JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF BUSINESS INFORMATION

SYSTEMS 4th YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIS 3411

COURSE TITLE: DATABASE APPLICATION

EXAM VENUE: **STREAM: BIS**

DATE: DECEMBER 2018   **EXAM SESSION:**

TIME: 2.00 HOURS

INSTRUCTIONS
Answer question **one** and any other **two** questions

Question 1

a) Briefly explain any four advantages and four disadvantages of the database approach.
[8 Marks]

b) Name and explain any three components of the database environment.   [6 Marks]

c) For each of the following cases connect the entities together with relationships. Show optionality and describe the relationship against the lines.

  i) A LECTURER may be a subject leader for one or more SUBJECTS and a SUBJECT must have only one LECTURER as subject. A COURSE must contain one or more SUBJECTS and a SUBJECT must belong to only one COURSE.   [5 Marks]

  ii) A COURSE must have only one LECTURER as a course leader and a LECTURER may lead only one COURSE. A STUDENT must have personal tutor and a LECTURER may be personal tutor to one or more STUDENTS.
[5 Marks]

d)
  i) Define the term normalization   [2 Marks]

ii) Explain the stage to stage process in the normalization up to third normal
Form. [4 Marks]

Question Two
Normalize the invoice below to the following Normal Forms.
   a) Un-normalized data [5 Marks]
   b) First Normal Form [5 Marks]
   c) Second Normal Form [5Marks]
   d) Third Normal Form [5 Marks]

Question Three

(a) Briefly explain the term SQL [2 Marks]

(b) Given the following data for customers of KANGO furniture dealers, write SQL statements
to perform the following: [10 Marks]

CUSTOMER

Cust. ID	Cust - name	Cust -address	Cust -city
001	Heritage	23436	Nairobi
002	Impressions	58382	Kisumu
003	Victoria	1236	Mombasa
004	Supreme	8769	Nairobi
005	Home	34564	Nakuru
006	Eastern	68779	Mombasa
007	Contemporary	12234	Nairobi
008	Value	2345	Thika
009	Period	4567	Eldoret

   i. Create the customer table

ii. List Customers from Nairobi or Thika city

iii. Delete customers from Kisumu city

iv. Remove the table for the database

v. Display the customer table in ascending order based on the customer's names.

c) Briefly explain the function of the following data definition commands:
    i)   Drop Table
    ii) Alter Table
    iii) Create Index
    iv) Create View   [8 Marks]

Question Four

a) Explain the following stages in the life cycle of a typical database system:

    i)   Database Planning

    ii) Database Analysis

    iii) Database Design

    iv) Database Implementation

    v)   Creation and Maintenance

    vi) Growth and Change

                                            [12 Marks]

b) Outline any four functions of a data administrator.   [4 Marks]

c) Briefly discuss the use of the following data administration tools.

    i)   Repositories   [2 Marks]

    ii) CASE tools   [2 Marks]

Question Five

a. Explain the term concurrency control.   [2 Marks]

b. Distinguish between the two types of locks that can be implemented by a database
    administrator.
                                                                        [4 Marks]

c. Explain the following terms as used in database security.

      i.   Authorization rules

     ii.   Encryption

    iii.   Authentication schemes

                                                      [6 Marks]

d.   Briefly explain the following facilities for recovery of a database provided by the DBMS.

      i.   Backup facilities

     ii.   Journalizing facilities

    iii.   Checkpoint facility

    iv.   Recovery manager   **[8 Marks]**