



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

END OF SEMESTER EXAMS-APRIL 2014

(KISII L.C)

SCS 212;DATABASE SYSTEMS

BED(ECE) Y3 S1 (SCHOOL BASED)

INSTRUCTIONS

- 1. Answer question 1 (compulsory) and any other 2 Questions**
- 2. Candidates are advised not to write on the question paper**

TIME: 2 HOURS

QUESTION 1 (30marks)

a) Several problems can halt the normal operation of a database or affect the I/O to the disk, with relevant examples discuss four errors and failures incurred in database security and the effective recovery measures on those failures. **(7marks)**

b) Distinguish between the following terms

- i) Foreign key and primary key **(2marks)**
- ii) Data mining and data warehousing **(2marks)**
- iii) Schema and instance **(2marks)**
- iv) Data and information **(2marks)**
- v) Database and DBMS **(2marks)**

c) Describe the relational and network database models with relevant examples **(7marks)**

d) What are desirable properties of transactions? Discuss **(6marks)**

QUESTION 2 (20marks)

a) Describe the comparison between ORDBMS and OODBMS **(8marks)**

b) With syntax and examples illustrate how the following queries are used in SQL

- i) CREATE **(1mark)**
- ii) INSERT **(1mark)**
- iii) ALTER **(1mark)**
- iv) UPDATE **(1mark)**

- v) DELETE (1mark)
- vi) SELECT (1mark)
- vii) GRANT (1mark)

c) With examples discuss the group and mathematical functions (5marks)

QUESTION 3

a) Illustrate the advantages and disadvantages of DBMS in real life situation (7marks)

b) Explain 1NF, 2NF and 3NF with examples (7marks)

c) Illustrate the SQL languages with examples (6marks)

QUESTION 4 (20marks)

a) Database security concerns the use of a broad range of information security controls to protect databases against compromises of their integrity, base your argument on DBMS security and discuss any 4 information security controls appropriate to the database (10marks)

b) What are the weaknesses of relational DBMS ?Discuss (10marks)

QUESTION 5 (20marks)

a) Describe the client/server architecture with a neat diagram (10marks)

b) Considering a company database, write SQL statements for the following queries

i) Show how mathematical functions are used in SQL queries (2marks)

ii) List the names of female employees whose age is greater than 28

(2marks)

iii) Find the average salary of each department

(2marks)

iv) List the names of employees whose names start with K **(2marks)**

c) Distinguish between COMMIT and ROLLBACK **(2marks)**

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