



MACHAKOS UNIVERSITY

University Examinations for 2022/2023

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND/THIRD YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE

BACHELOR OF SCIENCE (MATHEMATICS)

SCO206/SMA392: DATABASE SYSTEMS

DATE: 21/4/2023

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer Question ONE and other TWO Questions

QUESTION ONE (30 MARKS)

- a) Using real world examples, Explain the following terms as used in database systems:-
- i. Entity (3 marks)
 - ii. Entity Type (3 marks)
 - iii. Entity Set (3 marks)
- b) Define ‘‘degree of relationships’’ as used in DBMS (2 marks)
- c) Explain THREE advantages of using a transaction log in DBMS (6 marks)
- d) By using examples, explain THREE types of Relationships in DBMS (6 marks)
- e) Explain the importance normalization as used in databases systems (3 marks)
- f) Describe three functions of DBMS in business organizations (4 marks)

QUESTION TWO (20 MARKS)

- a) Explain four Challenges that may be incurred during Database Design (4 marks)
- b) Analyze two integrity rules that exist in the DBMS (4 marks)
- c) Explain two disadvantages of ER Model in DBMS (6 marks)
- d) Discuss three characteristics of a relational table (6 marks)

QUESTION THREE (20 MARKS)

- a) Define a “Traditional file processing system” in DBMS (2 marks)
- b) Describe three Importance of Data Modeling in DBMS (6 marks)
- c) Use the table below to answer questions that follow.

SALESMAN_ID	NAME	CITY	COMMISSION
5001	James Kamau	Nairobi	0.15
5002	Nancy Okoth	Kisumu	0.13
5005	Alex Lewa	Mombasa	0.11
5006	Mercy Mueni	Kisumu	0.14
5007	Paul Adam	Nakuru	0.13
5003	Derrick Pemba	Kampala	0.12

- i. Write an SQL statement to create a database “Machakos Merchants” that will be used for the above table. (2 marks)
- ii. Write an SQL statement that could be used to create the above table. (4 marks)
- iii. Write a SQL statement to display all the information of all salesmen. (2 marks)
- iv. Write a SQL statement to display those salesmen who come from Kisumu city. (4 marks)

QUESTION FOUR (20 MARKS)

- a) Define a RDBMS (2 marks)
- b) Explain TWO Classification of Distributed Database Management System (DDBMS) (4 marks)
- c) Explain THREE Problems that the Traditional File System Data Management has in data Processing (6 marks)
- d) Discuss FOUR roles of DA and DBA in DBMS administration (8 marks)

QUESTION FIVE (20 MARKS)

- a) Explain THREE reasons why normalization should be done on databases (6 marks)
- b) The Database Life Cycle (DBLC) contains SIX phases, Analyze what happens in phase one. (6 marks)
- c) Describe FOUR states of transaction management in DBMS (8 marks)