GARISSA UNIVERSITY

UNIVERSITY EXAMINATION 2017/2018 ACADEMIC YEAR TWO THIRD SEMESTER EXAMINATION

SCHOOL OF BIOLOGICAL AND PHYSICAL SCIENCE

FOR THE DIPLOMA IN INFORMATION TECHNOLOGY

COURSE CODE: DIT 020

COURSE TITLE: RELATIONAL DATABASE MANAGEMENT SYSTEM

EXAMINATION DURATION: 2 HOURS

DATE: 06/08/18   **TIME:2.00-4.00 PM**

INSTRUCTION TO CANDIDATES

- **The examination has SIX (6) questions**

- **Question ONE (1) is COMPULSORY**

- **Choose any other THREE (3) questions from the remaining FIVE (5) 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 FOUR (4) printed pages   *please turn over*

QUESTION ONE (COMPULSORY)

a) Define the following terms.

    i.   database

    ii.   database management system

    iii. Foreign key

    iv. Attributes

    v.   Relationship   **[10 Marks]**

b) Distinguish between logical and physical data independence.   **[4 Marks]**

c) Explain the purposes of the three DBMS languages   **[6 Marks]**

d) You are instructed to develop a database system to store the information of patients visiting the given hospital.

    i.   Name FOUR(4) attributes/fields needed for the system   **[4 Marks]**

    ii.   Identify the primary key which can be used to differentiate between the patients. **[1 Mark]**

QUESTION TWO.

a) Consider the table structure below.

TABLE STUDENT:

STUDNO	LNAME	FNAME	INITIAL	DOB	UNIT CODE
101	Mwangi	John	N	11/08/80	2100
102	Kimaiyo	Peter	M	12/12/84	2200
103	Chebet	Martha	K	02/04/83	2305
104	Oduor	Louis	M	11/06/80	2200
105	Njuguna	Frank	G	15/09/85	2100

Using SQL,

    i.   Extract information about student who are born after 01/01/1982   **[3 Marks]**

    ii.   Enter the Last record into the table.   **[3 Marks]**

iii.   Return the names of students taking unit code 9945   **[2 Marks]**

iv.   Remove the table STUDENT from the database   **[2 Marks]**

v.   Order the table by unit code in ascending   **[2 Marks]**

vi.   List the FNAME and LNAME of all the students   **[3 Marks]**

QUESTION THREE.

a) Explain FIVE advantages of database management system   **[10 Marks]**

b) Explain the three database languages   **[5 Marks]**

QUESTION FOUR

a) "The File-based Approach had several challenges" explain the statement.   **[5 Marks]**

b) Using the narrative below answer the question that follows.

A Country Bus Company owns a number of busses. Each bus is allocated to a particular route, although some routes may have several busses. Each route passes through a number of towns. One or more drivers are allocated to each stage of a route, which corresponds to a journey through some or all of the towns on a route. Some of the towns have a garage where busses are kept and each of the busses are identified by the registration number and can carry different numbers of passengers, since the vehicles vary in size and can be single or double-decked. Each route is identified by a route number and information is available on the average number of passengers carried per day for each route. Drivers have an employee number, name, address, and sometimes a telephone number.

    i.   Required

        a) Construct Entity Relationship Diagram(ERD)   **[10 Marks]**

QUESTION FIVE

a) Explain the business conditions that enable a business database to be effective.

    [8 Marks]

b) What do you understand by E-R Modeling?   **[2 Marks]**

Hence explain briefly terms:

      i.   Cardinality

      ii.   Composite attribute

      iii.   Weak attribute   **[5 Marks]**

QUESTION SIX

    a) With the aid of well labeled diagrams explain the three types of relationships.   **[6 Marks]**

    b)   Distinguish between generalization and specialization.   **[4 Marks]**

    c) Explain the roles of a database administrator   **[5 Marks]**