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**GARISSA UNIVERSITY**

**UNIVERSITY EXAMINATION 2020/201 ACADEMIC YEAR TWO**

**SECOND SEMESTER EXAMINATION**

**SCHOOL OF SCHOOL OF PURE AND APPLIED SCIENCES**

**DIPLOMA IN INFORMATION TECHNOLOGY**

**COURSE CODE: DIT 020**

**COURSE TITLE: RELATIONAL DATABASE MANAGEMENT SYSTEM**

**EXAMINATION DURATION: 2 HOURS**

**DATE: 18/08/2021 TIME: 12.00-2.00 PM**

**INSTRUCTION TO CANDIDATES**

* **The examination has FIVE (5) questions**
* **Question ONE (1) is COMPULSORY**
* **Choose any other TWO (2) questions from the remaining FOUR (4) questions**
* **Use sketch diagrams to illustrate your answer whenever necessary**
* **Do not carry mobile phones or any other written materials in examination room**
* **Do not write on this paper**

**This paper consists of THREE (3) printed pages *please turn over***

**QUESTION ONE (COMPULSORY)**

1. Explain in brief the following; (4 Marks)
2. Primary key
3. Foreign key
4. Explain the following data types as use in RDBMS. (6 Marks)
5. Varchar
6. Number
7. Date/time
8. Describe the benefits of database in business. (4 Marks)
9. Distinguish the following; (4 Marks)
10. DQL
11. DDL
12. Explain Alter Table command with syntax and example. (7 Marks)
13. Discuss five major parts of a database system. (5 Marks)

**QUESTION 2**

1. Define the term normalization. (2 Marks)
2. Explain **four** different types of normal forms. (8 Marks)
3. List **five** different types of operators in SQL. (5 Marks)
4. Discuss **five** types of database systems. (5 Marks)

**QUESTION 3**

1. Describe the **two** components of a relation in a relational database. (4 Marks)
2. Define a relational database. (2 marks)
3. List **two** reasons why null values may be introduced into the database. (2 Marks)
4. Distinguish between DBS and RDBMS as you give an example in each. (7 Marks)
5. Highlight **five** importance of a database system to an organization. (5 Marks)

**QUESTION 4**

1. Consider the entity EMPLOYEE with following attributes: Emp-Id, Employee-Name, Address, Phone\_ No, Designation and Salary. Using the EMPLOYEE entity, write a code to create the database and table. (10 Marks)
2. Write a query that will display the table. (2 Marks)
3. What command will use to insert data into the table you have created on (a) above. (3 Marks)
4. List **five** characteristics of relational data structure. (5 Marks)

**QUESTION 5**

1. Consider the following Relational database. e~nployees (eno, ename, address, basic salary) projects (pno, pname, nos-of-staff-alotted) . Two queries regarding the data in the above database have been formulated in SQL. Describe the queries in English sentences. (14 Marks)
2. SELECT ename

FROM employees

 WHERE eno IN ( SELECT eno

FROM workin

GROUP BY eno

HAVING COUNT (+) =

 (SELECT COUNT (\*) FROM projects));

1. SELECT pname

FROM projects

WHERE pno IN ( SELECT pno

FROM projects

MINUS

(SELECT DISTINCT pno

FROM workin

GROUP BY eno));

1. Explain **three** types of relationships. (6 Marks)