FEDERAL UNIVERSITY OF TECHNOLOGY MINNA
SCHOOL OF INFORMATION & COMMUNICATION TECHNOLOGY
DEPARTMENT OF INFORMATION & MEDIA TECHNOLOGY
SECOND SEMESTER EXAMINATION 2012/2013 SESSION
CIT 324: SRUCTURED QUERY LANGUAGE (SQL)

INSTRUCTION: ANSWER QUESTION NO. 6 AND ANY OTHER THREE (3).
TIME ALLOWED: 2 $^{1/2}$ HRS

1. a) Briefly explain five (5) functions of SQL.

    b) Differentiate SQL and a DBMS.

    c) Describe the hierarchical data model along with its advantages and disadvantage.

    d) What is a relational database?

2. a) Explain the following terms:

    i) Primary Key

    ii) Foreign Key

    iii) Domain

    iv) Qualified column name

    v) Expressions

    b) Write the full form of the SELECT statement and explain any three of its clauses.

    c) Enumerate and briefly explain the SQL column functions

    d) What is the difference between a nested sub-query and a correlated sub-query?

3. a) What is Data Integrity?

    b) How does the DBMS enforce the required data constraint?

    c) What is the difference between the RESTRICT delete rule and CASCADE delete rule?

    d) Describe the three fundamental problems that could occur if transactions are not

    properly handled in a multi-user environment.

    e) Explain the term 'Referential Integrity'.

4. a) Explain the different types of locks that can be implemented at various levels of a database.

    b) Explain how a DBMS handles deadlock in a database.

    c) What is a trigger?

    d) Differentiate the shared lock and the exclusive locking schemes

5. a) Enumerate and briefly explain three (3) advantages and two (2) disadvantages of views.

    b) SQL-based DBMSs provide three different ways of adding new rows of data to a database table. List and briefly explain each of these methods.

    c) Explain the meaning of the term 'Privileges'.

    d) List and briefly explain the four basic privileges for tables and views in a database as specified by the SQL 1 standard.

6. a) Consider the database which consists of the three tables below to write the following SQL queries:

    i) Find the age of the oldest sailor.

    ii) Retrieve the names and the id's of Sailors who reserved a boat on the following days: 10/10/2008, 10/11/2008, 12/11/2008.

    iii) Retrieve the names of Sailors who reserved the "interlake" boat.

    iv) Reassign all the reservations made by the sailor with Sid 22 to the sailor with Sid 29.

    v) Delete the sailor named 'David'.

    vi) Create a view from the Sailors Table called 'SailorsRating' which has the following columns: Sname, Rating.

    b) Consider the following query:

```
SELECT S.Sname
       FROM Sailors S, Reservations R
       WHERE S.Sid = R.Sid
       AND R.Bid = 103
```

    i.   What does the query do?

    ii. Re-write the query above using a sub-query.

Sailors Table

Sid	Sname	Rating	Age
22	David	7	45
29	Bala	1	33
31	Lukman	8	55
32	Andy	8	25
58	Richard	10	35
64	Harold	7	35
71	Zubair	10	16
74	Helen	9	35
85	Ali	3	25
95	Bob	3	63

Reservations Table

Sid	Bid	Day
22	101	10/10/2008
22	102	10/10/2008
22	103	8/10/2008
22	104	7/10/2008
31	102	10/11/2008
31	103	6/11/2008
31	104	12/11/2008
64	101	5/9/2008
64	102	8/9/2008
64	103	8/9/2008

Boats Table

Bid	Bname	Colour
101	Interlake	Blue
102	Interlake	Red
103	Clipper	Green
104	Marine	Red

GOODLUCK