**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATIONS: 2020/2021**

**EXAMINATION FOR BACHELOR OF EDUCATION**

**INS211: DATABASE CONSTRUCTION**

***SECTION A: COMPULSORY QUESTION {30 MARKS}***

***QUESTION 1***

1. Define the following terms as used in database systems: (5 Marks)
	1. Data
	2. Record
	3. Relation
	4. Database
	5. DBMS
2. Distinguish between the following roles in DBMS; Data Administrator and Database Administrator. **(2 marks)**
3. Discuss the term constraints as applied in databases **(2 marks)**
4. Outline any four application areas where databases are highly used. **(4 marks)**
5. Outline any **three** limitations of using the file system approach in data storage and management. (6 marks)
6. Explain the following terms as used in SQL
7. Union
8. Not null

 **(4 marks)**

1. Giving an example in each case, discuss the following.
2. Relationship
3. Degree of a Relationship
4. Cardinality: **(6 marks)**

***SECTION B: ANSWER ANY TWO QUESTIONS {20 MARKS EACH}.***

***QUESTION 2***

1. Briefly describe Hierarchical, network and relational database models. (6 Marks)
2. Discuss any four shortcomings of the traditional data storage before introduction of computers. **(4 marks)**
3. What are the different database languages explain with example. **(6 marks)**
4. Elucidate the ACID property of database management systems (4 Marks)

***QUESTION 3***

Consider the case study of an insurance company. A basic part of the database of the insurance

company is likely to be organised in the following fashion:

Policies(policyNo, holderNo, startDate, premium, renewalDate, policyType)

PolicyHolders(holderNo, holderName, holderAddress, holderTelno)

1. Create two SQL data structures (tables) for the above part of the insurance company database. **(8 Marks)**
2. Write an SQL statement to add a record in the PolicyHoldes Table. **(3 Marks)**
3. Write an SQL statement to change the address of a particular Policy holder to – P.O. Box 283712, Nairobi. **(3 Marks)**
4. Write an SQL statement to count the Type of Policies that are there. **(3 Marks)**
5. Write an SQL statement to remove Policies the table from the database. **(3 Marks)**

***QUESTION 4***

1. Explain how entity integrity is implemented in a relational DBMS **(3 Marks)**
2. Explain how referential integrity is implemented in a relational DBMS **(3 Marks)**
3. In terms of the DBMS interface (sub-language), expand the following terms and state what they are used for:

i) DDL **(3 Marks)**

iii) DCL **(3 Marks)**

iv) DML **(3 Marks)**

DML – data manipulation language, used to implement the CRUD

1. Briefly describe the difference between a database and a database management system.

**(5 Marks)**

***QUESTION 5***

1. Define the term normalisation. Explain why normalisation is performed during the design of a relational database. **(6 Marks)**
2. Describe the benefits of relational data analysis. **(3 Marks)**
3. Removing repeating groups from data items converts to First Normal Form. Describe the process of converting data already in First Normal Form to Second Normal Form. **(4 Marks)**
4. Explain how entity relation diagrams can assist in the development of a database system. (4 Marks)
5. Using a diagram, explain the difference between An optional relationship and a recursive relationship. **(4 Marks)**