KISII UNIVERSITY

UNIVERSITY EXAMINATION

MAIN CAMPUS

THIRD YEAR EXAMININATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF BUSINESS INFORMATION AND MANAGEMENT

SECOND SEMESTER

(SEPTEMBER –DECEMBER2023)

BINM350: DATABASE MANAGEMENT

STREAM: Y3S2 **TIME: 2 HOURS**

DAY: **DATE:**

INSTRUCTIONS

1. ***Do not write anything on this Question paper***
2. ***Answer Question ONE and any other THREE Questions***
3. ***Question ONE contains 25 marks and every other question contains 15 marks each.***

QUESTION 1: COMPULSORY [25 Marks]

a) Define term Database (2 Marks)

b) With examples discuss the following types of attributes.

i. Multi-valued Attribute (2 Marks)

ii. Derived Attribute (1 Marks)

c) With the aid of a diagram discuss components of a Database System. (6 Marks)

d) Draw, label and briefly describe the THREE basic symbols used in E-R notation. (6 Marks)

e) Differentiate the following terms.

i. Centralized and distributed database systems (2 Marks)

ii. Homogeneous and Heterogeneous distributed databases (2 Marks)

f) Discuss any TWO security measures used to protect databases. (4 Marks)

QUESTION 2: (15 MARKS)

a) In relation to database security, highlight any TWO forms of malicious access (2 Marks)

b) Discuss any TWO types of authorization on parts of a Database. (2 Marks)

c) Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car is associated with zero to any number of recorded accidents. (6 Marks)

d) Define the term transaction and briefly explain the four transaction properties. (5 Marks)

QUESTION 3: (15 MARKS)

Use the table below to answer the questions that follow. The table shows pet records kept in a database.

TABLE: PET

Name	Owner	Species	Sex	Birth	Death
Fluffy	Harold	cat	f	1993-02-04	NULL
Claws	Gwen	cat	m	1994-03-17	NULL
Buffy	Harold	dog	f	1989-05-13	NULL
Fang	Benny	dog	m	1990-08-27	NULL
Bowser	Diane	dog	m	1979-08-31	1995-07-29
Chirpy	Gwen	bird	f	1998-09-11	NULL
Whistler	Gwen	bird	NULL	1997-12-09	NULL
Slim	Benny	snake	m	1996-04-29	NULL
Puffball	Diane	hamster	f	1999-03-30	NULL

a)write an SQL statement to display all animals born during or after 1998.Display all the fields in the table (2 marks)

b) Write an SQL statement to display all animals whose species is dog or sex = female. The result should display all the fields. (2 marks)

c)Write an SQL statement to display name and birth fields of all the animals and sorted in descending order on birth field. (2 marks)

d) Write an SQL statement which will determine how old each pet is. The output should display name, birth, current date, and the age. (4 marks)

e) Write an SQL statement to calculate the age at death for animals that have died. The output should display name, birth, death, and age. (3 marks)

f)Write an SQL statement to display all animals whose sex = male and owners starts with letter 'B'. The result should display all the fields. (2 marks)

QUESTION 4 :(15 MARKS)

a) Briefly describe the first three normal form of database Table. (6 Marks)

b) Using query examples, explain the use of the following database integrity constraints(5marks)

I. NOT NULL
II. UNIQUE
III. CHECK
IV. DEFAULT
V. FOREIGN KEY

c) Using a table example, write SQL statements which will achieve the following(4marks)

I. Add any column to the existing table
II. Change the data type of a column of the existing table
III. Delete a column of the existing table
IV. Delete the existing table from the database

QUESTION 5: (15 MARKS)

a) Briefly describe THREE advantages of distributed databases. (3Marks)

b) A database Administrator coordinates all the activities of the database system in Kisii University and he has a good understanding of the University's information resources and needs.

I. State the duties of a database Administrator in Kisii University (10 marks)

II. What is the difference between Two-tier architecture and three-tier database architectures? (2marks)

END