

Uganda Martyrs University
Faculty of Science
Bsc IT/ Gen III and Diploma Computer Science.

Data base Planning Design and Management II
Final Exam

Time: 2 Hours.

20th December 2012

Instructions: Answer all Questions Maximum marks 65

Question one.

Uganda Clays Limited has acquired a database application for its human resource department to improve records management. The following table 'Employee' is used by the application to store employee data.

Id	Name	Rank	Salary
006	Andrew	Junior	400000
004	Aisha	Senior	1000000
20	Fred	Associate	800000
33	Claire	Junior	300000

- a) Write an SQL command that one can use to come up with the above relation where Id uniquely identifies every tuple in the relation and it is a must for an employee to provide his or her name, while one can submit data without providing a value for the rank. (2Mrks).
- b) Write an SQL statement that displays all details of all the junior employees whose salary is greater than 350000. (2 Marks)
- c) What SQL command would change Aisha's salary from 1,000,000 to 300000.(2 Mrks)
- d) What SQL command would display the average salary of the employees.(2 Mrks)
- e)What SQL command would erase all the content from the table without losing the table its self. (2 Mrks)
- f) Explain the output of the following SQL statement
Select Name as Employee_name from Employee where name like 'F%'; (2 Mrks)

Question Two

An IT trainee at Kisubi Brothers University College, was tasked to develop a simple database.

She created two tables student and result in her database. One of the tables she created is seen below.

Study the table and answer the questions that follow.

Sno	Name	Gender	Name	Course
001	Mike	Male	Mike	BIT
022	Lydia	Female	Lydia	FM
045	Joseph	Male	Joseph	BSE
001	Mike	Male	Mike	BIT

- State any three properties of a relation which were violated in the above table.(3Mks)
- State any other two properties of a relation (2 Mrks)
- What is the degree and cardinality of the above relation (2Mrks)
- The college administration is very much excited about the database and database management systems. Explain to the college administration the challenges associated with databases and database management systems. (4Mrks)
- Explain the components of the database environment. (5Mrks)

Question Three

Since its establishment in 1993 with 84 students and two faculties, Uganda Martyrs University has grown to over 8 faculties and institutes with more than 4000 students in both full time and part time programmes.

Over the years, the University has acquired a number of centers where teaching and learning takes place. The University Wishes to have a Database Application for processing students results and for generating various reports needed by different stake holders such as the Faculty Board, University Senate, Parents and students.

You are therefore required to assist in the physical design of the database for the named application by way of formulating SQL statements to perform the following tasks.

- Create a data base with a suitable database name for the university. (2 Mrks)
- Create the following tables with appropriate data types. (3Mrks)
 - University centers with the following details: Centerno, Name, Address.
 - University Students with the following details : Sno, Name, Course, Age, Centerno.
 - Students Results with the following: Sno, Operating_Systems, Java2, English, DBMS2.
- Display the structures of all the above tables. (2Mrks)
- Add a new column Person_in_charge to the table University Centers.(2Mrks)
- Change the name of the table University Students to Students. (2Mrks)
- Add a new column Phone between Age and Centerno in the students table.(2Mrks)
- Change the column Address in the University centers table to Physical_Address.(2Mrks)
- Add a primary key to each of the above tables where possible.(2Mrks)

University centers

<i>Centerno</i>	<i>Name</i>	<i>Physical_Address</i>	<i>Person_in_charge</i>
03	Rubaga	P.O . Box 432 Kampala	Josephine
02	Mbale	P.O.Box 23 Mbale	Moses
01	Masaka	P.O.Box 234 Masaka	Irene

Students

<i>Sno</i>	<i>Name</i>	<i>Course</i>	<i>Age</i>	<i>Phone</i>	<i>Centerno</i>
SO1	James	GEN	22	07854	02
SO2	Maria	CS	22	07524	03
SO3	Brenda	IT	23	07014	02
SO4	Joan	ECON	19	07724	01
SO5	Moses	GEN	17	07533	02
SO6	John	IT	20	07833	03
SO7	Dismas	ECON	23	07114	01
SO8	Paul	IT	19	07899	03

Students Results

<i>Sno</i>	<i>Operating_systems</i>	<i>Java2</i>	<i>English</i>	<i>DBMS2</i>
SO1	59	77	60	71
SO3	80	55	48	77
SO4	70	55	30	64
SO6	66	77	76	80
SO7	44	45	55	60
SO8	90	50	88	50

Given that the above tables were populated as shown above, Write the SQL statements to accomplish the following tasks.

1. Display the contents of each table.(2Mrks)
2. Display Names of students together with their Student Numbers and their courses(2Mrks)
3. Display Names of IT and Gen students. (2Mrks)
4. Display the highest mark in English.(2Mrks)
5. Change the age of Maria to 33 (2Mks)
6. Display the results of ECON students. (2 Mks).
7. Display Names of students who missed Exams. (2Mrks)
8. Display Names of centers together with total number of students in each center.
(2Mrks)
9. Display Names of all students who are above the average age. (2Mks)
10. Display a Students Report containing; Student Number, Name, Course, center Name, Operating systems, Java2, English, Dbms2, Total and Average. (2Mrks)