

The
Management
University
of Africa



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UNDERGRADUATE UNIVERSITY EXAMINATIONS
SCHOOL OF MANAGEMENT AND LEADERSHIP
DEGREE OF BACHELOR OF COMMERCE

INS 411: RISK ASSESSMENT, CONTROL AND FINANCE

DATE: 28TH JULY 2026

DURATION: 2 HOURS

MAXIMUM MARKS: 70

INSTRUCTIONS:

1. Write your registration number on the answer booklet.
2. **DO NOT** write on this question paper.
3. This paper contains **SIX (6)** questions.
4. Question **ONE** is compulsory.
5. Answer any other **THREE** questions.
6. Question **ONE** carries **25 MARKS** and the rest carry **15 MARKS** each.
7. **Write all your answers in the Examination answer booklet provided.**

QUESTION ONE

Read the Case Study below carefully and answer the questions that follow.

The Great Lakes Port Authority (GLPA) - A Risk Management Catastrophe

The Great Lakes Port Authority (GLPA) is a state-owned corporation managing three major ports on Lake Victoria: Kisumu (Kenya), Jinja (Uganda), and Mwanza (Tanzania). GLPA handles over 15 million tons of cargo annually.

In November 2025, a catastrophic series of events unfolded:

Event 1 – Fuel Storage Fire (Kisumu Port): A massive fire destroyed 80% of fuel storage capacity (loss Ksh 6.5 billion) and two adjacent cargo warehouses (loss Ksh 1.2 billion). Firefighting equipment had not been maintained for 18 months due to budget cuts. Port closed for 45 days.

Event 2 – Dock Collapse (Jinja Port): One month later, a newly constructed dock collapsed during cargo loading, killing 8 workers and injuring 23. Investigations revealed substandard construction materials and inadequate soil testing.

Event 3 – Currency Crisis (All Ports): Kenyan Shilling depreciated 30% against USD. GLPA has USD 200 million debt (USD-denominated). Debt service costs increased by Ksh 800 million annually.

Event 4 – Regulatory Sanctions: Lake Victoria Basin Commission imposed Ksh 500 million fine for environmental damage from fuel fire (15 km shoreline contamination).

GLPA's Risk Management Status Before the Crisis was as follows:

Element	GLPA's Situation
Risk assessment	Last formal assessment: 2020 (5 years ago)
Risk department	2 staff, both retired; positions unfilled
Insurance	Fire: Ksh 2B sub-limit (exposure Ksh 8B); No BI cover; No liability cover

Element	GLPA's Situation
Self-insurance reserve	Ksh 100M held (<1% of exposure)
Risk control budget	Cut 60% over 3 years; fire equipment maintenance eliminated
Board risk committee	Dissolved in 2022
Risk appetite statement	"GLPA will pursue growth and efficiency while maintaining prudent risk management" (no metrics)

A Post-Crisis Financial Impact revealed the following:

Loss Category	Amount (Kshs. Millions)
Fuel storage facility	6,500
Cargo warehouses	1,200
Dock collapse (structure)	800
Business interruption (45 days)	1,500
Worker fatalities compensation	80
Worker injury medical costs	120
Legal defense costs	150
Environmental fine	500
Environmental cleanup	300
TOTAL	11,150

Historical data on accidents for the past five years is summarized below:

Port	Year 1	Year 2	Year 3	Year 4	Year 5	Total Losses (Kshs. Million)
Kisumu	8	12	10	14	9	320
Jinja	5	7	6	9	11	280
Mwanza	3	4	5	4	6	180
Total	16	23	21	27	26	780

Adapted from:

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Required:

- a) Examine the Great Lakes Port Authority's (GLPA) risk management failures during the 2025 crisis by analyzing evidence across the six stages of the risk assessment framework and judging the adequacy of its decision-making process in light of the financial and operational consequences. **(6 marks)**

- b) Analyze GLPA's handling of the Kisumu fuel storage fire by examining how the four risk control techniques (avoidance, loss prevention, loss reduction, risk transfer) were ignored or misapplied, and evaluate whether proper implementation could have prevented or reduced the severity of the Ksh 6.5 billion loss.

(5 marks)

- c) Evaluate GLPA's insurance arrangements by designing appropriate property damage, business interruption, and liability limits based on case evidence, analyzing historical accident data to propose a deductible strategy, and judging whether commercial insurance, a captive, or self-insurance best suits GLPA as a state-owned corporation. **(8 marks)**
- d) Analyze GLPA's historical accident data to compute the average annual accident frequency and standard deviation, and evaluate whether their accident experience is stable or unpredictable; finally, apply the average loss per accident to forecast expected total losses for Year 6. **(6 marks)**

QUESTION TWO

FastMart Retail Ltd operates 45 supermarkets across Kenya, Uganda, and Tanzania. Losses have increased for three consecutive years. You are a risk consultant hired to redesign their risk management approach.

