



MACHAKOS UNIVERSITY

University Examinations for 2018/2019

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
BACHELOR OF SCIENCE (MATHEMATICS AND COMPUTER SCIENCE)

SCO 206: DATABASE SYSTEMS

DATE:

TIME:

INSTRUCTIONS:

Answer Question ONE and other TWO Questions

QUESTION ONE (COMPULSORY) (30 MARKS)

- a) Distinguish between database and data mart (4 marks)
- b) Explain two properties of business rules essential for a database system (4 marks)
- c) Give the difference between physical design and logical design with examples in each case (4 marks)
- d) Explain the following database concepts
 - i) SQL
 - ii) Normalization (4 marks)
- e) Define an ER diagram and design a suitable ER diagram for Machakos county database using three entities. (6 marks)
- f) State four database models that can be used in the architecture of database systems. (4 marks)
- g) Explain two constraints that may be set when creating tables to be used in a database. (4 marks)

QUESTION TWO (20 MARKS)

Technical Limited has contracted Erispe IT Solutions Company to develop a database for managing all the resources of the company.

- i) Discuss the process the company is most likely to follow to professionally develop that database system. (10 marks)
- ii) Design an Entity Relationship Diagram that can be used to model the database in 2 i. above. (10 marks)

QUESTION THREE (20 MARKS)

- a) Explain five merits of using an electronic database in a given organization as opposed to a manual database. (10 marks)
- b) Discuss five DDL language commands used in SQL. (10 marks)

QUESTION FOUR (20 MARKS)

- a) Normalization is a technique that is used to organize tables and data in a database. Discuss five reasons why normalization is important. (10 marks)
- b) A systems administrator wants to secure the database system for the organization. Explain five security methods that he may use apart from using passwords. (10 marks)

QUESTION FIVE (20 MARKS)

- a) Jack has been contracted to set up a database system at Machakos Company. Discuss the main components that he is likely to put together in the system. (10 marks)
- b) When database diagnosis is done a number of threats to its security may be established. Discuss any five of these. (10 marks)