

**W1-2-60-1-6**

## JOMO KENYATTA UNIVERSITY

**OF AGRICULTURE AND TECHNOLOGY**

# University Examinations 2016/2017

**YEAR FOUR SEMESTER TWO EXAMINATIONS FOR THE DIPLOMA IN INFORMATION TECHNOLOGY**

**DIT 0408: DATABASE MANAGEMENT SYSTEMS**

**DATE: APRIL 2017 TIME: 1.5 HOURS**

**INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS**

**QUESTION ONE (30 MARKS)**

1) Define what you understand by the following terms (4 marks)

i) Tuple

ii) Domain

iii) Primary key

iv) Relationship

2) Briefly describe the various types of database systems (6 marks)

3) List and briefly describe advantages and disadvantages of database approach to database systems (3 marks)

4) Some computers installations particularly the larger, more sophisticated ones are using databases in which to store the original data (4 marks)

a) Differentiate between a database and database management system

5) Outline main controls that an organization can use to counter threats to its database (6 marks)

6) Give reasons why there is a need for database security (2 marks)

7) Discuss the various types of relationship cardinality (3 marks)

8) Define the following terms (2 marks)

i) data integrity

ii) systems integrity

**QUESTION TWO (20 MARKS)**

a) Briefly describe normalization (2 marks)

b) Outline main controls than an organization can use to counter threats to its database (6 marks)

c) Give reasons why there is need for database security (6 marks)

d) Taking two transactions T1and T2, illustrate the following three common concurrent transaction problems (6 marks)

i) Lost update problem

ii) Uncommitted dependency problem

iii) Inconsistency analysis problem

**QUESTION THREE (20 MARKS)**

a) Define the following terms as they relate to relational database

(6 marks)

i) Conceptual model

ii) Foreign key

iii) Scheme

iv) Entity instance

b) What is a transaction? Explain the Acid properties of a transaction

(10 marks)

c) Outline four advantages of object technology (4 marks)

**QUESTION FOUR (20 MARKS)**

a) Define distributed database systems what is distributed in this case

(2 marks)

b) Discuss eight of the dates 12 rules of distributed databases (12 marks)

c) Give a brief discussion of integrity constraints (6 marks)

**QUESTION FIVE (20 MARKS)**

a) What is database model? Explain the types of data models (8 marks)

b) Consider the entity relationship student course undertaken by many students generate a sample tabular representation of the above assuming key attributes are course code and stud-no respectively

(12 marks)