**Databases and SQL**

**Mid Term Exam**

Part 1: **Multiple-choice questions / Short Answer**

Read the questions and all the answers carefully. There should be only one correct answer for each question unless otherwise indicated. If you feel that you need to explain your answer feel free to do that. For this part of the exam you may **NOT** use your books.

1. Which of the following items is not a part of System development life cycle?
   1. Analysis of the system
   2. Marketing for the system
   3. Logical design
   4. Implementation
2. As an accounting system analyst which one of the following options you would **NOT** do in order to identify requirement of the system.
   1. Take an accounting course
   2. Interview an accountant
   3. Send a questionnaire to an accountant
   4. Show up in a an accounting firm and experience a typical day in accounting firm
3. Choose two traps that should be avoided when creating a database.
   1. Chasm traps
   2. Loophole traps
   3. Fan traps
   4. SNMP traps
4. When you have **a list of records** that are logically related to each other you have a
   1. Table
   2. Database
   3. Record list
   4. Record set
5. Which one of the following choices is **not** a benefit when you use a data base rather than a flat file
   1. Network support
   2. Faster search
   3. Better Performance
   4. Easy to use

OBS: I know it’s wrong because I found the answer while I’m researching for the last task but it’s not fare change my answer now.

1. Using a name field as a primary key for a table (Choose all that apply)
   1. Is recommended because that’s all the information that you have
   2. Is recommended because it is the most unique type of data
   3. Is not recommended because it can be duplicated
   4. Is not recommended because there are various ways of typing a name
2. A composite key is a key that is built based
   1. On a number field
   2. On a combination of fields
   3. On a Character field
   4. On any field
3. Explain about Junction Table.

Is a table used to connect two or more tables with foreign keys, this table don’t need to have a primary key.

1. Which one of the following items is **not** a factor to choose a specific RDBMS
   1. Operating system that you are using
   2. Performance
   3. Number of fields that you have
   4. Price of the database
2. Which one of the following codes you will use for coding all states in US and provinces in Canada if you were supposed to do it by numbers only
   1. Two digit integer number
   2. AutoNumber – It’s automatic so I don’t need to bother
   3. Two digit real number with one digit decimal point
   4. Three digit real number with two digit decimal point
3. Which field datatype is “Short Text” ?
   1. Stores up to 255
   2. Stores up to 65,000 – I think this is the long one
4. If you have two entities, one for student information and the other for sport teams that they can be a member of, what is your multiplicity? (any students can join mor than one sports team)
   1. One to one
   2. One to many
   3. Many to many
   4. Many to one
5. If you have an entity for students and another one for courses what is your multiplicity? (any students can take more than one course)
   1. One to one
   2. Many to one
   3. One to many
   4. Many to many

Part 2 **TRUE/FALSE questions**

In this section you are given a statement. This statement may always be true or false or it can be either true or false under different conditions. Only Answering true or false will not grant you any credit. You should justify your answer with a brief explanation. For this part of the exam you may **NOT** use your books

1. In order to create a requirement specification document for a hospital management software you need to interview every single employee in the hospital

False, because you just need to understand the environment and what information you need to store, how you can reach or manipulate these information and how often you will need to change the contents so you can be prepared for this changes.

1. Having multiple information in one field is recommended

False – Because if you have more than one information in the same field you need to break this information in a new table.

1. Entities and the fields of table are different names for the same thing

False – the field is just a space or a cell in your table, like a white canvas to be filled, and the entity is a content that will have some relationships in your database.

1. Update anomalies could only occur when electricity is disconnected from the database server

False- Update anomalies can occur for many reason, even the user can cause some anomalies if the input or manipulation of the data is done without the proper knowledge.

1. When you have a chasm trap you can still resolve every non primary key field with the primary key

False – If you have a Chasm Trap you need to rethink your relation design, not just change your primary keys.

Part 3  **Design**

1. You are recently hired at a bookstore, which is, specializes in scientific books. They are not using computerized system yet. Since you have computer background they have put you in charge for designing the system. The whole process of Purchasing, returning and sales should be computerized. Only computer books are returnable to the whole sales and you are charged for 5% restocking in 30 days period after purchasing date. After 30 days you may not return the books. All other science books are final sales. Your company accepts credit and debit cards as well as cash for books. For each book the minimum number of available books in stock should be 5, meaning that you may only purchase if you have less than five books in stock.

You are supposed to do the followings

Create the ER(entity relationship) model for the system

Design the database for the system with MS Access(Use form for data entry)

Normalize the database with 1NF, 2NF and 3NF. You don’t need to show the each process though.

Good luck