

**KABARAK**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**2009/20010 ACADEMIC YEAR**

**FOR THE DEGREE OF BACHELOR OF COMPUTER  
SCIENCE**

**COURSE CODE: COMP 314**

**COURSE TITLE: DATABASE MANAGEMENT SYSTEMS**

**STREAM: Y3S1**

**DAY: TUESDAY**

**TIME: 9.00 – 11.00 A.M.**

**DATE: 10/08/2010**

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**INSTRUCTIONS:**

**Answer question ONE and any other TWO questions**

**PLEASE TURNOVER**

## **SECTION A: COMPULSORY (30MARKS)**

### **QUESTION-1 (30 MARKS)**

- a) Discuss the following:- **(3 marks)**
- i) Data independence
  - ii) Normalization
  - iii) Server database
- b) Explain the following terms:-
- i). Database
  - ii) Database management system
  - iii) Attribute
  - iv) Weak entity **(4 marks)**
- c) Define data warehousing .Discuss its benefits **(5 marks)**
- d) List and briefly explain 3 types of DBMS models **(3 marks)**
- e) Give examples of database threats and the possible impacts they may have on the database. **(4 marks)**
- f) Explain why a Database management system would be a better system than a file based system. **(4 marks)**
- g). A school system has the following fields in the student's database:-  
STUDENT (Red\_No, Stu\_name, Gender, D\_o\_B, Course\_code)

Required:

- i). Write a SQL statement to create a table called student with all the above details and making the Reg. no to be the primary key **(2 marks)**
- ii). Distinguish between data security and data integrity **(2marks)**
- iii). A school system has the following schema

```
STUDENT(regNo,stname,gender,D-O_B,course_code)
COURSE(course_code,course_title,Graduation_level)
MODULE(module_code,module_title,credit_factor)
MODULE_EXAM(regNo,course_code,grade,remark_code)
REMARK(remark_code,remark)
```

Draw an E-R diagram to represent the above schema. **(3 marks)**

### **QUESTION TWO: (20 marks)**

- a) Distinguish between data administration and database administration. **(2marks)**
- b) A company that supplies parts keeps in their database the following fields as contained in three database tables:

<i>Field</i>	<i>Data type</i>	<i>length</i>	<i>Null?</i>	<i>Description</i>
<b>SUPPLIER</b>				
SuppCode	varchar	5	Not null	supplier code
SuppName	varchar	20	Not null	supplier names
Status	int		Not null	supplier's state
City	varchar	15	Not null	city supplied from
<b>SUPPLIER_PART</b>				
SuppCode	varchar	5	Not null	supplier code
PartNo.	varchar	6	Not null	part number
Quantity	int		Not null	part amount supplied
<b>PART</b>				
PartNo.	varchar	6	Not null	part number
PartName	varchar	20	Not null	part name
Colour	varchar	10	Not null	part colour
Weight	smallint		Not null	part weight
City	varchar	15	Not null	city supplied to

Required:-

- i) Create the above three tables . **(6 marks)**
- ii) Write a SQL statement that adds a new field *Discount* to SUPPLIER table **(2marks)**
- iii) Write a SQL statement that returns supplier code and status for supplies from a city called Mombasa in ascending order of status **(3 marks)**
- iii) Write a SQL statement that deletes the entire **PART** table from the database. **(2 marks)**
- iv) Write a SQL statement returns each part supplied, the part number where color is Blue. **(2 marks)**
- c) Discuss the factors to consider when selecting a database? **(3marks)**

**QUESTION THREE: (20 MARKS)**

- a) Differentiate between primary key and a candidate key **(2 marks)**
- b) Explain the major duties of a database Administrator of KABARAK UNIVERSITY. **(4 marks)**
- c) Describe the components of a DBMS? **(5 marks)**
- d) Differentiate between decentralized database and distributed database systems. **(3marks)**
- e) Discuss the Boyce-Codd Normal Form (BCNF) with the help of an example. **(6marks)**

**QUESTION FOUR-20 marks**

a) A table for storing the employees records in database has the following data:-

STAFF_NO	F_NAME	L_NAME	POSITION	GENDER	D_O_B
KABU12	KENT	SANTOS	DRIVER	MALE	13-06-1982
KABU23	ASSUMPTA	ATIENO	SUPERVISOR	FEMALE	09-04-1986
KABU14	DORRINE	CHEBET	MANAGER	FEMALE	12-02-1989
KABU67	KIRUI	CHELSEA	CLEANER	MALE	18-08-2001
KABU78	GITONGA	FABREGAS	DIRECTOR	MALE	12-06-1985
KABU56	FAITH	NZINZA	MARKETER	FEMALE	01-7-1982
KABU34	SIGAR	OTLA	DRIVER	MALE	12-09-1989

**Required:**

- i) Which of the following fields on the table is mostly to be the primary key and why? **(2 marks)**
- ii) Write a SQL statement that will create the above table called EMP\_Dbase **(3 marks)**
- iii) Write a SQL statement that will produce from the table a list of all staff showing the staff number, Last name, and position only. **(2 marks)**
- iv) Write a sql statement to find the details of all the drivers who are male **(2 mark)**
- v) Delete all the details of staff whose is identity is KABU67 and KABU KABU56. **(2 marks)**
- vi) Change the first name to Leah where Staff\_No is KABU23. **(2 marks)**

b) Discuss the following types of normal forms:

- (i) First normal form **(2marks)**
- (ii) Second normal form **(2marks)**
- (iii) Third normal form **(3marks)**