



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND
TECHNOLOGY**

**SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS
UNIVERSITY EXAMINATIONS: 2013/2014
SCS 212: DATABASE SYSTEMS
MAIN REGULAR STUDENTS**

DATE: DECEMBER 2013

TIME: 2 HOURS

INSTRUCTIONS:

Answer ALL QUESTIONS IN SECTION A AND ANY TWO FROM SECTION B

Question one 30marks

- a) Define the term data integrity (2marks)
- b) Explain 4 type of data integrity (8marks)
- c) Explain three factors to consider when designing a database (2marks)
- d) Explain any four disadvantages of file processing system (8marks)

Question Two 20marks

- a) Explain the term fragmentation as used in database systems and why it's necessary (8marks)
- b) Define the following terms
 - i. Cardinality ratio
 - ii. Logical data independence
 - iii. Physical data independence
 - iv. Distributed database (8marks)
- c) Differentiate between a data and a database administrator (4marks)

Question three 20marks

- a) Explain the term database security (2marks)
- b) List six different types of security situations that could affect a database system (6marks)
- c) Explain any six controls that will enhance the security of a database system (12marks)

Question four 20marks

- a) Explain the following properties of transaction
 - i. Atomicity
 - ii. consistency
 - iii. Isolation
 - iv. Durability (8marks)
- b) Explain any six causes of database (6marks)
- c) Explain factors to consider when designing a database (6marks)

Question five 20marks

- a) Explain the following as used in database system
 - i. Foreign key
 - ii. Functional dependence
 - iii. Normalization (6marks)
- b) Explain four advantages of object oriented database (OODB) (8marks)
- c) Explain three security features of relational database management systems(6marks)