MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

FIRST YEAR **SECOND** SEMESTER EXAMINATION FOR CERTIFICATE IN INFORMATION TECHNOLOGY

SIT 007– DATABASE SYSTEMS

DURATION: 2 HOURS

DATE: 18/4/2019

TIME: 9-11 A.M.

Instructions to candidates:

1. Answer question One and Any Other Two questions.
2. Mobile phones are not allowed in the examination room.
3. You are not allowed to write on this examination question paper.

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION

QUESTION ONE (30 MARKS)

a) Define the following terms in relation to databases   (4 marks)

     i.   Primary Key

     ii.   Tuple

     iii.   Relation

     iv.   Database systems

b) Ms Access is an example of a relational DBMS. Explain any three data types supported by this software.   (6 marks)

c) Outline four threats to data stored in a database management systems.   (2 marks)

d) Explain the difference between logical database schemes and physical database schema.

(4 marks)

e) Steward works as a database administrator of Ken blest Limited. Describe three roles of a data base administrator.   (6 marks)

f) Using a relevant example in each case, distinguish between **Composite** and **derived** attributes.   (4 marks)

g) Explain the three types of anomalies in database normalization.   (4 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO   (20 MARKS)

a) Explain the difference between 2NF and 3NF in relation to database normalization.

(4 marks)

b) The table below shows some information contained in a database table.

Vol no.	Name	Subject
101	John	OS,CN
103	Jeremy	Java
102	Jacob	C,C++

     i.   Normalize the above table upto 2NF   (8 marks)

c) Distinguish between a database management system and a traditional File system.

(4 marks)

d) Describe any two properties of a primary key.   (4 marks)

QUESTION THREE (20 MARKS)

a) Outline four uses of database systems in transport industry. (4 marks)

b) Distinguish between weak entities and strong entities. Give one example for each. (4 marks)

c) A database has been scheduled to run an automatic update on daily bases. Explain three types of integrity constrains that must be checked during update operation. (6 marks)

d) Discuss three trends in database technology. (6 marks)

QUESTION FOUR (20 MARKS)

a) List any four types of relationships in relation to entity relationship diagram. (4 marks)

b) The following are relations schemes for a bus company. Use them to answer the questions that Follows

Bus (Name, Start Dest)

Ticket (PNRND, start, Dest, Fare)

Passenger (Name, Address, PNRNO)

Write an SQL statement for each of the following

   i. List the names of passengers who are traveling from the start to the destination station of the Bus. (2 marks)

   ii. List the names of passengers who have a return journey ticket. (2 marks)

   iii. Insert a new Bus from Nairobi to Mombasa. (2 marks)

c) Explain the importance of data backup in organization. (2 marks)

d) Describe four advantages of database management system. (8 marks)