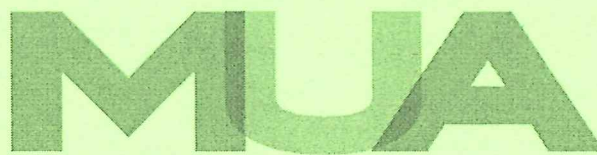


The
Management
University
of Africa



Sponsored by the Kenya Institute of Management

CERTIFICATE UNIVERSITY EXAMINATIONS
SCHOOL OF MANAGEMENT AND LEADERSHIP
CERTIFICATE IN INFORMATION COMMUNICATION
TECHNOLOGY

CIT 102/ CBT 102: INTRODUCTION TO DATABASE MANAGEMENT

DATE: 3RD APRIL 2023

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 **FOUR** questions.
6. Question **ONE** carries **30 MARKS** and the rest carry **10 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:

A private school has contacted your company to design, implement and administer the database of a Management Information System for their library.

The library will have both physical and e-books. The school is really strict with the security of their books and would want correct records to be maintained.

Your job will include coming up with physical, logical (relational database models) and view models. Later, you will advise on the hardware and software components of the database management system and then install the database management system.

Required:

- a) Name the DBMS you will install if the institution requires an open-source DBMS.
[2 Marks]
- b) Explain THREE of your roles as a database administrator for the school. [6 Marks]
- c) Name THREE examples of commercial Database Management System softwares you would use.
[6 Marks]
- d) Identify THREE normal forms you would go through in the design of the database.
[6 Marks]
- e) Identify a modeling diagram you would choose during the design process.
[2 Marks]
- f) Explain the language would you use to create the database and the tables contained within.
[2 Marks]
- g) List SIX other areas apart from schools where you would use a database as a database specialist.
[6 Marks]

QUESTION TWO:

- a) Identify the THREE basic constructs of an E-R diagram [6 Marks]
- b) List the FOUR components of a DBMS [4 Marks]

QUESTION THREE:

- a) Describe the guidelines used in construction of ER diagrams. [6 Marks]
- b) List FOUR types of attributes. [4 Marks]

QUESTION FOUR:

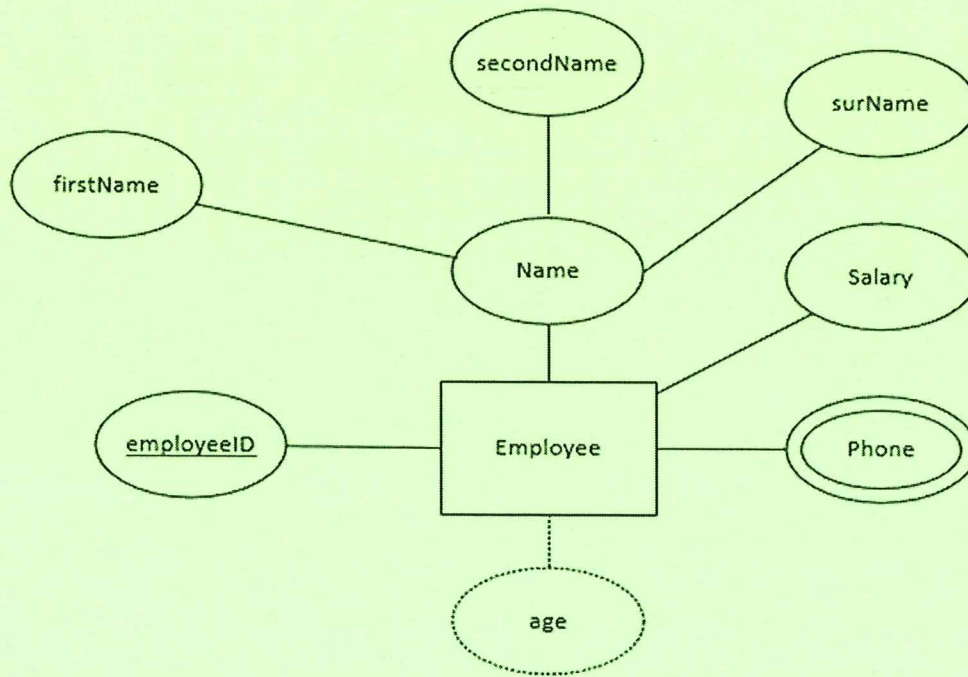
- a) Name the THREE levels of DBMS architecture [3 Marks]
- b) Define data independence as used in Database Management Systems [2 Marks]
- c) Explain the SQL concept [2 Marks]
- d) Enlist the THREE types of relationships used in disadvantages of using file-based approach instead of databases [3 Marks]

QUESTION FIVE:

- a) Explain what ACID stand for in DBMS concepts [4 marks]
- b) Describe the 3 types of anomalies in databases [6 marks]

QUESTION SIX:

- a) List 5 types of keys in databases [5 marks]
- b) Identify the following parts in the ER diagram below [5 marks]



- i) A derived attribute
- ii) A key attribute
- iii) A multivalued attribute
- iv) A composite attribute
- v) An entity