standard deviation of the portfolio, if RA invests in both companies to form a portfolio.	10
<b>TOTAL</b>		<b>25</b>

**DMS Statement of changes in equity (extract) for the year ended 31 December 2023**

	<b>2023</b>	<b>2022</b>
Balance on 31 December	8 370 000	5 184 000
Comprehensive income for the year	1 944 000	3 915 000
	10 314 000	9 099 000
Dividends-preference shares	-324 000	-324 000
Dividends-ordinary shares	-405 000	-405 000
Balance on 31 December	9 585 000	8 370 000

<b>REQUIRED</b>		<b>MARKS</b>
a)	<p>Compute the following liquidity ratios for 2022 and 2023 and comment on the overall liquidity position of DMS.</p> <ul style="list-style-type: none"> <li>• Current ratio</li> <li>• Quick ratio</li> <li>• Debtors' collection period</li> <li>• Creditors settlement period</li> </ul>	<b>10</b>
b)	<p>Compute the debt ratio of DMS for 2022 and 2023 and comment on your answer.</p> <ul style="list-style-type: none"> <li>• Debt ratio</li> </ul>	<b>3</b>
c)	<p>Compute the following profitability ratios for 2022 and 2023 and comment on the overall profitability of DMS.</p> <ul style="list-style-type: none"> <li>• Gross profit margin</li> <li>• Net profit margin</li> <li>• Return on Assets</li> </ul>	<b>8</b>
d)	<p>Explain any four (4) limitations of financial statement/ratio analysis</p>	<b>4</b>
<b>TOTAL</b>		<b>25</b>

**FORMULA SHEET**

Portfolio Expected Return	$ER_p = \sum W_A \times ER_A + W_B \times ER_B$
Portfolio standard deviation	$\sigma_{AB} = \sqrt{W_A^2 \times \sigma_A^2 + W_B^2 \times \sigma_B^2 + 2 \times W_A \times W_B \times \text{Cov}_{AB}}$
Beta ( $\beta$ )	Covariance of company with market / variance of market
Cost of equity capital	$R_e = R_f + \beta (R_m - R_f)$ and $R_e = [D_1 \div P_0] + g$
Before tax cost of debt	$k_d = 1 + [\text{Par value} - N_d] / n \div [N_d + \text{par value}] / 2$
Frequency of compounding	$FV = PV[1 + (r/m)]^{t \times m}$
Effective Annual Rate	$FV = PV[1 + (r/m)]^{t \times m}$
Payment	$PMT = PV \times r / [1 - 1/(1+r)^t]$
Internal Rate of Return	$IRR = R_1 + [N_1 \times (R_2 - R_1)] / N_1 + N_2$
Profitability Index	$\frac{\text{Present value of future cash flows (excluding initial outlay)}}{\text{Initial investment}}$
Profitability Index	$1 + \frac{NPV}{\text{Initial investment}}$
Accounting Rate of Return	$\frac{\text{Average annual profit}}{\text{Average investment}}$
Expected return (discrete distribution)	$\sum P_i \times R_i$
Expected return (continuous distribution)	$\frac{\sum R_i}{N}$
Standard deviation (discrete distribution)	$\sqrt{\sum [R_i - E(R)]^2 \times (P_i)}$
Standard deviation (continuous distribution)	$\sqrt{\frac{\sum (R_i - E(R))^2}{n}}$
Covariance (discrete distribution)	$= \sum P_i [R_A - E(R_A)] [R_B - E(R_B)]$
Coefficient of variation	$= \frac{\text{Standard deviation}}{\text{Expected return}}$
Correlation coefficient	$= \frac{\text{Covariance of the assets 1 and 2}}{\sigma_1 \times \sigma_2}$

