MURANG'A UNIVERSITY OF TECHNOLOGY

SCHOOL OF COMPUTING AND INFORMATION TECHNOLOGY

DEPARTMENT OF INFORMATION TECHNOLOGY

UNIVERSITY ORDINARY EXAMINATION

2018/2019 ACADEMIC YEAR

SECOND YEAR **FIRST** SEMESTER EXAMINATION FOR BCS, BBIT, BIT, BSE, BDIT, BASP, BASC, BED (SCIENCE)

SIT 200 – DATABASE MANAGEMENT SYSTEMS

DURATION: 2 HOURS

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 as used in database management systems and gice example
(4 marks)

      i.   Tuple
     ii. Attribute
   iii. Entity
   iv. database

(b) Apart from primary key discuss three other keys in a database   (6 marks)

(c) Elucidate three types of relationships in a relational database model   (6 marks)

(d) Highlight four objects present in a database   (4 marks)

(e) Define the term constraint and outline three main intergrity constaints in a database (4marks)

(f) Explain the ACID properties in a database   (4 marks)

SECTION B – ANSWER ANY TWO QUESTIONS IN THIS SECTION

QUESTION TWO (20 MARKS)

(a) Outline three roles performed by a database administrator in an organization   (3 marks)

(b) Explain three reasons why database systems would be preffered over storing data in flat file system.   (6 marks)

(c) Read the following and answer the questions that follows.

Players play for teams located in various wards which are small administrative units in the country. Each ward is identified by the ward name and unique ward code. Some wards have no teams. Each team is identified by a team name and unique team code. A player plays for only one team. Each player is identified by an identification number, atleast one telephone contact, and a player name which consist of first name and surname. A player can be assigned to play in different positions such as a stricker, center – forward, goal keeper and winger. Each player position is identified by the position name and a unique code for each position.

To do:

Represent the information using an entity relationship diagram .   (11 marks)

QUESTION THREE (20 MARKS)

a) Explain three attributes of a primary key in a database.   (6 marks)

b) The following is a table showing the selection of games by students in a University. Use it to answer the questions that follow.

ADMISSION NUMBER	STUDENT NAME	GAME
1011	Anette	Football Basketball
1012	Mobi	Handball
1013	James	
1014		Netball

Normalize the table to 1st Normal form.   (4marks)

c) Using a well labaled diagram, discuss the various states of a transaction.   (10 marks)

QUESTION FOUR (20 MARKS)

(a) Considering the following tables, if they are combined what would be their results for a natural join.   (4 marks)

D	
Num	Cube
2	8
3	27

D	
Num	Cube
2	4
3	9

(b) Considering the following tables, if they are combined what would be their results for a left outer join.   (4 marks)

LEFT	
A	B
100	Database
101	Mechanics
102	Electronics

RIGHT	
A	B
100	Alex
102	Maya
104	Mira

(c) Write an SQL command that creates a database by the name VIDEOMIS   (2 marks)

(d) Write an SQL command that creates the following table within the VIDEOMIS database. The table name should be ' movies'   (10 marks)

Attribute	Description
Title	Should not contain any null values Should have at most 50 characters Should be the primary key
Category	Should not contain any null value Should have at mos 30 characters
Director	Should not contain any null value Should have at most 60 characters
Release Year	Should have the correct variable type