

UGANDA MARTYRS UNIVERSITY
UNIVERSITY EXAMINATIONS
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION SYSTEM
END OF SEMESTER FINAL ASSESMENT
SEMESTER 2, 2022/2023

COURSE : BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY, BSC COMPUTER SCIENCE, DIPLOMA IN COMPUTER SCIENCE & INFORMATION TECHNOLOGY, BSC FINANCIAL MATHEMATICS & BSC EDUCATION

EXAM : DATABASE MANAGEMENT SYSTEMS

CODE : CSC 1203

SEMESTER : ONE

DATE : 24TH MAY 2023

TIME : 9:30 – 12:30 PM

DURATION : 3 HOURS

Instructions

1. Answer all questions in section A(40 Marks) and Answer any two questions from section 2(60 Marks)
 2. Use of relevant Illustrations/diagrams will earn you a bonus mark (s)
 3. Remember to indicate the question number you have answered.
 4. Write your name, course and registration number on all your answer sheets
 5. All answers should be written on the answer booklet
 6. All university rules apply
-

SECTION A

Answer all the questions in this section by recording the correct option for each of the following multiple choice questions. Each is 2 Marks

- Which of the following Structures is used for storing data in a relational Database management system?
 - Image
 - Text
 - Table
 - Graph
- Which of the following is a database management system?
 - MYSQL
 - Linux
 - PHP
 - Java
- Which SQL Statement adds a new column to an existing table?
 - alter table
 - update table
 - delete
- Which of the following is not an element in the database environment?
 - Data
 - software
 - People
 - power
- Which SQL command is used for removing a relation from a Database?
 - Drop table
 - Delete
 - Purge
 - Remove
- Which SQL statement displays all the data in a given table?
 - Show databases
 - show tables
 - select
- Which of the following is not true about names of databases, names of tables and names of columns?
 - names should be no longer than 128 characters.
 - names should have spaces in between
 - names should not start with digits
- Which of the following provides the ability to query information from the database tables, insert tuples into the database tables, delete tuples from database tables, modify or update data in the database tables?
 - DML (Data Manipulation Language)
 - DDL (Data Definition Language)
 - Query
 - Relational Schema
- Which one of the following refers to the "data about data"?
 - Directory
 - Sub Data

SECTION B:

Answer any two Questions from this section

QUESTION ONE

Uganda Martyrs University, Masaka Campus is planning to acquire a database application system to improve efficiency and general records management.

a) Help the management of this campus to understand the following concepts 1mark@

i) database management system

ii) database application program

b) Kindly highlight to the management of this campus any 5 advantages and 5 challenges associated with database systems. (20 Marks)

c) Help the management team understand the roles played by each of the following personnel in the database environment. 2marks @

i. data administrator

ii. logical database designer

iii. database administrator

iv. Programmer

QUESTION TWO

a) An IT trainee in the ICT department was tasked to develop a simple database. The trainee created two tables' students and results in the database. One of the tables created is seen below.

Study the table and answer the questions that follow.

Sno	Student Name	Gender	Student Name	Course
S0010	Sam	Male	Sam	DIP IT
S0011	Ruth	Female	Ruth	BAM
S0013	Tom	Male	Tom	AGRIC
S0010	Sam	Male	Sam	DIP IT

- State any three properties of a relation which were violated in the above table. (6Mks)
- Using examples from the above relation explain the tuple, attribute and Domain (6marks)
- What is the degree and cardinality of the above relation (4Mrks)
- State any four super keys from the above relation (4 Marks)

b) Mr. Kamukama Rogers is a renowned business man who owns a chain of businesses in Masaka City. He has been advised by his comrades that in order to centrally manage his businesses, he needs to purchase a database management system. Based on your experience Mr. kamukama has hired you as a consultant on this project. Clearly explain any five major functions or services a good Database management system suitable for

a multi-user environment (Just like Mr. kamukama's chain of businesses) should provide.

(10 Marks)

QUESTION THREE

a. Explain each of the following terms as used in ER modeling. (3mark@)

- i) Entity type
- ii) Relationship type
- iii) Entity occurrence
- iv) Relationship occurrence
- v) Semantic net

b. Create an ER diagram for each of the following descriptions: (3marks@)

- i) Each company operates four departments, and each department belongs to one company.
- ii) Each department in part (i) employs one or more employees, and each employee works for one department.
- iii) Each of the employees in part (ii) may or may not have one or more dependents, and each dependent belongs to one employee.
- iv) Each employee in part (iii) may or may not have an employment history.
- v) Represent all the ER diagrams described in (i), (ii), (iii), and (iv) as a single ER diagram.

QUESTION FOUR

The Management of Uganda Martyrs University has released funds to develop a database application to store and manage all records about its assets.

As a database designer you are requested to use MySQL to assist in the development of the database application by carefully coming up, executing and recording only the SQL statements to accomplish the following tasks.

- 1. Create a database with a suitable name. (2marks @)
- 2. Create the following tables within the database with appropriate column names and data types. (2 marks@)
 - a. assets {assetno, name, cost ,supplier }
 - b. umustaff { staffno, name, department }
 - c. Allocation { assetno, staffno }
- 3. Change the name of the table umustaff to staff. (1marks)
- 4. Remove the column supplier from the assets table.(1marks)
- 5. Add a new column date to the allocation table.(2marks)

6. Change the name of the column name in the staff table to sname.(1marks)
7. Insert into the above tables the following data. (2marks for each table)

assets

Assetno	name	Cost
A01	Canon printer	300000
A02	Hp laptop	400000
A03	Office table	50000
A04	Yamaha bike	800000

staff

staffno	SName	Department
S01	James	Finance
S02	Ruth	Computer science
S03	Mark	Library
S04	Rose	Finance

Allocation

Assetno	Staffno	Date
A01	S01	2023-04-05
A02	S02	2023-03-25
A03	S03	2023-05-10

8. Display names of all assets in the University. (1 mark)
9. Display the names of staff members and their departments. (2marks)
10. Display Names of all assets with a cost price which is greater than 500000. (2marks)
11. Change the cost of the office table to 80000. (1marks)
12. Remove the details of Rose from the staff table. (1mark)
13. Display names of all staff members with names having an a in them. (2marks)
14. Display the total amount of money the university spent on assets. (1mark)
15. Display names of staff members and names of assets allocated to them. (1mark)

THE END