NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMUNICATION AND INFORMATION SCIENCE

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

BACHELOR OF SCIENCE HONOURS DEGREE IN LIBRARY AND INFORMATION SCIENCE

DATABASE DESIGN AND MANAGEMENT IN INFORMATION CENTRES

ILI 2109

First Semester Examination Paper

March 2025

This examination paper consists of 3 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Mrs A.R. Nyaku

INSTRUCTIONS

1.   Answer a total of four (4) questions
2.   Question 1 is compulsory
3.   Each question carries 25 marks
4.   Importance is attached to accuracy, clarity of expression and legible handwriting

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25

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1. You are tasked with designing a database for a school library, explain giving 2 relevant examples for each: your understanding of the following terms:

1.1 Entity [2 marks]

1.2 Attribute [2 marks]

1.3 Primary key [2 marks]

1.4 Concatenated key [2 marks]

1.5   Relationship [2 marks]

1.2   Design an Entity relationship diagram for this library. [15 marks]

2   A public library has implemented a distributed database system, discuss the following activities

2.1 Catalogue Management [4 marks]

2.2 Query processing [4 marks]

2.3 Updating [4 marks]

2.4 Concurrency Control [4 marks]

2.5 Deadlock [4 marks]

2.6   Recovery [5 marks]

3. Discuss security issues associated with electronic databases in library information centres[25 marks]

4. Assess the implications of adopting the following database models:
4.1 Object oriented database [7 marks]
4.2 Relational database [6 marks]
4.3Hierarchical database [6 marks]
4.4 Network model [6 marks]

5. Critique the role of a database administrator in library information centre [25 marks]

6.1. Outline, making use of relevant examples, the process of Normalisation from 1NF to 3NF [13marks]

6.2 Illustrate with the aid of relevant example the use of the following SQL statements
SELECT [3 marks]
LIKE [3 marks]
DISTINCT [3 marks]
EXCEPT [3 marks]

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