



MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (ELECTRICAL AND ELECTRONICS ENGINEERING)

EEE207: DATABASE MANAGEMENT SYSTEMS

DATE: 21/4/2023

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer Question ONE and other TWO Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Explain the characteristics of the following terms as used in database systems:-
 - i. Weak Entity (3 marks)
 - ii. Strong Entity (3 marks)
- b) Describe the THREE different levels of abstraction in the DBMS (6 marks)
- c) Define what is meant by data constraints as used in DBMS. (2 marks)
- d) Highlight the THREE types and application of various Relational Database Keys (6 marks)
- e) Describe THREE best practices in database security that can help keep your databases safe from attackers. (6 marks)
- f) Explain TWO disadvantages of ER Model in DBMS (4 marks)

QUESTION TWO (20 MARKS)

Study the following database table that stores student's records and answer the questions that follow:-

REG_NO	F_NAME	L_NAME	COURSE	GENDER	D_O_B
1/2016	John	Mutuku	DCS	Male	13/6/1990
2/2016	Steve	kipkorir	DCS	Male	13/3/1985
3/2016	Susan	Mutua	CIT	Female	19/11/1986
4/2016	Steve	Kin'gori	DBIT	Male	1/3/1978

- a) Write the following SQL statements to perform the following
- Display all students where the results will only contain the columns RGE_NO, L_NAME and F_NAME. (2 marks)
 - To produce the L_NAME and F_NAME combined as Student name (2 marks)
 - To find the details of AA male students in the course DCS. (2 marks)
- b) Explain three Components of the Object Oriented Data Model (6 marks)
- c) Describe three Advantages of the Object Oriented Data Model explained above (6 marks)

QUESTION THREE (20 MARKS)

- a) Define a hierarchical database model (2 marks)
- b) Using a relational illustration, explain functional dependency in the DBMS (4 marks)
- c) Describe the Importance of the Data Modeling in DBMS (6 marks)
- d) Explain the steps for conceptual database design (8 marks)

QUESTION FOUR (20 MARKS)

- a) Define a RDBMS (2 marks)
- b) Explain four Advantages of Distributed Database Management System (DDBMS) (8 marks)
- c) Discuss the critical success factors of database design (10 marks)

QUESTION FIVE (20 MARKS)

- a) Explain why normalization should be done in databases (6 marks)
- b) Using illustrations, Describe the various types of relationships in the DBMS (6 marks)
- c) Analyze FOUR states of transaction management in DBMS (8 marks)