



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

DIPLOMA IN INFORMATION COMMUNICATION TECHNOLOGY

DICT 10M

EIT 2210: DATABASE MANAGEMENT SYSTEM II

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY/MARCH 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question One 30 Marks

- a) i. Define Normalization (2 Marks)
ii. Explain any **two** advantages of Normalization (4 Marks)
iii. With examples differentiate between functional and transitive dependencies. (5 Marks)
- b) i. Define an ERD (2 Marks)
ii. Name three ways of using an ERD (3 Marks)
iii. With diagrams, explain four ER Notations (8 Marks)
- c) Explain the **six** levels of database security (6 Marks)

SECTION B (Answer any two questions)

Question Two 15 Marks

- a) Briefly explain the concept data warehouse. (4 Marks)
- b) Describe the benefits and disadvantages of Data Warehousing (6 Marks)
- c) Compare Online Transaction Processing (OLTP) with Data warehousing (5 Marks)

Question Three (15 Marks)

- a) Use an example to illustrate the lost update problem in transaction processing (5 Marks)
- b) With the aid of a diagram, explain the DBMS transaction subsystem (10 Marks)

Question Four 15 Marks

- a) Consistency and Isolation aspects of transaction are due to the ACIDity properties of transaction. Discuss each of these properties. (4 Marks)
- b) Explain, how the two main concurrency control techniques allow transactions to execute safely in parallel subject to certain constraints. (6 Marks)
- c) List the Normalization steps (5 Marks)

Question Five 15 Marks

- a) i. Define SQL (1 Mark)
ii. Explain the general syntax of the INSERT and SELECT SQL Statements (4 Marks)
- b) Use the table below to answer the questions that follow

Table Staff

staffNo	fName	IName	Position	Sex	DOB	Salary	BranchNo
SL21	John	White	Manager	M	1-Oct-45	30000	B005
SG37	Ann	Beech	Assistant	F	10-Nov-60	12000	B003
SG14	David	Ford	Supervisor	M	24-Mar-58	18000	B003
SA9	Mary	Howe	Assistant	F	19-Feb-70	9000	B007
SGS	Susan	Branch	Manager	F	3-Jun-40	24000	B003
SL41	Julie	Lee	Assistant	F	13-Jun-65	9000	B005

Write SQL Statements to perform the following

- i) List full details of all staff
 - ii) Produce a list of salaries for all staff, showing only the staff number, the first name, the last name and salary details.
 - iii) List all Managers and Supervisors
 - iv) List the staff who works at branch B003
 - v) List all staff with salaries between 20000 and 30000
- (10 Marks)