Required:

- a) Analyze three different risk identification approaches by showing how FastMart would carry out each step and evaluate which unique risks each method reveals that others might miss. **(5 marks)**
- b) Examine the claim that past data best predicts future losses by identifying three retail-specific limitations and judge whether the manager's position is defensible. **(5 marks)**
- c) Construct a risk prioritization matrix for FastMart, plotting at least five risks by likelihood and impact, and evaluate appropriate mitigation strategies for each placement. **(5 marks)**

QUESTION THREE

- a) ChemTech Industries Ltd produces industrial chemicals in Athi River. The plant stores 500,000 liters of flammable solvents in above-ground tanks. A near-miss incident (a small leak that was quickly contained) has prompted a risk review.

Required:

Apply the four risk control techniques to ChemTech's solvent storage by proposing concrete actions and explaining their effect on frequency or severity of losses.

(6 marks)

b) ZeeTech is comparing three options for managing their solvent storage risk:

Option	Description	Annual Cost	Expected Annual Loss After Implementation
X	Do nothing (retain risk)	Ksh 0	Ksh 50,000,000
Y	Install secondary containment + fire suppression	Ksh 30,000,000	Ksh 5,000,000
Z	Transfer risk to insurance (full cover)	Ksh 45,000,000	Ksh 0

- i. Compute the Total Cost of Risk for each option, then evaluate whether ChemTech should adopt Option Y, Option Z, or a combination, considering both financial and operational factors.

(6 marks)

- ii. Critique the plant manager's reliance on intuition versus data, identify at least two judgment biases, and judge whether his stance is reasonable using the option figures.

(3 marks)

QUESTION FOUR

- a) St. Luke's Mission Hospital is a 200-bed private hospital in Nairobi facing increasing medical malpractice claims. Data for the last 5 years has been provided below:

Year	Number of Claims	Average Claim Cost (Ksh millions)
2021	8	4.5
2022	10	5.0
2023	12	5.5
2024	15	6.0
2025	18	6.5

Required:

Compute the expected annual claim cost from the hospital's claims history and evaluate whether the current premium of Ksh 80M is reasonable. **(5 marks)**

b) An insurer has quoted a premium of Ksh 95 million for next year, broken down as follows:

Component	Amount (Ksh millions)
Expected claim cost	69.3
Administrative costs	12.0
Investment income	(5.0)
Profit loading	8.0
Risk loading (uncertainty)	10.0

Required:

- i. Compute the implied total claim cost, and analyze why investment income reduces the premium.

(6 marks)

- ii. Compare commercial insurance, self-insurance, and captive insurance then evaluate which option best suits the hospital given its claims trend. **(4 marks)**

QUESTION FIVE

Nairobi Metropolitan University, with a population of 25,000 students and 2,000 staff, currently has risk management scattered across departments: Finance handles treasury risks, Estates handles fire and property risks, HR handles employee risks, and IT handles cybersecurity. There is no central risk register, no risk committee, and the Vice-Chancellor only hears about risks after something goes wrong. The University Council has ordered a complete overhaul.

Required:

- a) Propose four changes to move from fragmented risk management to ERM, explaining how each fixes current problems, and evaluate why ERM is superior to silo-based management. **(6 marks)**
- b) Draft a formal risk appetite statement with philosophy, quantitative targets, and boundaries, and justify why each is appropriate for the institution. **(9 marks)**

QUESTION SIX

SkyLink Airlines operates 15 aircraft on regional routes. Historical accident data (10 years):

Year	Number of Accidents	Total Loss (USD millions)
2016	12	8.5
2017	14	9.2
2018	10	7.8
2019	16	10.5

Year	Number of Accidents	Total Loss (USD millions)
2020	8	6.2
2021	18	11.0
2022	11	8.6
2023	13	9.1
2024	9	7.0
2025	15	9.8

Required:

- a) Compute the mean, variance, standard deviation and coefficient of variation for accident frequency, then evaluate whether the data fits a Poisson distribution.

(9 marks)

- b) Compute the average loss per accident, then outline the steps and assumptions needed to estimate the probability of exceeding USD 15M, including Z-score interpretation.

(6 marks)