



MACHAKOS UNIVERSITY

University Examinations for 2016/2017

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

SECOND YEAR SECOND SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN ELECTRICAL AND ELECTRONICS ENGINEERING

EEE 207: DATABASE MANAGEMENT SYSTEMS

DATE: 13/6/2017

TIME: 8:30 – 10:30 AM

INSTRUCTIONS

Answer all questions in section A and any two questions from section B

QUESTION ONE (30 MARKS) [COMPULSORY]

- a) Distinguish between database and database system (4 marks)
- b) Explain **two** functions of DBMS (4 marks)
- c) Give the difference between a DDL and DML as used in database systems with examples in each case. (4 marks)
- d) Explain the following database concepts
 - i. Meta data
 - ii. People (4 marks)
- e) Briefly describe **three** reasons for normalization (6 marks)
- f) Draw an E-R Diagram for MUC that captures the following entities: Students, Lecturers, Library and Computer Lab. (5 marks)
- g) State **three** rules for creating tables in the relational database model (3 marks)

QUESTION TWO (20 MARKS)

- a) Mark wants to design tables to be used in a given database. Using well labelled diagrams explain **four** types of entity relationships that he can use in the design. (6 marks)
- b) Models are used to represent the architecture of various systems. Discuss **four** types of database models that can be implemented in database design. (8 marks)
- c) Explain the following terms as used in database systems:
 - i Insert Anomaly
 - ii Delete Anomaly
 - iii Update Anomaly (6 marks)

QUESTION THREE (20 MARKS)

- a) State and explain the stages in the database development life cycle, and mention one main activity in each of the stages. (12 marks)
- b) Using examples in each case, explain the function of the following SQL keywords.
CREATE
DROP
SELECT
INSERT INTO (8 marks)

QUESTION FOUR (20 MARKS)

- a) Describe the five components of the DBMS environment and discuss how they relate to each other. (10 marks)
- b) Explain two factors that can be considered in choosing the DBMS appropriate for a given organization. (4 marks)
- c) Erick, a database administrator is supposed to protect the database from various threats. Advise him on three methods he can use to achieve this. (6 marks)

QUESTION FIVE (20 MARKS)

- a) Normalization is one of the techniques used in database systems. Discuss the process of normalization from first up to the third normal forms with the aid of examples. (10 marks)
- b) A systems administrator wants to organize files in the machines that exist in their work place. Explain five file organization methods that he may use. (10 marks)