KABARAK   **UNIVERSITY**

EXAMINATIONS

2009/2010 ACADEMIC YEAR

FOR THE DEGREE OF BACHELOR OF COMPUTER SCIENCE

COURSE CODE: **COMP 314**

COURSE TITLE: **DATABASE MANAGEMENT SYSTEMS**

STREAM: **Y3S1**

DAY: **FRIDAY**

TIME: **2.00 – 4.00 P.M.**

DATE: **04/12/2009**

INSTRUCTIONS:

Answer Question **1** and **two other** Questions

PLEASE TURN OVER

SECTION A COMPULSORY (30MARKS)

QUESTION-1 (30 MARKS)

a) Write a short note on each of the following levels of data abstraction:

      (i)   Physical level   **(2mks)**
      (ii)   Logical level   **(2mks)**
      (iii)   View level   **(2mks)**

b) Briefly describe the components of a DBMS?   **(6mks)**

c) List six threats to database security?   **(3mks)**

d) Explain three areas of application of databases?   **(6mks)**

e) Mention two significance of normalizing relations.   **(1mks)**

f) The following shows the structure of a table for storing the details of employees in Bamburi cement company.

    Employee (empName, empDept, empTitle, empAge)- for a unique employee's name, department, job title, and age.

    Required: Write SQL statements to;
1. Insert a sample record into the table.
2. Modify the table to add a mandatory field name empSNo ie employee serial number that serves as a primary key and is generated automatically and increments by 1.
3. List names of all employees whose age above 35 but less than 55 years.
4. Change the relation name from **employee** to **emp**   **(8mks)**

QUESTION - 2 (20 MARKS)

a)   Consider the student information table below.

NOTE: Table_name is student

STUDENT INFORMATION			
REGNO	**SNAME**	**COURSE**	**DEPT**
cs/1001/01/06	Oluoch	Computer science	SSBT
cs/1002/01/06	mwangi		SSBL
ed/3020/05/06	Wanyama	Education	Theology

Required:

   (i)   Write an SQL code that will enable you to insert a third row with the
          following values:
          BMIT/2210/06/06, Nyasuguta, BMIT, Commerce   **(2mks)**
   (ii)   Write code to update the missing course name in the student's record whose
          register number is ed/3020/05/06.   **(3mks)**
   (iii) Write SQL code to add one more fieldname called DoB?   **(2mks)**
   (iv)   Write code that can change the order of the fieldnames as follows:
          REGNO, SNAME, DoB, COURSE, DEPT   **(3mks)**

b)   Discuss the functions and responsibilities of DBA?   **(10mks)**

QUESTION - 3 (20 MARKS)

a)   Explain the following data models:
   (i)   Relational model   **(3mks)**
   (ii)   E-R model   **(3mks)**

b)   Describe the steps involved in database design?   **(6mks)**

c)   Explain four phases involved in decision making?   **(8mks)**

QUESTION- 4 (20 MARKS)

a) Using the following table explain the terms given below as used to describe the hierarchy of database giving the relevant examples from the table where necessary:

LIBRARY INFORMATION

BOOKNAME	BOOKID	AUTHOR	EDTION
Java programming	KABU120	Robert Schildt	5th
Financial Accounting	KABU405	Gupta	3rd
Web Design	KABU411	Joel Skheler	6th

i.)	Domain	**(2mks)**
ii.)	Tuple	**(2mks)**
iii.)	Attribute	**(2mks)**
iv.)	Table	**(1mks)**

b) Define database and discuss any three advantages of Database Management Systems
(7mks)

c) Explain two types of data-manipulation language? **(3mks)**

d) Discuss the factors to consider when selecting a database? **(3mks)**

QUESTION - 5 (20 MARKS)

(a) Discuss the following types of normal forms:

(i)	First normal form	**(3mks)**
(ii)	Second normal form	**(3mks)**
(iii)	Third normal form	**(4mks)**

(b) Explain functional dependencies and its significance? **(3mks)**

(c) Explain the following types of keys as used in database design:

(i)	Primary key	**(2mks)**
(ii)	Foreign key	**(3mks)**
(iii)	Candidate key	**(2mks)**