



KENYA METHODIST UNIVERSITY

END OF 1ST TRIMESTER 2010 EXAMINATIONS

FACULTY : **COMPUTING AND INFORMATICS**
DEPARTMENT : **COMPUTER INFORMATION SYSTEMS**
UNIT CODE : **CISY 221**
UNIT TITLE : **DATABASE SYSTEMS**
TIME : **2 HOURS**

Instructions:

- Answer question 1 and any other 2 questions.

Question 1 (30 marks)

- a) Define the following terms;
- Database
 - Database system
 - Database management system (6 mks)
- b) State and briefly describe three languages used in a database management system. (6 mks)
- c) Distinguish between a table and a query, as used in relational data models. (2 mks)
- d) A book has a title, author, publisher, subject, year of publication and ISBN number.
- Give an SQL statement that can create a table for books. (3 mks)
 - Give an SQL statement that can be used to retrieve all books published before 2005, and whose subject is mathematics. (3 mks)
- e) State and briefly describe three disadvantages of the traditional file system. (6 mks)
- f) What is data normalization? What is the role of normalization in database design? (4 mks)

Question 2 (15 marks)

- a) With the help of a diagram, describe the three level architecture for database management systems. (8 mks)
- b) A student takes one or more units from their program of study. Each unit is taught by a lecturer, who belongs to a department. A unit can be taken by more than one student and a lecturer can teach more than one unit. Represent this situation using a Entity Relationship diagram. Giving at least one attribute per entity. (7 mks)

Question 3 (15 marks)

- a) Briefly describe;
 - i) Operational database
 - ii) Data mining
 - iii) Data warehousing (6 mks)
- b) A hospital drug dispensing record requires that for each patient, the pharmacy must record the following information.

Pharmacy Drug Dispensing Card						
Patient No:.....		Names:.....			Sex.....	
Date of Birth.....		Address:.....				
Ward No:.....		Ward Name:.....			Date.....	
Date	Drug Code	Drug Name	Quantity	Unit price	Unit price	amount

Perform data normalization for the card to 3NF. (9 mks)

Question 4 (15 marks)

- a) Briefly describe the following terms;
 - i) Primary key
 - ii) Secondary key
 - iii) Weak entity (6 mks)
- b) Consider the following employee table;

Employee No.	Names	Department	Salary	Date of Birth

- i) Give an appropriate SQL statement that can be used to generate this table. (5 mks)
- ii) Give an SQL statement that adds a sample record to this table. (4 mks)