



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY
(BTIT 13M)
EIT 4205: DATABASE SYSTEMS

END OF SEMESTER EXAMINATION
SERIES: AUGUST 2013
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (Compulsory)

- a) Briefly discuss each of the following terms:
- | | |
|-------------|-----------|
| (i) Query | (2 marks) |
| (ii) Domain | (2 marks) |
| (iii) DBMS | (2 marks) |
| (iv) View | (2 marks) |
- b) Enumerate the key differences between a primary key attribute and foreign key attribute of a relation (4 marks)
- c) Briefly discuss the steps followed when developing a database system (10 marks)
- d) Briefly explain the process of normalization as applied in database development (8 marks)

Question Two

- a) Discuss the components of a database and how they relate to each other. (10 marks)
- b) Distinguish between conceptual, logical and physical database design (6 marks)
- c) Discuss the concept of data independence in a database system (4 marks)

Question Three

- a) Discuss the roles of the following personnel in database environment
 - (i) Database Administrator (2 marks)
 - (ii) Data Administrator (2 marks)
 - (iii) Application Developer (2 marks)
 - (iv) End User (2 marks)
- b) Describe the concepts of entity relationship model. Present the diagram representation of each concept described. (12 marks)

Question Four

- a) Briefly discuss the **TWO** major components of SQL and the functions key server (4 marks)
- b) Enumerate at least **THREE** advantages and **THREE** disadvantages of SQL (6 marks)
- c) With the help of a suitable example, explain the function of each of the clauses in the SELECT statement (6 marks)

Question Five

Assume that you are responsible for selecting a new DBMS product for a group of users in your organization. To undertake this exercise, you must first establish a set of requirements for the group and then identify a set of features that a DBMS product must provide to fulfill the requirements. Describe the process of evaluating and selecting the best DBMS product. (20 marks)