



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR BACHELOR OF TECHNOLOGY IN
INFORMATION COMMUNICATION TECHNOLOGY
(BTICT J12/FT/BTIT M11)

ICS 2404: ADVANCED DATABASE MANAGEMENT SYSTEMS

END OF SEMESTER EXAMINATION

SERIES: APRIL 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) Define the following database terms:
- | | |
|------------------------|-----------|
| (i) Time stamping | (2 marks) |
| (ii) Transaction | (2 marks) |
| (iii) Threat | (2 marks) |
| (iv) Database recovery | (2 marks) |
- b) Briefly explain the purpose and scope of database security. (7 marks)
- c) List the advantages and disadvantages brought about by the use of a DDBMS (5 marks)
- d) Distinguish between shared locks and exclusive locks. (4 marks)

- e) What is a deadlock? How does the DDBMS detect the existence of a deadlock and how does it break the deadlock. **(6 marks)**

Question Two

- a) Describe, the examples, the types of problems that occur in a multi-user environment when concurrent access to the database is allowed. How does the DBMS deal with each of the problem explained? **(8 marks)**
- b) The consistency and reliability aspects of transactions are due to the Acidity properties of transactions. Discuss each of these properties and how they relate to the concurrency control and recovery mechanism. Give examples to illustrate your answer. **(12 marks)**

Question Three

- a) Briefly discuss the differences between interactive SQL, static embedded SQL and dynamic embedded SQL. **(6 marks)**
- b) Define and briefly discuss the main benefits and problems associated with:
- (i) Data warehousing **(5 marks)**
 - (ii) Data mining **(5 marks)**
- c) Discuss the advantages and disadvantages of the web as a database platform. **(4 marks)**

Question Four

- a) Explain what is meant by a DDMBS and discuss the motivation in providing such a system. **(5 marks)**
- b) Discuss why the weakness of the relational data model and relational DBMS would make them unsuitable for advanced database application. **(10 marks)**
- c) Distinguish between commit and rollback. **(4 marks)**

Question Five

- a) The Senior Management of a company wishes to develop policies and procedures for protecting their database against accidental or intentional loss, destruction or misuse. Prepare a discuss document which outlines the most important security features provided by DBMS. **(12 marks)**
- b) Discuss the functions of a Distributed DBMS **(8 marks)**