



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

**UNIVERSITY EXAMINATION 2012/2013**

**1<sup>ST</sup> YEAR 1<sup>ST</sup> SEMESTER EXAMINATION FOR THE DEGREE OF  
MASTERS IN INFORMATION SYSTEMS**

**KISUMU LEARNING CENTRE**

**COURSE CODE: IIS 5114**

**TITLE: ADVANCED DATABASE SYSTEMS**

**DATE: 19/4/2013**

**TIME: 9.00-12.00NOON**

**DURATION: 3 HOURS**

**INSTRUCTIONS**

- 1. This paper contains FIVE (5) questions**
- 2. Answer question 1 (Compulsory) and ANY other 2 Questions**
- 3. Write all answers in the booklet provided**

### **Question 1: 20marks**

- a. Explain distribute Databases 2marks
- b. Discuss the following two approaches used in storing a relation data in a distributed database system
  - i. Replication 3marks
  - ii. Fragmentation 3marks
- c) Explain data warehouse techniques 5marks
- d) Shrinking phase and growing phase in 2 phase protocol are some of the ways of handling deadlocks explain 4marks
- e) Explain three reasons why object oriented databases are popular 3marks

### **Question 2: 20marks**

- a) Explain the importance of data mining over the traditional approaches 10marks
- b) Discuss any five Requirements for Web-DBMS Integration 5marks
- c) Write a short program that demonstrates the use of key word 'GROUP BY' in SQL (Sequential Query Language) 2marks
- d) Explain the Purpose of Database Recovery 3marks

### **Question3:20marks**

- a) Explain different types of Failure in database management systems 8marks
- b) Describe the following database structures used to access to information stored in databases
  - i. Network Structured 4marks
  - ii. Hierarchical Modeling 4marks
- c) Explain the need of Database Concurrency Control 4marks

### **Question4:20marks**

- a) Explain rules that every database transaction must obey in order to efficient and effective transaction in the database (ACID). 8marks
- c) Describe the following Categories of Data Models 4marks

i. Conceptual data models

ii) Physical data models

b) Explain XML Document Type Definition 4marks

c) Explain how flow of control is a measure for ensuring Database security and integrity 4marks

**Question5:20marks**

a) Explain reasons for data recovery in databases management systems 8marks

b) Explain the role of the following in Two-Phase Locking Techniques 4marks

i) Lock manager.

ii) Lock table.

c) Using a syntax explain how view is used to create database security 4marks

d) Explain First, Second and third normal forms used in setting database integrity 4marks

